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Demo Stand
"Sales & Operations Planning on the Optimacros Platform"

Contents

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Goals of the demo booth

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> Organizing directories; storing master data in one place

> Automate the formation of a single sales plan

> Sales forecasting by different methods (statistical, marketing, financial, etc.)

> Automatic accounting and optimization of production limits, supplies, capacities, etc.

> Comparison of constraint optimization scenarios

> Flexible statistical prediction with a choice of statistical method and degree of emission cleaning

> Viewing data and schedules in nomenclature as well as branch sections

> Detailed Ecom Planning

About the demo booth

The Sales and Operations Planning (S&OP) process is a set of monthly activities aimed at turning a company's strategic plan into concrete steps for implementation.

Model created for a stationery manufacturer

On the main dashboard, users will have access to the four main sections of the model:

> Sales planning
> Production and supply planning
> Consensus sales plan
> Reporting

The following three key charts are also available on the dashboard:

> Profit and loss statement
> Sales dynamics
> Warehouse occupancy

Sales planning

Statistical planning

Sales department

ECOM

Production and supply

Production parameters

Capacity limits

Shipping options

Consensus

Consensus sales plan

Balancing

Reporting

PL

Forecast/Fact LY/Fact YTD analysis

S&OP scheme of operation

Sales planning

Statistical, ECOM, etc. sales forecasting

Data collection

Actual data on sales, shipments, etc.

Consensus sales plan

Forming a unified sales plan

Unified sales and operations plan

Creating a single sales plan, taking into account various constraints

Supply planning

Limitations on working hours, production capacity, etc.

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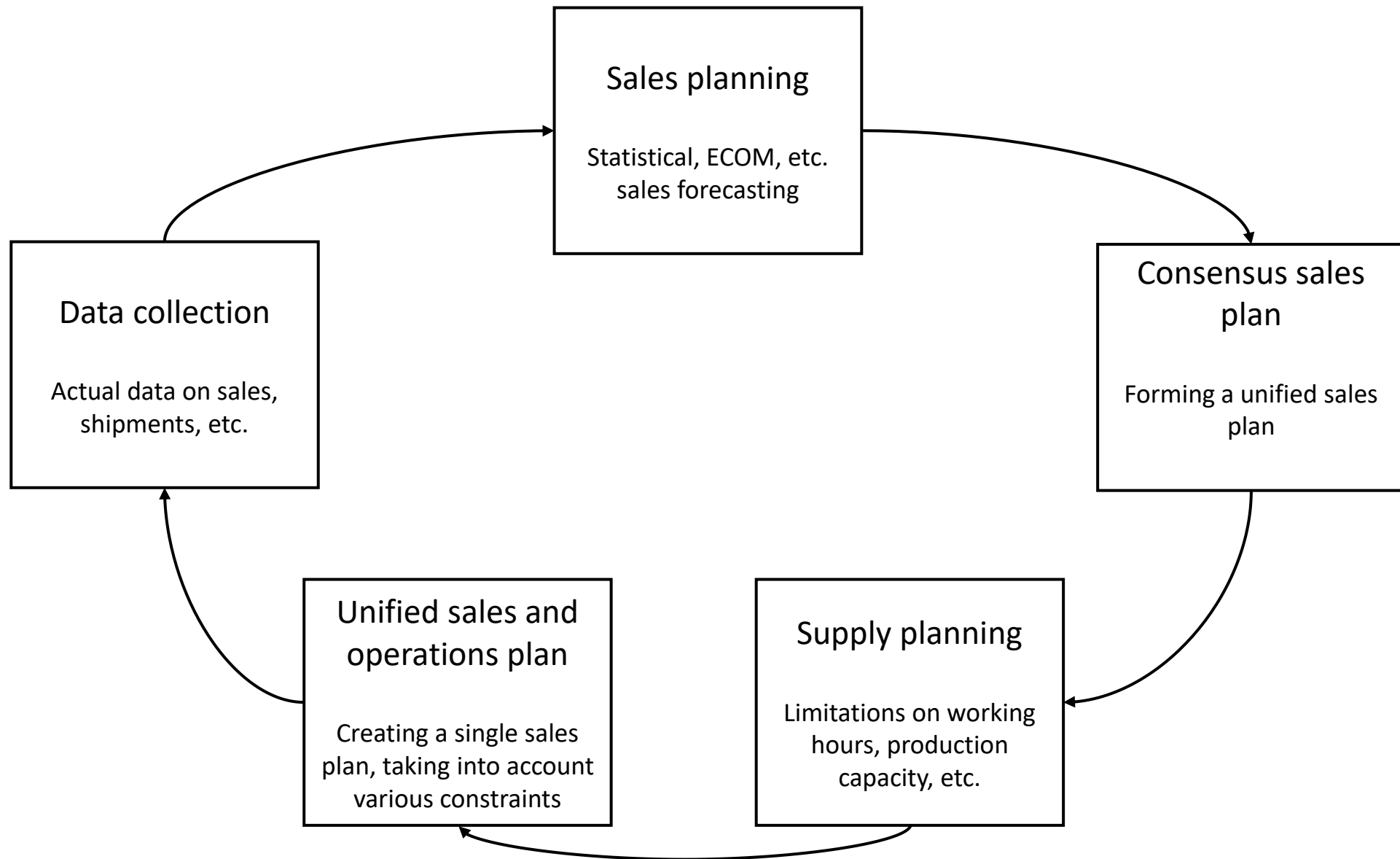
Statistical planning

Sales planning is done with the help of statistical forecasting. The "Statistical planning" dashboard presents the available methods. Here you can choose the forecasting period, the forecasting method directly and the result of the forecast displayed on the "Fact vs forecast" chart, which is available in the branch and nomenclature sections. The predictive power of the methods is displayed in the "Comparison of Method Accuracy" table and is measured by comparing the forecast of the previous period and the actual data.

Forecasting period input

	Jan 21	Feb 21	Mar 21	Apr 21
Forecasting period	☑	☑	☑	☑

Selecting Forecasting Methods

Optimal forecast method	Linear regression + seasonality
Manual selection of forecasting method	Exponential smoothing + seasonality + Linear regression
Final method	Exponential smoothing + seasonality + Linear regression

Fact vs forecast chart
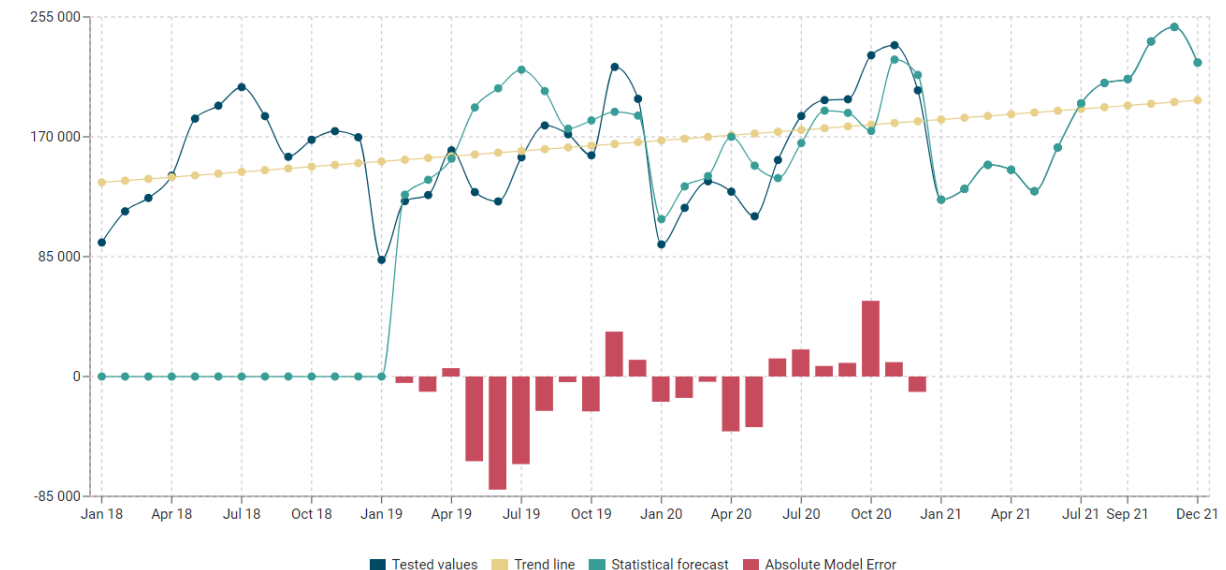
Comparison of methods accuracy

	Exponential smoothing + seasonality + Linear regression	Linear regression + seasonality
Method deviation	24 176	23 556
Method accuracy	83.69%	84.08%
Estimation of forecast accuracy	Moderate	Moderate

Statistical planning

The "Statistical Planning" dashboard, provides a list of available methods in the model.

By clicking on one of them, users will find detailed instructions on how to utilize the selected method.

Also, the user can learn the theory of the selected method.

Exponential smoothing

Linear regression

Simple moving average

Hyperbolic regression

Croston Method

↑ Main menu

Linear regression

Method theory

Linear regression

A mathematical equation that estimates a simple (pairwise) linear regression line:

$$Y=a+bx$$

x called the independent variable or predictor.
Y – dependent variable or response variable. This is the value we would expect for y (on average) if we knew the value of x, i.e., it is the "predicted value of y"
• a – free term (intersection) of the estimate line; this is the value of y when x=0 (Figure 1).
• b – the angular coefficient or gradient of the estimated line; it represents the amount by which Y increases on average if we increase x by one unit.
• a и b are called regression coefficients of the estimated line, although the term is often used only for b.

Figure 1. Linear regression line showing the intersection of a and the angular coefficient of b (the amount of increase in Y if we increase x by one unit)

↑ Main menu

Method theory

Statistical planning

Linear regression

Instructions:
1) Enter test values in the input form
• the time interval should not contain gaps unless you plan to use the Croston method (for example: all months from January to December 21 contain data, the excluded ones should stay empty). You should avoid building a predictive model on a small number of time intervals.
2) Fill in Boolean-cube "Forecast period"
• it should include the entire period of data for analysis and some forecasting periods
3) Enter the values of the coefficients a and b in the form, then analyze the graph
• the smaller the average absolute error of the model is, the more accurate the forecast will be
• potential applicability should be evaluated comprehensively (type of the process being predicted, accuracy of the resulting model, visual analysis of the chart)

⋮ **Linear trend options**

coefficient a	0
coefficient b	0
Optimal a	1 239.36
Optimal b	136 426.80
Final a	1 239.36
Final b	136 426.80
Average x	18.50
Average y	159 355.06
Dx (dispersion of the x series)	108
Dx (dispersion of the y series)	1 462 243 281
σx (squared deviation of the x series)	10.39
σy (squared deviation y series)	38 239.29
r - sample correlation coefficient	0.3367
Current absolute error of the LR model	23 556.40
Current LR forecast accuracy	84.08%

⋮ **Forecasting period input**

	Jan 21	Feb 21	Mar 21	Apr 21	May 21	Jun 21	Jul 21	Aug 21	Sep 21	Oct 21
Forecasting period	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔

⋮ **Forecast and allocation calculation**

	Jan 18	Feb 18	Mar 18	Apr 18	May 18	Jun 18	Jul 18	Aug 18	Sep 18	Oct 18
Tested values	95 063	117 139	126 651	142 467	182 900	192 104	205 234	184 685	155 826	167 87
Forecast	137 666	138 906	140 145	141 384	142 624	143 863	145 102	146 342	147 581	148 82
Forecast (seasonal + linear regression)	0	0	0	0	0	0	0	0	0	
Absolute model error	0	0	0	0	0	0	0	0	0	
Relative model error	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00
Average absolute model error	23 556.40	23 556.40	23 556.40	23 556.40	23 556.40	23 556.40	23 556.40	23 556.40	23 556.40	23 556.4

Statistical planning

On the "Statistical Planning" dashboard, there are the following subsections: "Adjusting Input Data," "General Timeline," and "Check Methods by Category"

In the "Correction of input data" section, the user has access to the emission control. Here is a block of data correction, it is applied when an outlier appears and you need to change the data for accuracy of the prediction. (The model automatically detects and highlights an outlier)

Additionally, the dashboard features a line chart to visualize the identification of emissions.

↑ Main menu

Input data correction

Whole timeline

Methods by categories

⋮ **Outliers calculation**

	Jan 18	Feb 18	Mar 18	Apr 18	May 18
Totals for analysis	34	30	15	615	68
Corridor -σ. . .+σ	✓	✓	✓		✓
Corridor -2σ. . .+2σ	✓	✓	✓		✓
Corridor -3σ. . .+3σ	✓	✓	✓	✓	✓
Outlier					
Overlap on	0	0	0	0	0

⋮ **Input data correction**

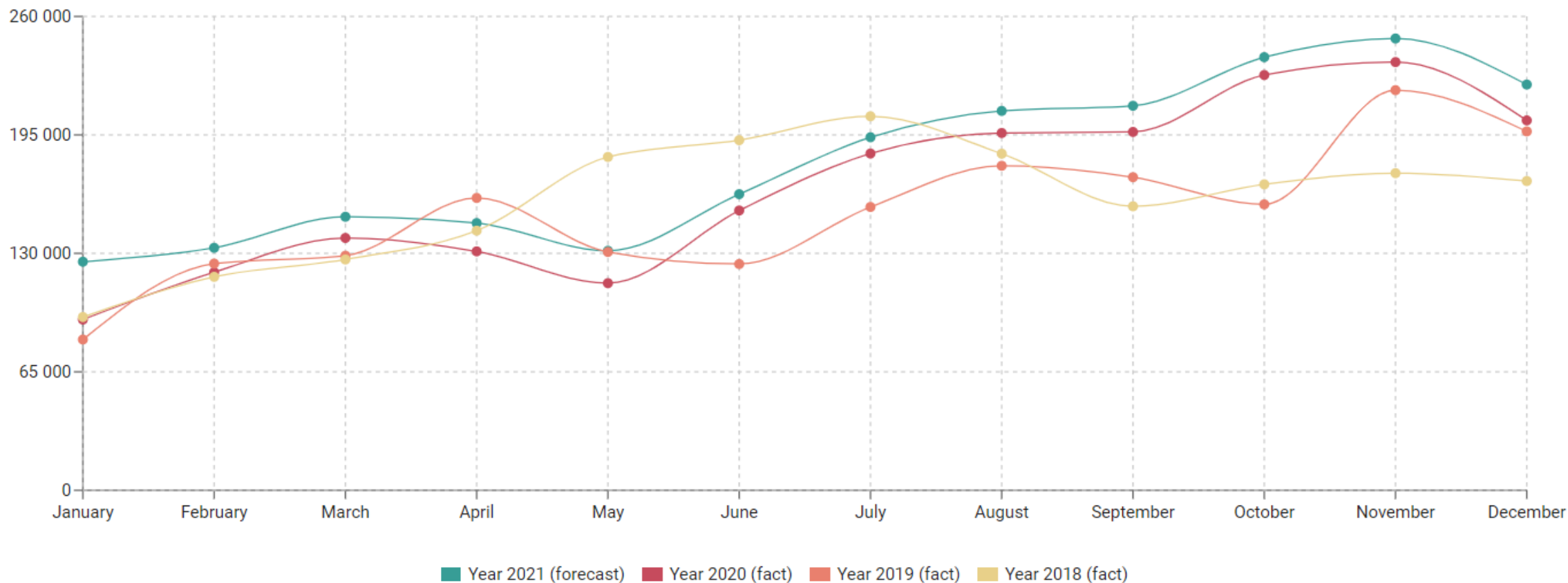|	Jan 18	Feb 18	Mar 18	Apr 18	May 18
Initial data for the analysis	95 063	117 139	126 651	142 467	182 900
Manual data correction	0	0	0	0	0
Totals for analysis	95 063	117 139	126 651	142 467	182 900

Input data and outliers chart
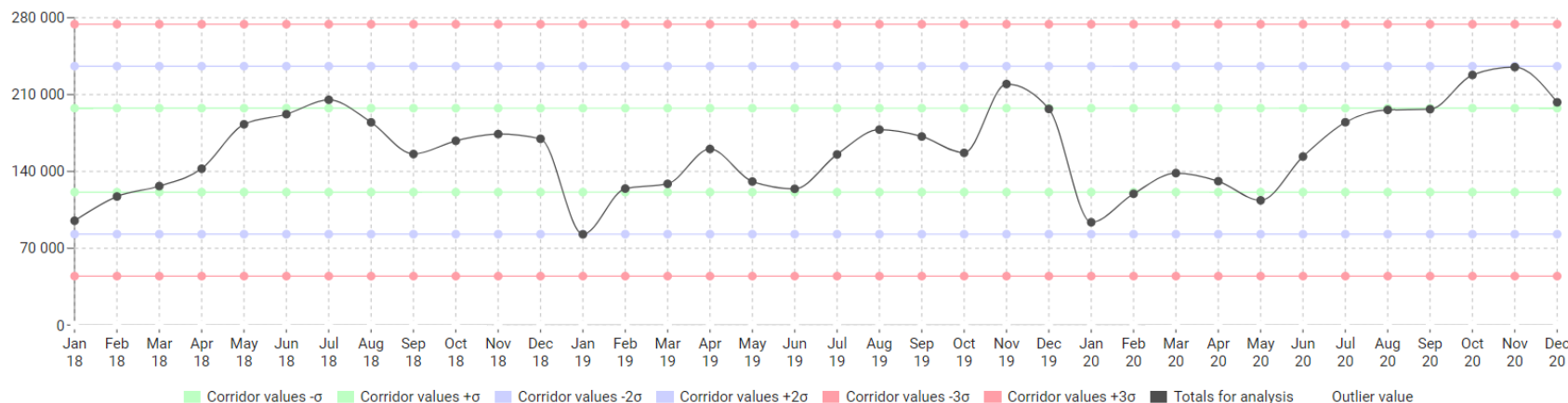
Statistical planning

The "General timeline" section presents a chart comparing the fact and the forecast over the entire time period.

Fact vs forecast chart on the whole timeline

Year 2021 (forecast) ◼ Year 2020 (fact) ◼ Year 2019 (fact) ◼ Year 2018 (fact)

Statistical planning

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The "Check methods by category" section provides a table for selecting a prediction method for each nomenclature. It presents recommended methods and fields for manual method selection.

⋮ **Selecting Forecasting Methods**

|	Optimal forecast method	Manual selection of forecasting method	Final method
Total Nomenclature	**Linear regression + seasonality**	**Exponential smoothing + seasonality + Linear regres...**	**Exponential smoothing + seasonality + Linear regressi...**
Writing equipment	Hyperbolic regression + seasonality	Simple moving avera + seasonality + Linear regression	Simple moving avera + seasonality + Linear regression
Daily planners	Exponential smoothing + seasonality + Linear regression		Exponential smoothing + seasonality + Linear regressi...
Notepads and record books	Simple moving avera + seasonality + Linear regression	Exponential smoothing + seasonality + Linear regres...	Exponential smoothing + seasonality + Linear regressi...
Business Card Holder		Exponential smoothing + seasonality + Linear regres...	Exponential smoothing + seasonality + Linear regressi...
2-Hole Punch	Hyperbolic regression + seasonality		Hyperbolic regression + seasonality
Staplers	Simple moving avera + seasonality + Linear regression	Exponential smoothing + seasonality + Linear regres...	Exponential smoothing + seasonality + Linear regressi...
Staples		Hyperbolic regression + seasonality	Hyperbolic regression + seasonality
Scissors		Simple moving avera + seasonality + Linear regression	Simple moving avera + seasonality + Linear regression
Calendars	Exponential smoothing + seasonality + Linear regression		Exponential smoothing + seasonality + Linear regressi...
Pencil cases	Linear regression + seasonality		Linear regression + seasonality
Shoe bags	Exponential smoothing + seasonality + Linear regression	Simple moving avera + seasonality + Linear regression	Simple moving avera + seasonality + Linear regression
Sharpeners		Exponential smoothing + seasonality + Linear regres...	Exponential smoothing + seasonality + Linear regressi...
Paperclips	Linear regression + seasonality		Linear regression + seasonality
Self-adhesive labels	Hyperbolic regression + seasonality		Hyperbolic regression + seasonality
Photo paper		Hyperbolic regression + seasonality	Hyperbolic regression + seasonality
Folders		Simple moving avera + seasonality + Linear regression	Simple moving avera + seasonality + Linear regression
Kid's Briefcase A4	Exponential smoothing + seasonality + Linear regression		Exponential smoothing + seasonality + Linear regressi...
Envelopes	Hyperbolic regression + seasonality	Exponential smoothing + seasonality + Linear regres...	Exponential smoothing + seasonality + Linear regressi...
Notebook bags	Exponential smoothing + seasonality + Linear regression		Exponential smoothing + seasonality + Linear regressi...
Stickers	Simple moving avera + seasonality + Linear regression		Simple moving avera + seasonality + Linear regression
Notepads and notebooks	Simple moving avera + seasonality + Linear regression		Simple moving avera + seasonality + Linear regression
Alphabet books		Simple moving avera + seasonality + Linear regression	Simple moving avera + seasonality + Linear regression

Sales Department

Now we can proceed to the "Sales Department" section, where we can plan sales by counterparty.

Here the user has access to the sales plan in different views and slices - graphs, tables, by industry, by year, by month, etc.

If necessary, the user can adjust the sales plan with the filled-in columns. (highlighted in blue)

⋮ **Sales plan chart by industry**
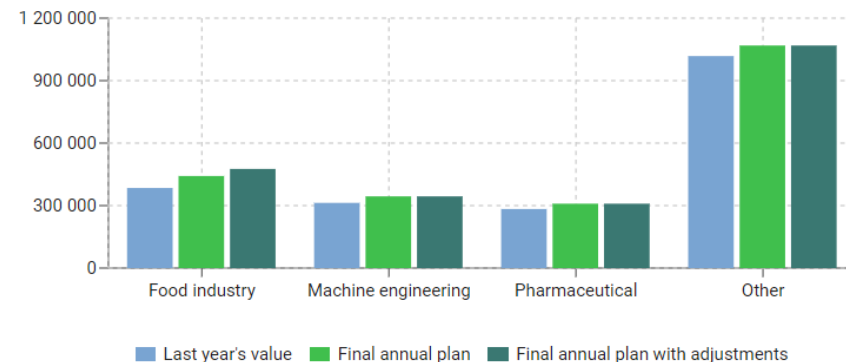
■ Last year's value   ■ Final annual plan   ■ Final annual plan with adjustments

⋮ **Sales split by industry**

	Industry	Previous year sales	% Sales by Industry	Final annual plan	Overall growth rate	Adjustment?	Adjustment	Final annual plan with adjustments
.Food industry		**384 475**	**100.00%**	**442 146**				**476 137**
VegaFast	Food industry	57 046	14.84%	65 603	15.00%	☑	15.00%	75 443
Burganic	Food industry	54 850	14.27%	63 077	15.00%	☑	30.00%	82 001
Tortilicious	Food industry	18 234	4.74%	20 969	15.00%	☐	0.00%	20 969
Pancake World	Food industry	22 727	5.91%	26 136	15.00%	☑	20.00%	31 363
Sweet Munchies	Food industry	39 603	10.30%	45 543	15.00%	☐	0.00%	45 543
SnackBar Express	Food industry	40 754	10.60%	46 867	15.00%	☐	30.00%	46 867
Sugar Fix	Food industry	32 992	8.58%	37 941	15.00%	☐	30.00%	37 941
Fred's Tacos Corner	Food industry	12 836	3.34%	14 761	15.00%	☐	30.00%	14 761
Fatty Fingers	Food industry	13 200	3.43%	15 180	15.00%	☐	0.00%	15 180
Curry Out	Food industry	8 445	2.20%	9 712	15.00%	☐	0.00%	9 712
Rapido	Food industry	149	0.04%	171	15.00%	☐	0.00%	171

⋮ **Sales plan by months 2021**   .Food industry ▼

	Jan 21	Feb 21	Mar 21	Apr 21	May 21	Jun 21	Jul 21	Aug 21	Sep 21	Oct 21	Nov 21	Dec 21
End value	17 042	23 462	21 536	27 524	36 745	33 355	41 302	34 090	63 092	76 032	65 331	36 626

ECOM

The ECOM user section has two subsections: "Advertising Analysis" and "Attendance of the site," as well as two key graphs - a chart of income by advertising type and a histogram of site traffic.

ECOM Advertising ROAS ▾

Legend: Targeted advertising - Yandex, Targeted advertising - Google, Email Soldier Services, SMS mailings

ECOM traffic

Legend: Total profit, Advertising Profit, Website profit
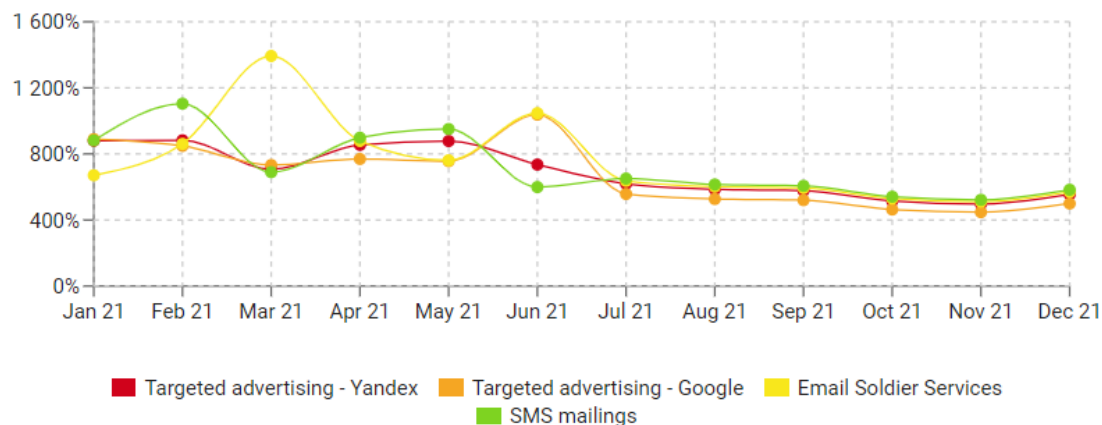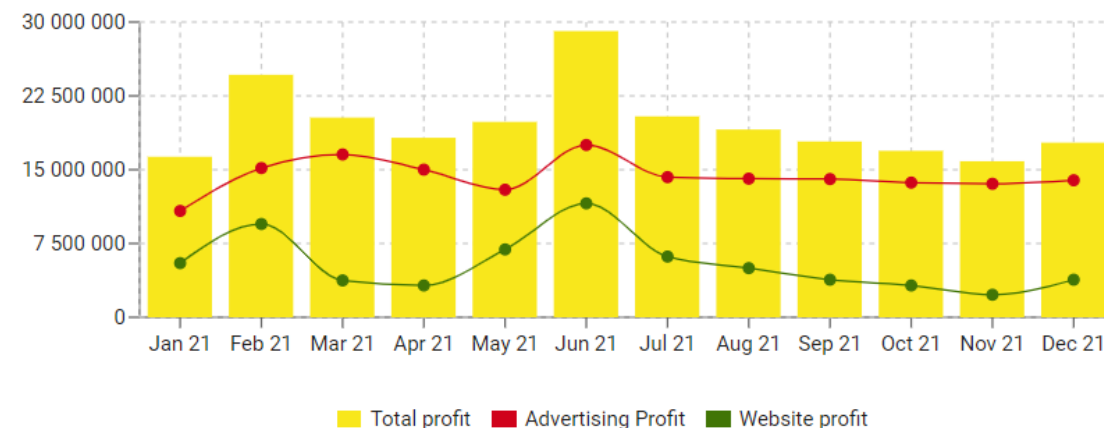
ECOM

The Advertising Analysis subsection contains the Marketing Budget Planning table, where the annual budget is entered. In the Marketing Plan table, the budget is allocated by advertising sites and months. After entering the budget, users have access to the "ECOM" table, where they will enter the number of views, transactions, the price of the average contract and receives the costs and revenues of advertising by month, in addition to the number of clicks for each site.

Advertising analysis

Website traffic

Marketing budget FY21 ▾

Year budget	30 000 000
Unencumbered year budget	0
Funds not used	191

Marketing plan

	Jan 21	Feb 21	Mar 21	Apr 21	May 21	Jun 21	Jul 21	Aug 21
Total	1 480 000	1 840 000	2 120 000	2 000 000	1 760 000	2 320 000	2 760 000	2 920 000
CPA/Yandex	370 000	460 000	530 000	500 000	440 000	580 000	690 000	730 000
Targeted advertising - Yandex	370 000	460 000	530 000	500 000	440 000	580 000	690 000	730 000
CPA/Google	370 000	460 000	530 000	500 000	440 000	580 000	690 000	730 000
Targeted advertising - Google	370 000	460 000	530 000	500 000	440 000	580 000	690 000	730 000
Email	370 000	460 000	530 000	500 000	440 000	580 000	690 000	730 000
Email Soldier Services	370 000	460 000	530 000	500 000	440 000	580 000	690 000	730 000
SMS	370 000	460 000	530 000	500 000	440 000	580 000	690 000	730 000
SMS mailings	370 000	460 000	530 000	500 000	440 000	580 000	690 000	730 000

ECOM Jan 21 ▾

	Views	Clicks	Transactions	Average contract price	Expenses	Revenue
Total	1 415 640	190 078	10 383	1 192	1 479 980	12 287 863
CPA/Yandex	314 182	52 333	3 046	1 069	369 994	3 255 939
Targeted advertising - Yandex	314 182	52 333	3 046	1 069	369 994	3 255 939
CPA/Google	356 492	46 954	2 690	1 223	369 998	3 290 438
Targeted advertising - Google	356 492	46 954	2 690	1 223	369 998	3 290 438
Email	348 853	39 403	1 974	1 257	369 994	2 481 432
Email Soldier Services	348 853	39 403	1 974	1 257	369 994	2 481 432
SMS	396 113	51 388	2 672	1 220	369 994	3 260 055
SMS mailings	396 113	51 388	2 672	1 220	369 994	3 260 055

ECOM

Additionally, the dashboard provides a table with indicators for advertising performance and indicative graphics (eg to compare the advertising sites).

Advertising analysis

Website traffic

Performance indicators (KPIs) Jan 21

	CTR	CPC	CR	ROAS	ROMI	CPO	CRR
Total	14%	7.89	5.44%	830%	730%	146	12%
CPA/Yandex	17%	7.07	5.82%	880%	780%	121	11%
Targeted advertising - Yandex	17%	7.07	5.82%	880%	780%	121	11%
CPA/Google	13%	7.88	5.73%	889%	789%	138	11%
Targeted advertising - Google	13%	7.88	5.73%	889%	789%	138	11%
Email	11%	9.39	5.01%	671%	571%	187	15%
Email Soldier Services	11%	9.39	5.01%	671%	571%	187	15%
SMS	13%	7.20	5.20%	881%	781%	138	11%
SMS mailings	13%	7.20	5.20%	881%	781%	138	11%

E-com Clicks

Advertising KPIs Total

Legend (E-com): Targeted advertising - Yandex, Targeted advertising - Google, Email Soldier Services, SMS mailings

Legend (Advertising KPIs): Expenses, Revenue, ROAS

ECOM
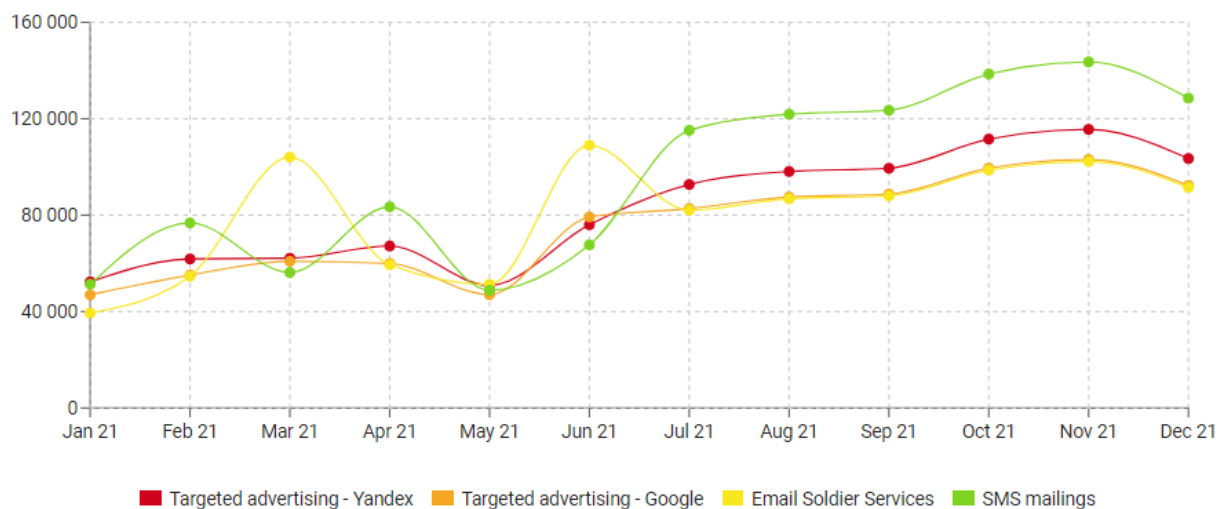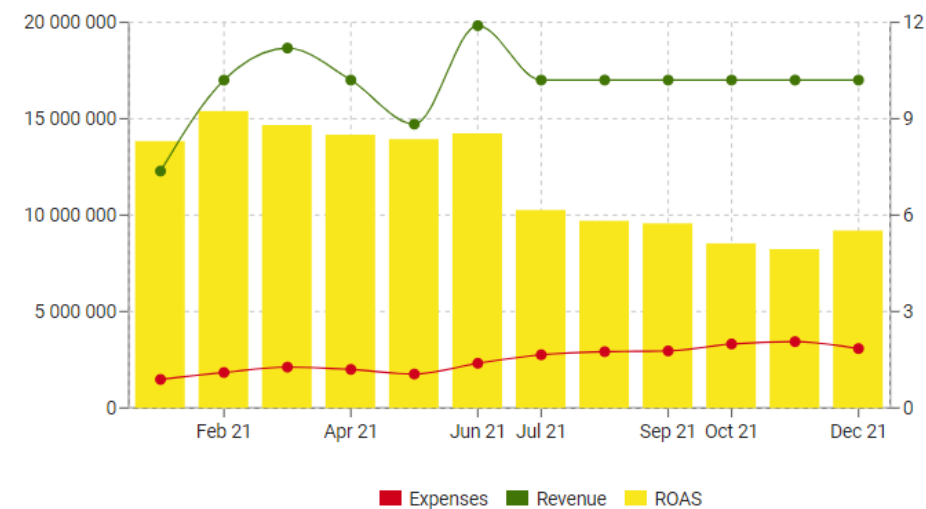
In the "Website traffic" subsection, users are presented all the information in the context of time on the indicators and metrics of the site in comparison with similar indicators of advertising (profit, conversion, etc.)

Indicators

	Total profit	Advertising Profit	Website profit	Website and advertising conversion rate	Ads conversion rate	Website conversion rate
Jan 21	16 313 085	10 807 884	5 505 201	6%	5%	8%
Feb 21	24 641 470	15 162 862	9 478 608	5%	5%	6%
Mar 21	20 293 456	16 545 790	3 747 666	6%	5%	18%
Apr 21	18 239 076	15 005 344	3 233 732	5%	5%	6%
May 21	19 858 879	12 961 546	6 897 333	6%	6%	5%
Jun 21	29 082 793	17 509 221	11 573 571	6%	5%	13%
Jul 21	20 415 967	14 245 360	6 170 607	5%	4%	19%
Aug 21	19 081 214	14 085 357	4 995 857	4%	4%	8%
Sep 21	17 866 454	14 045 347	3 821 107	4%	4%	6%
Oct 21	16 919 077	13 685 345	3 233 732	4%	3%	5%
Nov 21	15 859 283	13 565 352	2 293 932	3%	3%	2%
Dec 21	17 746 461	13 925 354	3 821 107	4%	4%	10%
All Periods	236 317 215	171 544 763	64 772 452	5%	4%	7%

Income
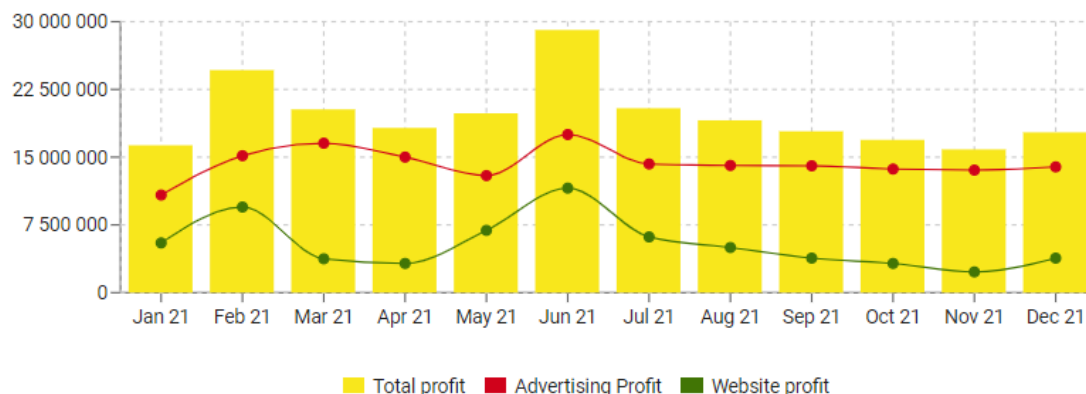
Conversion
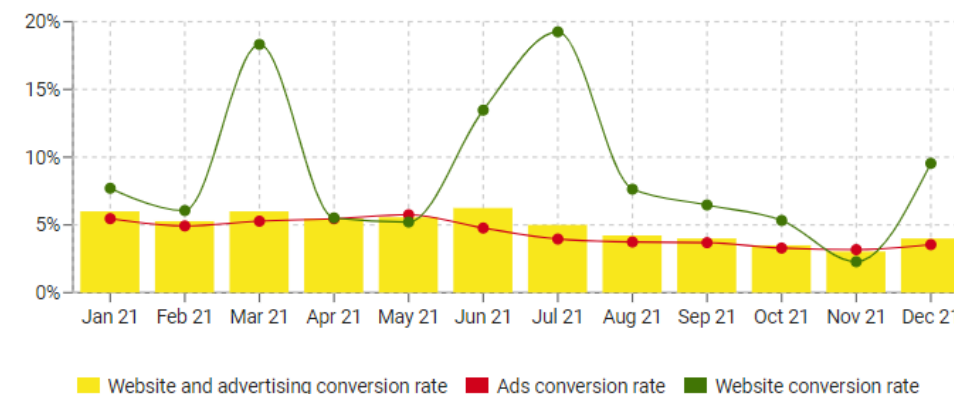
Consensus sales plan

By going to the Consensus Sales Plan section, users will be able to find the consensus of the different sales forecasts. If necessary, users may enter the final consensus manually (highlighted in blue) or set it with a complex formula based on each forecast.

Consensus multicube chart

Legend: Statistical forecast — Sales department — Ecom — Consensus
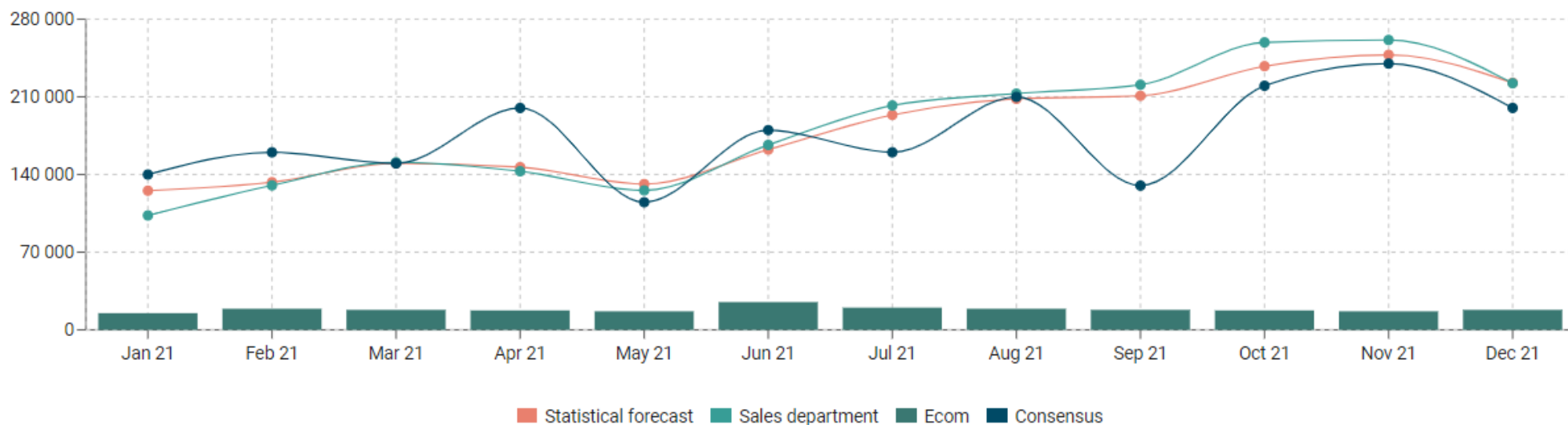
⋮ Consensus multicube

	Jan 21	Feb 21	Mar 21	Apr 21	May 21	Jun 21	Jul 21	Aug 21	Sep 21	Oct 21	Nov 21	Dec 21
Statistical forecast	125 413	133 057	150 085	146 625	131 418	162 484	193 704	208 164	210 972	237 648	247 884	222 640
Sales department	103 087	130 194	150 986	142 944	125 679	166 688	202 229	212 954	220 956	259 115	261 281	222 312
Ecom	15 000	19 000	18 000	17 500	16 700	25 000	20 000	19 000	18 000	17 500	16 700	18 000
Consensus	140 000	160 000	150 000	200 000	115 000	180 000	160 000	210 000	130 000	220 000	240 000	200 000

Production parameters

After creating the sales plan, users may enter the production parameters and production limits. For example, in the Production parameters section, there is a table of production costs by nomenclature. You can either enter the data manually or specify it using a formula.

⋮ **Production cost**   Production cost EUR ▼   Helsinki Plant 1 ▼

	Jan 21	Feb 21	Mar 21	Apr 21	May 21	Jun 21	Jul 21	Aug 21	Sep 21	Oct 21	Nov 21	Dec 21
Total Nomenclature												
Writing equipment												
Erasable gel ink pen Edit 0.7mm, blue	91	91	91	91	91	91	91	91	91	91	91	91
Erasable gel ink pen Edit 0.7mm, black	75	69	71	64	74	73	41	81	100	62	45	63
Erasable gel ink pen Erase Slim 0,5mm, blue	98	75	75	100	81	73	73	46	100	55	67	51
Erasable gel ink pen Kite Smart 0,5mm	73	85	56	98	83	60	59	67	43	55	92	72
Erasable gel ink pen Kite Smart 0,5mm	49	81	72	91	83	41	87	96	78	62	45	56
Erasable gel ink pen Student 0,5mm	99	72	73	91	87	69	45	80	53	69	68	74
Capillary Pen Write-erase Twin	64	42	76	92	55	86	73	82	43	55	68	84
Corvina ballpoint pen CLASSIC 0.7mm	48	47	84	59	64	99	62	41	53	63	58	49
Ballpoint pen Cristal 0.4mm	74	99	71	92	100	69	48	87	58	51	99	77
Ballpoint pen Cristal Grip 0.4mm	55	51	69	59	49	90	46	52	49	100	99	67
Ballpoint pen DIREKT 0.5mm	69	61	99	49	51	87	75	91	69	52	45	96
Ballpoint pen G-Gold 0.7mm	68	77	75	49	47	48	62	50	47	67	70	56
Ballpoint pen ICE 1.0mm, blue	98	77	56	100	49	41	67	91	85	45	84	62
Ballpoint pen JOBMAX NORMA 0,7mm	47	47	80	79	90	62	96	50	76	68	64	76
Ballpoint pen KAPRICE 0.38mm	52	73	80	68	43	92	73	50	50	82	50	83
Ballpoint pen MILAGRO 0,5mm	59	98	70	96	56	62	87	80	84	98	78	89
Ballpoint pen Orange 0,36mm	78	61	49	96	77	84	48	59	89	53	44	81
Ballpoint pen Orange Grip 0,36mm	47	91	70	82	75	71	52	73	84	98	99	91

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Delivery Options
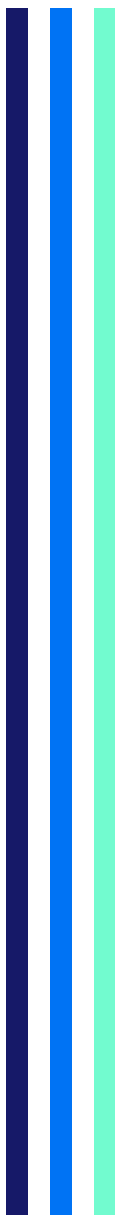
Similar to the "Production Parameters" section, users may enter or set the delivery cost with a formula.

⋮ **Shipping cost**   Shipping costs ▾

		Jan 21	Feb 21	Mar 21	Apr 21	May 21	Jun 21	Jul 21	Aug 21	Sep 21	Oct 21	Nov 21	Dec 21
Helsinki Plant 1	Kyiv	30	30	30	30	30	30	30	30	30	30	30	30
	Helsinki	6	6	6	6	6	6	6	6	6	6	6	6
	Berlin	35	35	35	35	35	35	35	35	35	35	35	35
	Warsaw	35	35	35	35	35	35	35	35	35	35	35	35
	Oslo	40	40	40	40	40	40	40	40	40	40	40	40
	Milan	40	40	40	40	40	40	40	40	40	40	40	40
Helsinki Plant 2	Kyiv	25	25	25	25	25	25	25	25	25	25	25	25
	Helsinki	7	7	7	7	7	7	7	7	7	7	7	7
	Berlin	37	37	37	37	37	37	37	37	37	37	37	37
	Warsaw	36	36	36	36	36	36	36	36	36	36	36	36
	Oslo	41	41	41	41	41	41	41	41	41	41	41	41
	Milan	41	41	41	41	41	41	41	41	41	41	41	41
Warsaw Plant	Kyiv	5	5	5	5	5	5	5	5	5	5	5	5
	Helsinki	12	12	12	12	12	12	12	12	12	12	12	12
	Berlin	40	40	40	40	40	40	40	40	40	0	0	0
	Warsaw	45	45	0	0	0	0	0	45	45	45	45	45
	Oslo	30	30	0	0	0	0	0	30	30	30	30	30
	Milan	30	30	30	30	30	30	30	30	30	30	30	30

Capacity limitations

Users may also enter production limits in the "Capacity limits" section. In our model, the restrictions are represented by the number of working hours per day, production volumes per day, the number of rented storage facilities and their capacity.
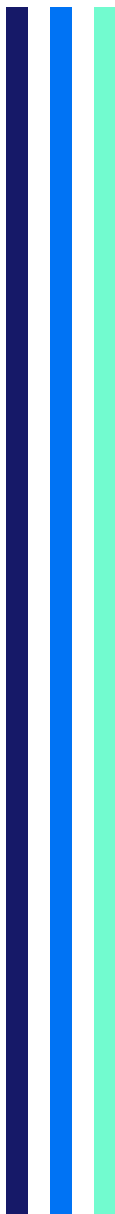
If you press the first "optimize" button, the production will be optimized only with the number of working hours and the production volume.

⚙ Optimize

Production limits

Enter working hours limits per day, then click "Optimize".

⋮ **Working hours limits**

		Year	January	February	March	April	May	June	July	August	September	October	November	December
	Total	576	48	48	48	48	48	48	48	48	48	48	48	48
Number of working hours per day	Helsinki Plant 1	192	16	16	16	16	16	16	16	16	16	16	16	16
	Helsinki Plant 2	192	16	16	16	16	16	16	16	16	16	16	16	16
	Warsaw Plant	192	16	16	16	16	16	16	16	16	16	16	16	16
	Total	1 440 000	120 000	120 000	120 000	120 000	120 000	120 000	120 000	120 000	120 000	120 000	120 000	120 000
Production limits	Helsinki Plant 1	480 000	40 000	40 000	40 000	40 000	40 000	40 000	40 000	40 000	40 000	40 000	40 000	40 000
	Helsinki Plant 2	480 000	40 000	40 000	40 000	40 000	40 000	40 000	40 000	40 000	40 000	40 000	40 000	40 000
	Warsaw Plant	480 000	40 000	40 000	40 000	40 000	40 000	40 000	40 000	40 000	40 000	40 000	40 000	40 000

Capacity limitations

Storage capacity limits

Enter limits on the number of storage blocks, then click "Optimize"

⚙ Optimize

⋮ **Storage blocks limits**

		Year	January	February	March	April	May	June	July	August	September	October	November	December
	Total	576	48	48	48	48	48	48	48	48	48	48	48	48
Warehouse blocks rent, units	Helsinki Plant 1	192	16	16	16	16	16	16	16	16	16	16	16	16
	Helsinki Plant 2	192	16	16	16	16	16	16	16	16	16	16	16	16
	Warsaw Plant	192	16	16	16	16	16	16	16	16	16	16	16	16
	Total	5 760 000	480 000	480 000	480 000	480 000	480 000	480 000	480 000	480 000	480 000	480 000	480 000	480 000
Warehouse capacity, units	Helsinki Plant 1	1 920 000	160 000	160 000	160 000	160 000	160 000	160 000	160 000	160 000	160 000	160 000	160 000	160 000
	Helsinki Plant 2	1 920 000	160 000	160 000	160 000	160 000	160 000	160 000	160 000	160 000	160 000	160 000	160 000	160 000
	Warsaw Plant	1 920 000	160 000	160 000	160 000	160 000	160 000	160 000	160 000	160 000	160 000	160 000	160 000	160 000

Optimizer

Optimization of shipments with volume limitations

Target: ☐ Highlight

'Sales optimization'.'Margin profit (without limits)'

Variables: ☐ Highlight

'Sales optimization'.'Sales VAR (without limits)'{CellFilter: "CHILDCELLS", BooleanFilter: 'Sales optimization'.'Sales NE 0'}

Constraints: ☐ Highlight

'Flat table for optimizer'.'Sales control (unlimited)'{CellFilter: "CHILDCELLS", BooleanFilter: 'Flat table for optimizer'.'Is production possible?'} > 0

Balancing

The "Balancing" dashboard, provides all available information for production optimization. A visual of the dashboard can be found on the next slide.

The graphs "Marginal Profit"(1) and "Sales"(2) show a comparison of the corresponding indicators without restrictions (i.e., sales plan), taking into account production volume limitations and taking into account storage space limitations.

The "Archive" table(3) stores the scenarios of each optimization process and reflects the values of revenue, cost, gross profit, etc., for each scenario.

The "Product movement" table (4) shows the number of products produced and shipped in each month, for each plant, broken down by nomenclature.

At the top of the dashboard, are the "Reset"(5), "Save Script"(6), and "Clear Archive"(7) buttons, which help you work with each optimization script, i.e., save or delete the current script or delete all scripts. These functions are performed using scripts – an example will be shown on the "Scripts" slide.

Users also have the option to optimize production without limitation by the same name button(8), i.e., to display the sales plan.

Sales planning
Statistical planning
Sales department
ECOM

Production and supply
Production parameters
Capacity limits
Shipping options

Consensus
Consensus sales plan
Balancing

Reporting
PL
Forecast/Fact LY/Fact YTD analysis

Dashboard "Balancing"

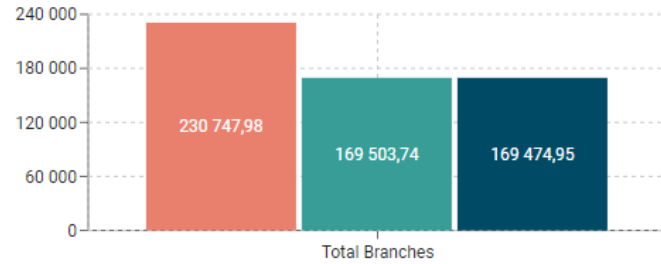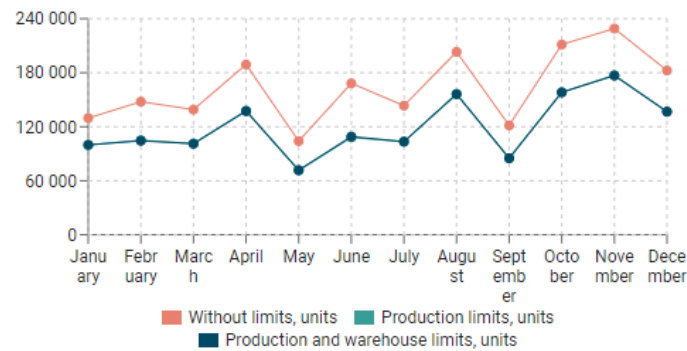**8)** ⚙ Optimize without limits   Capacity limits   **5)** ✕ Reset   **6)** ⬇ Save the scenario   **7)** 🗑 Clear Archive   ⬆ Main menu

1) ⋮ **Marginal profit** Total ▾ Year ▾

| | Without limits TEUR | Production limits TEUR |
| Production and warehouse limits TEUR |

2) **Sales pcs.** Total ▾ Total Branches ▾

| | Without limits, units | Production limits, units |
| Production and warehouse limits, units |

4) ⋮ **Product movement** Total Nomenclature ▾

		Total	Helsinki Plant 1	Helsinki Plant 2	Warsaw Plant
January	Opening balance	0	0	0	0
	Produced	120 000	40 000	40 000	40 000
	Shipped	99 899	40 992	28 314	30 594
	Outgoing balance	20 101	-992	11 686	9 406
February	Opening balance	20 101	-992	11 686	9 406
	Produced	120 000	40 000	40 000	40 000
	Shipped	104 358	42 535	37 999	23 825
	Outgoing balance	35 743	-3 526	13 687	25 582
March	Opening balance	42 817	-2 535	10 850	34 501
	Produced	120 000	40 000	40 000	40 000
	Shipped	101 207	34 267	30 449	36 491
	Outgoing balance	61 610	3 198	20 402	38 010
April	Opening balance	74 042	20 302	27 916	25 823
	Produced	120 000	40 000	40 000	40 000
	Shipped	137 315	45 912	46 067	45 335
	Outgoing balance	56 727	14 390	21 849	20 488
May	Opening balance	58 528	22 668	6 980	28 881
	Produced	120 000	40 000	40 000	40 000
	Shipped	71 713	26 505	20 929	24 278
	Outgoing balance	106 816	36 162	26 051	44 603
June	Opening balance	123 031	37 194	54 803	31 034
	Produced	120 000	40 000	40 000	40 000
	Shipped	109 068	41 918	33 640	33 511
	Outgoing balance	133 963	35 276	61 163	37 523
July	Opening balance	134 630	36 795	50 758	47 077
	Produced	120 000	40 000	40 000	40 000
	Shipped	103 427	31 003	35 837	36 587
	Outgoing balance	151 203	45 791	54 921	50 490
August	Opening balance	154 878	52 964	47 872	54 041
	Produced	120 000	40 000	40 000	40 000
	Shipped	156 289	36 086	62 711	57 492
	Outgoing balance	118 589	56 878	25 161	36 550
September	Opening balance	111 768	37 686	28 258	45 824
	Produced	120 000	40 000	40 000	40 000
	Shipped	85 074	26 047	23 998	35 029

⋮ **PL** Fact LY ▾ Total Branches ▾

	Year
Revenue	307 544
Total cost	(116 420)
Gross profit	**191 124**
Warehouse rent	(17 280)
Staff costs	(57 600)
EBITDA	**116 244**

3) ⋮ **Archive** Year ▾

	Revenue	Total cost	Gross profit	Warehouse rent	Staff costs	EBITDA
Scenario 1	288 000	(118 796)	169 204	(86 400)	(288 000)	(205 196)
Scenario 2	0	0	0	0	0	0
Scenario 3	0	0	0	0	0	0
Scenario 4	0	0	0	0	0	0
Scenario 5	0	0	0	0	0	0
Scenario 6	0	0	0	0	0	0
Scenario 7	0	0	0	0	0	0
Scenario 8	0	0	0	0	0	0
Scenario 9	0	0	0	0	0	0

⋮ **Archive** Scenario 7 ▾ Year ▾

Working hours	
Warehouse rented capacities	

Reporting

Once users have generated a consensus sales plan and imposed the relevant production constraints, they will have access to a reporting section that will show a single sales and operations plan in the form of a classic P&L report and plan/actual comparison.

Sales planning

- Statistical planning
- Sales department
- ECOM

Production and supply

- Production parameters
- Capacity limits
- Shipping options

Consensus

- Consensus sales plan
- Balancing

Reporting

- PL
- Forecast/Fact LY/Fact YTD analysis

Forecast vs. Fact LY by branches — Revenue ▼ Year ▼

	Forecast	LY Fact	Forecast vs. Fact deviation LY	Forecast vs. Fact implementation LY
Total Branches	288 000	307 544	19 544	107%
Kyiv	49 678	60 347	10 669	121%
Helsinki	215 218	206 451	-8 767	96%
Berlin	4 133	7 524	3 392	182%
Warsaw	3 183	6 873	3 690	216%
Oslo	13 446	21 004	7 558	156%
Milan	2 342	5 345	3 002	228%

⋮ PL — Forecast ▼ Helsinki ▼

	Year	January	February	March	April	May	June	July	August	September	October	November	December
Revenue	215 218	15 973	13 353	13 978	18 967	10 684	13 453	15 285	26 009	12 942	25 440	28 776	20 359
Total cost	(83 638)	(6 323)	(5 460)	(5 404)	(7 790)	(4 290)	(5 418)	(5 877)	(10 245)	(4 944)	(9 255)	(11 113)	(7 519)
Gross profit	131 580	9 650	7 893	8 574	11 177	6 393	8 035	9 408	15 764	7 998	16 186	17 662	12 840
Warehouse rent	(17 280)	(1 440)	(1 440)	(1 440)	(1 440)	(1 440)	(1 440)	(1 440)	(1 440)	(1 440)	(1 440)	(1 440)	(1 440)
Staff costs	(57 600)	(4 800)	(4 800)	(4 800)	(4 800)	(4 800)	(4 800)	(4 800)	(4 800)	(4 800)	(4 800)	(4 800)	(4 800)
Insurance (average monthly)	(8 114)	(676)	(676)	(676)	(676)	(676)	(676)	(676)	(676)	(676)	(676)	(676)	(676)
Depreciation (average monthly)	(2 528)	(211)	(211)	(211)	(211)	(211)	(211)	(211)	(211)	(211)	(211)	(211)	(211)
Other expenses (average monthly)	(823)	(69)	(69)	(69)	(69)	(69)	(69)	(69)	(69)	(69)	(69)	(69)	(69)
Total expenses	(74 880)	(6 240)	(6 240)	(6 240)	(6 240)	(6 240)	(6 240)	(6 240)	(6 240)	(6 240)	(6 240)	(6 240)	(6 240)
EBITDA	56 700	3 410	1 653	2 334	4 937	153	1 795	3 168	9 524	1 758	9 946	11 422	6 600
Tax amount (average monthly)	(6 703)	(559)	(559)	(559)	(559)	(559)	(559)	(559)	(559)	(559)	(559)	(559)	(559)
Net profit	63 403	3 969	2 212	2 893	5 496	712	2 354	3 726	10 083	2 316	10 504	11 981	7 159

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Dashboard "Reporting"

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PL report by branches

⋮   **PL**   Forecast ▼   Helsinki ▼

	Year	January	February	March	April	May	June	July	August	September	October	November	December
Revenue	215 218	15 973	13 353	13 978	18 967	10 684	13 453	15 285	26 009	12 942	25 440	28 776	20 359
Total cost	(83 638)	(6 323)	(5 460)	(5 404)	(7 790)	(4 290)	(5 418)	(5 877)	(10 245)	(4 944)	(9 255)	(11 113)	(7 519)
Gross profit	**131 580**	**9 650**	**7 893**	**8 574**	**11 177**	**6 393**	**8 035**	**9 408**	**15 764**	**7 998**	**16 186**	**17 662**	**12 840**
Warehouse rent	(17 280)	(1 440)	(1 440)	(1 440)	(1 440)	(1 440)	(1 440)	(1 440)	(1 440)	(1 440)	(1 440)	(1 440)	(1 440)
Staff costs	(57 600)	(4 800)	(4 800)	(4 800)	(4 800)	(4 800)	(4 800)	(4 800)	(4 800)	(4 800)	(4 800)	(4 800)	(4 800)
Insurance (average monthly)	(8 114)	(676)	(676)	(676)	(676)	(676)	(676)	(676)	(676)	(676)	(676)	(676)	(676)
Depreciation (average monthly)	(2 528)	(211)	(211)	(211)	(211)	(211)	(211)	(211)	(211)	(211)	(211)	(211)	(211)
Other expenses (average monthly)	(823)	(69)	(69)	(69)	(69)	(69)	(69)	(69)	(69)	(69)	(69)	(69)	(69)
Total expenses	**(74 880)**	**(6 240)**	**(6 240)**	**(6 240)**	**(6 240)**	**(6 240)**	**(6 240)**	**(6 240)**	**(6 240)**	**(6 240)**	**(6 240)**	**(6 240)**	**(6 240)**
EBITDA	**56 700**	**3 410**	**1 653**	**2 334**	**4 937**	**153**	**1 795**	**3 168**	**9 524**	**1 758**	**9 946**	**11 422**	**6 600**
Tax amount (average monthly)	(6 703)	(559)	(559)	(559)	(559)	(559)	(559)	(559)	(559)	(559)	(559)	(559)	(559)
Net profit	**63 403**	**3 969**	**2 212**	**2 893**	**5 496**	**712**	**2 354**	**3 726**	**10 083**	**2 316**	**10 504**	**11 981**	**7 159**

⋮   **PL**   Forecast ▼   Helsinki ▼
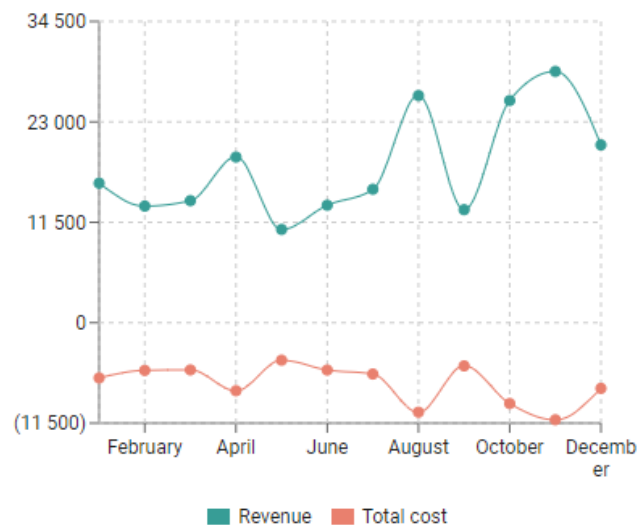
⋮   **PL**   Revenue ▼   Year ▼   Warsaw ▼

⋮   **PL**   Fact LY ▼   Revenue ▼   Year ▼

Legend (left chart): ■ Revenue   ■ Total cost

Legend (middle chart): ■ Fact LY   ■ Fact YTD   ■ Forecast

Pie chart values: 60 346.92, 5 344.62, 21 003.69, 6 872.92, 7 524.46, 206 451.08

Legend (pie chart): ■ Kyiv   ■ Helsinki   ■ Berlin   ■ Warsaw   ■ Oslo   ■ Milan
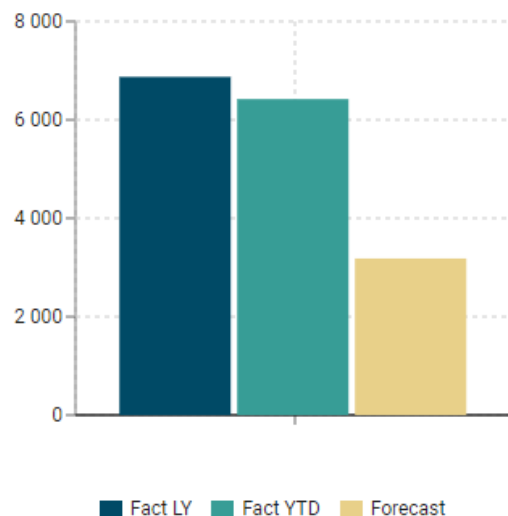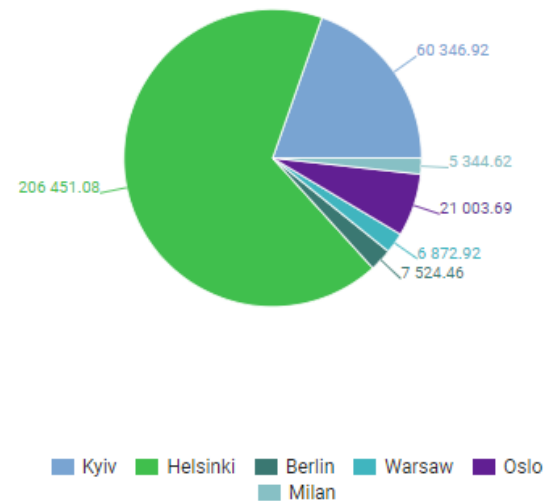
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