Factbird Power BI solution

Data analysis and visualization expertise provided by emendo DIGITAL

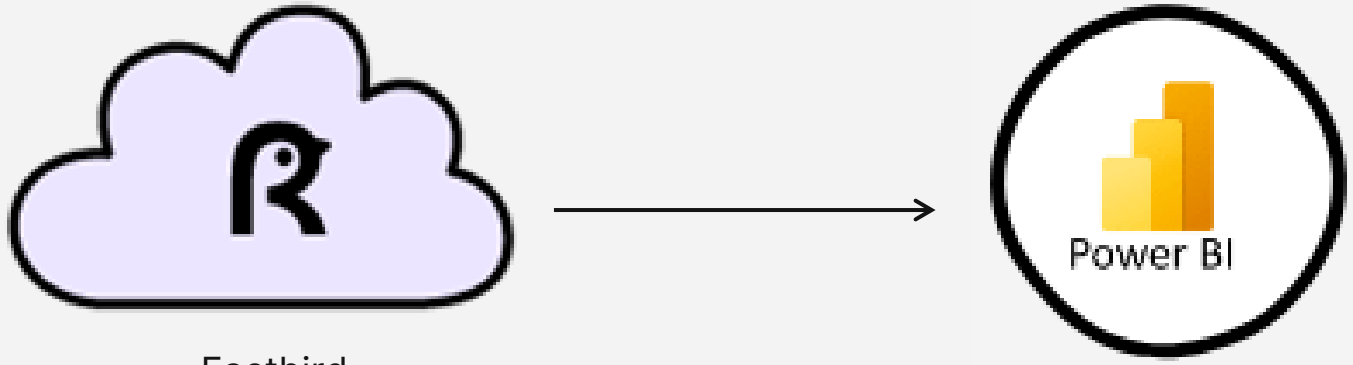
Best-practice cases

Cases are from various industries incl. pharma, medical product, food/beverage, automotive, building material, consumer good and industrial component manufacturer.

What is Factbird Power BI solution?

The Factbird offers capabilities that enable seamless integration with a wide array of BI solutions, such as Power BI, Tableau, and more.

Factbird Power BI solutions offer a range of customized reports and real-time dashboards tailored precisely to customers' needs and preferences..



Factbird

manufacturing intelligence software

Why are customers using Factbird Power BI solution?

Why customers are using:

- Automate the creation of both existing and new production reports, including shift reports, weekly reports, and site reports. This replaces the tedious process of paper-based reporting or manual spreadsheet reporting.
- Schedule the reports for automatic email distribution, ensuring they receive the reports no matter where they are.
- Design customized dashboards with real-time data to display exactly what they need on flat screens.
- Develop interactive reports for in-depth analysis of production performance tailored to specific requirements for performance calculation and visualization.

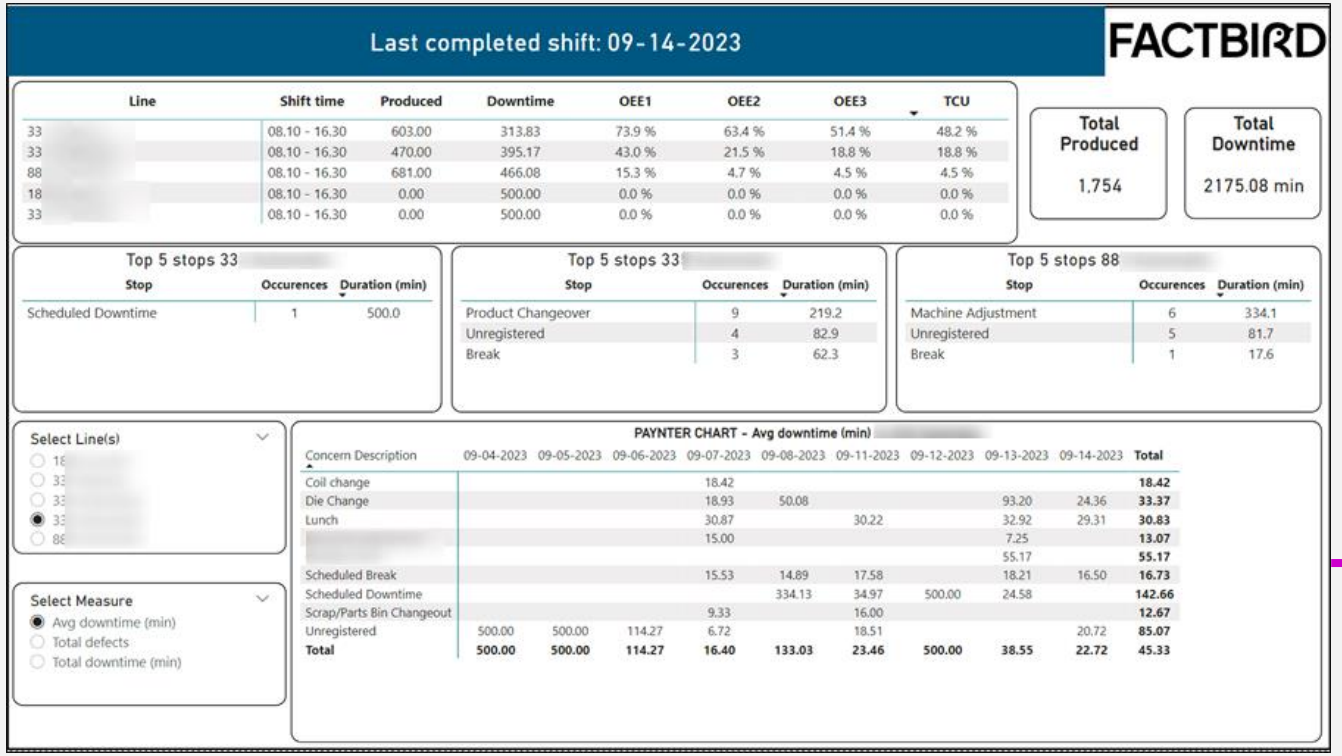
Shift report

How they use:
Daily shift report for multiple lines/machines
Downtime chart displaying downtime duration and the number of defects

Gain – customer case:
The customer receives the shift report every day and it has become a part of their daily routine to review it each morning when they start the day. They can see the production performance summery as well as downtime and its causes on each machine immediately, which helps the customer to dig into the major issue to improve with the shopfloor. The customer saying *"The report does not increase the productivity, but it gives the opportunity to do so"*. *(Industrial parts manufacturer)*

Summary of each machine in the latest shift

The top 5 causes of downtime for the 3 major machines



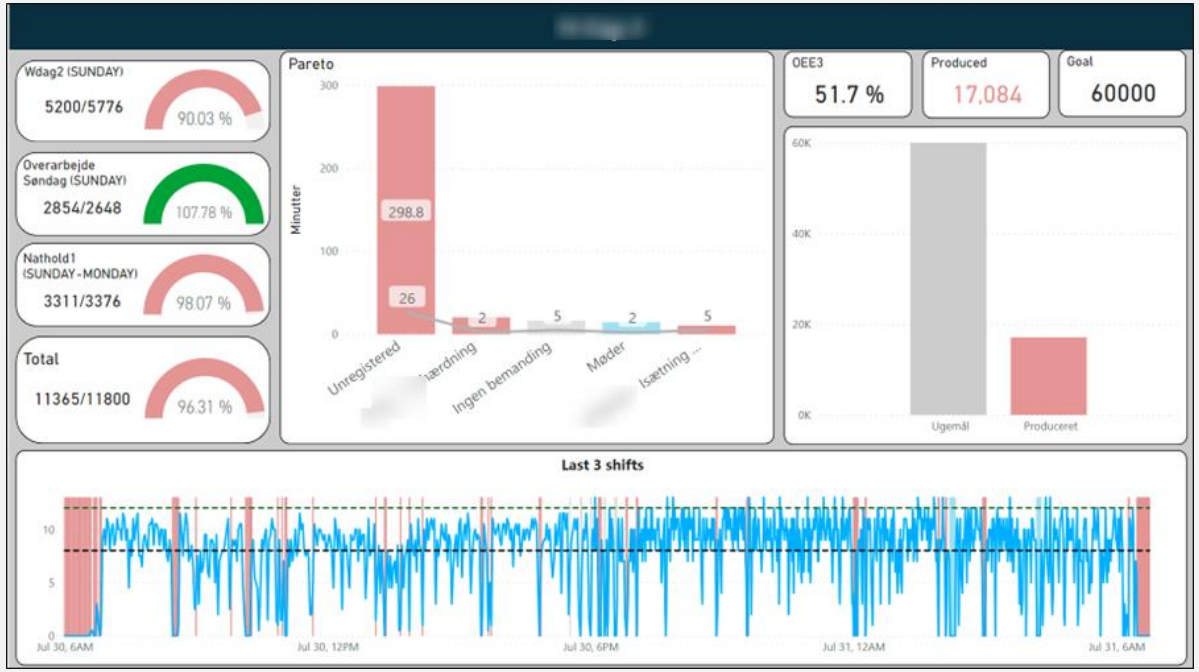
The downtime causes, their durations, and the number of defects for each machine over the past 9 days – showing development of issues historically

Shift report

How they use:
Daily report including each shift's result as well as major issues in the last 24 hours.

Gain – customer case:
The customer runs 3 shifts daily. The customer can get the overview of the last 24 hours including each shift's result and major downtime reasons as well as follow the progress against weekly goal. This helps the customer to find potential issues early and take action to achieve weekly goal as a team.
(Medical product manufacturer)

Result of each 3 shift and total



Progress against weekly goal

Production flow in the last 24 hours

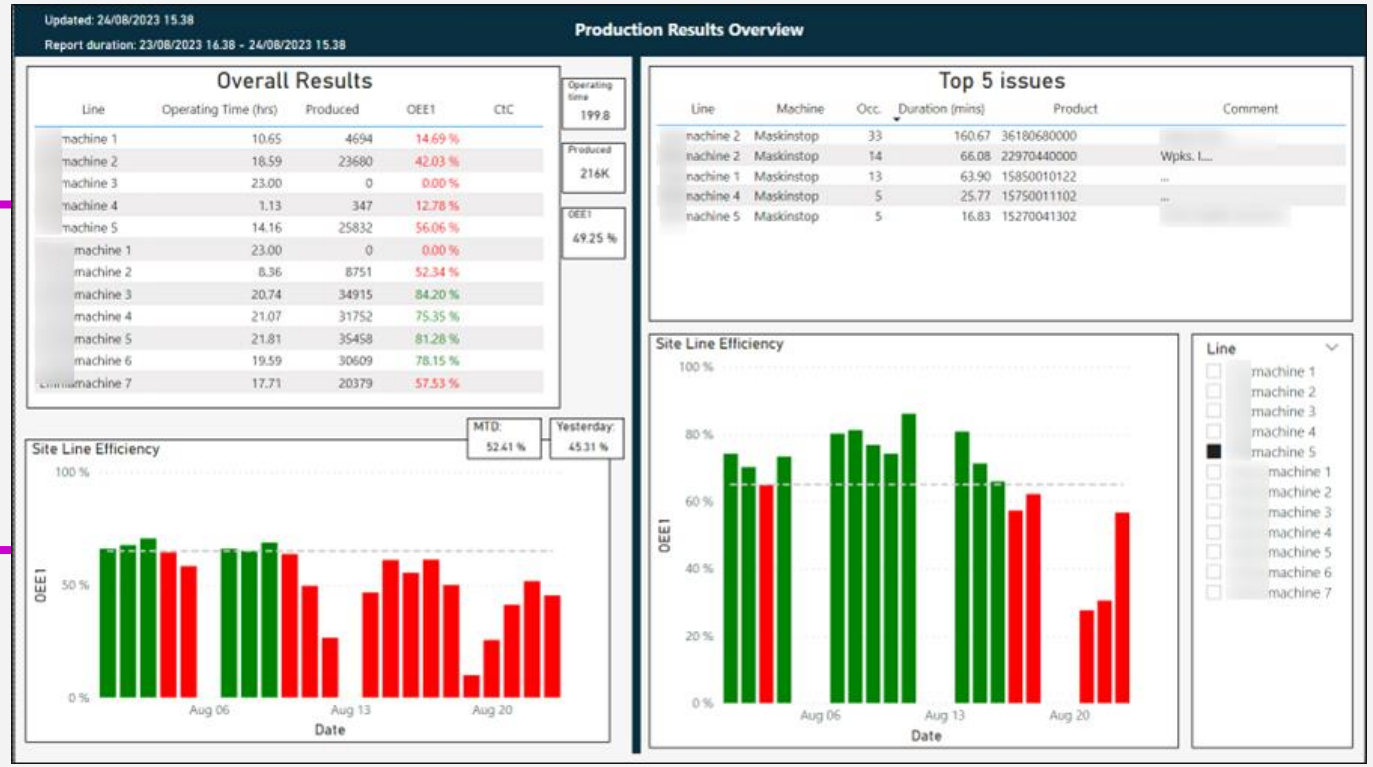
Daily report

How they use:
Daily report showing the production results for multiple lines against a target value – comparing efficiency across lines.
Site total OEE is shown in green or red daily

Gain – customer case:
The customer has multiple lines producing similar products. The customer can view a site-level overview that compares the efficiency and units produced of each line. Site-level OEE is visualized in red or green relative to the target, allowing the customer to quickly assess the overall health of the site. *(This template is used by various customers – beverage bottling manufacturer etc.)*

Comparing multiple lines that produce similar products.

Site level OEE against target



To look into each line's OEE, the customer can select which machines to be shown.

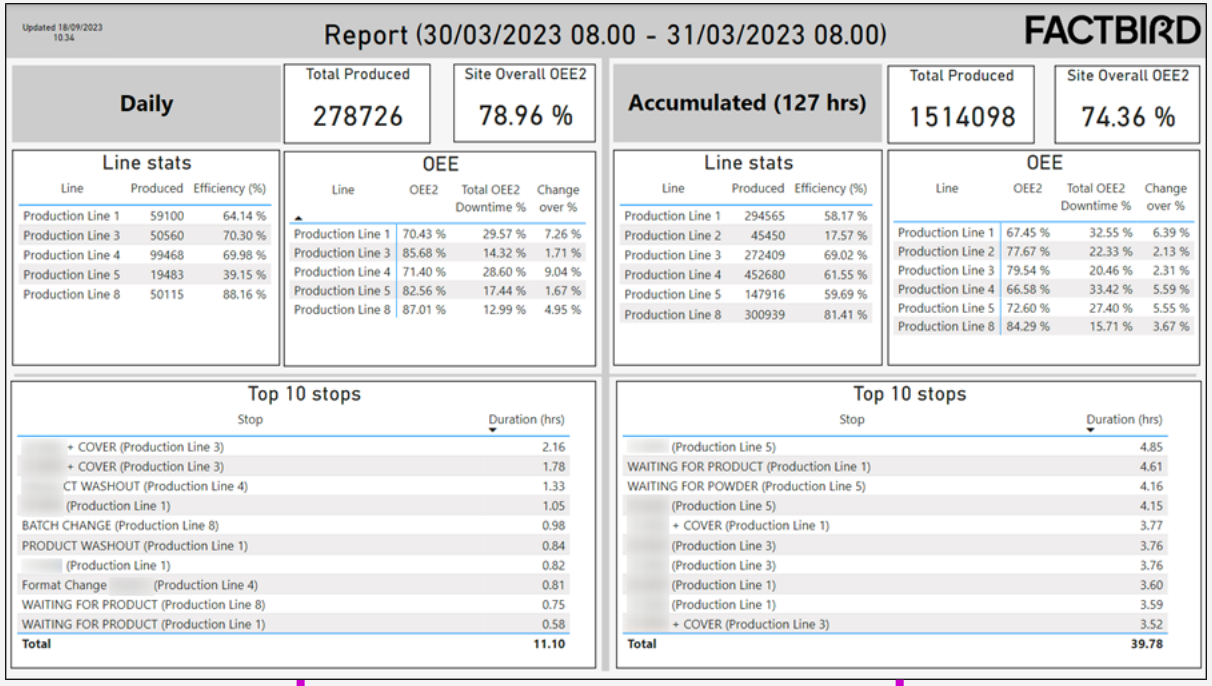
Daily report

How they use:
The daily report includes the results of multiple lines and highlights major issues from the past 24 hours. It also provides a visualization of the weekly accumulated results.

Gain – customer case:
The customer can view the site-level overview, including the daily and weekly accumulated performance of each line. This enables the customer to identify the most significant issues at the site level and allocate resources to resolve them for maximum gain. *(clearing liquid product manufacturer)*

Each lines performance

Top 10 stop causes in site level



Daily result

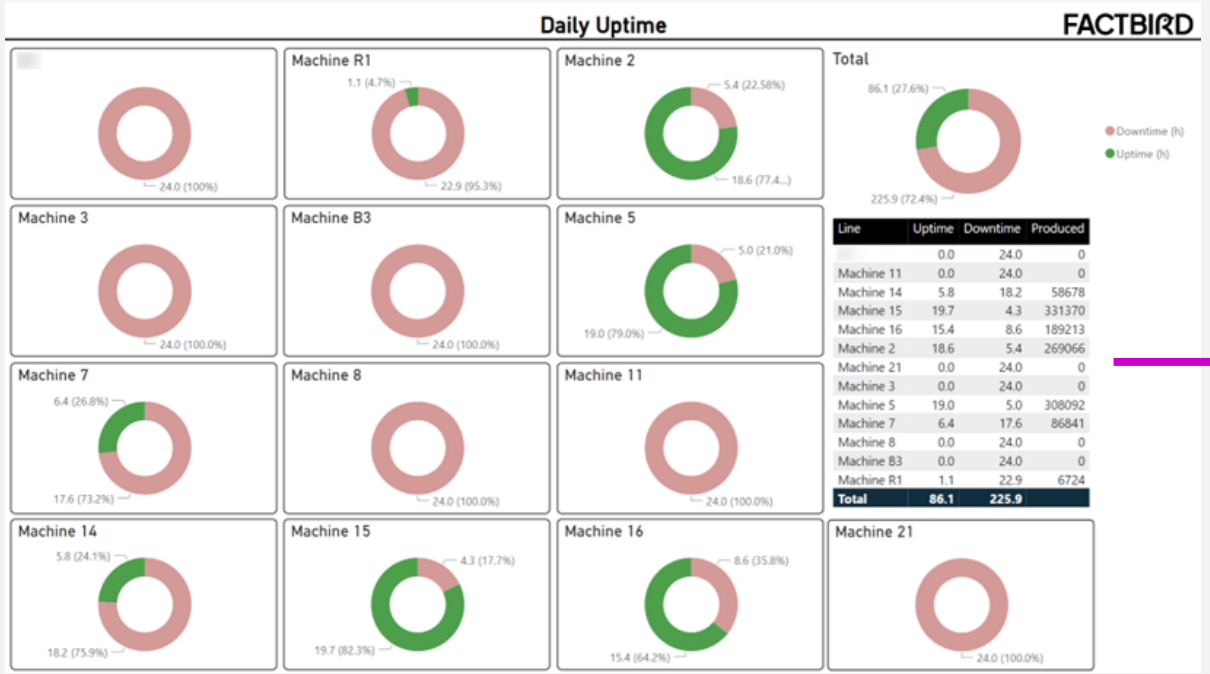
Weekly accumulated result

Daily report

How they use:
Daily uptime status of multiple machines as well as the number of parts produced.

Gain – customer case:
The customer has many standalone machines producing various industrial components, where the uptime of each machine is one of the key performance indicators. The customer can view the daily uptime/downtime results of each machine, represented in red or green at the end of each shift. This has been an eye-opener in assessing how well or poorly the machines are utilized. *(Industrial component producer)*
**This template is suitable for factories with many stand-alone machines, e.g. CNC machines, Injection molding machines, tablet presses, metal presses.*

Each machine's uptime visualized daily



The chart showing uptime/downtime and number of parts produced on each machine.

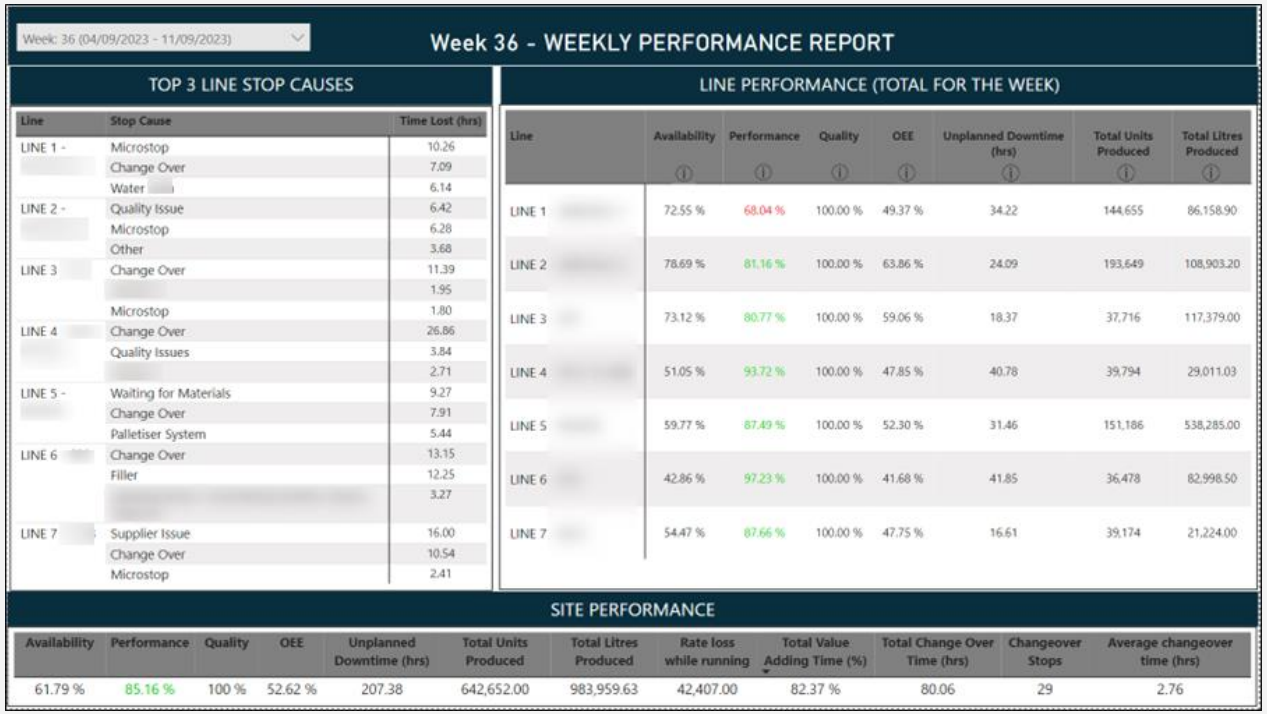
Weekly report

How they use:
Weekly performance report of total site as well as individual lines with top 3 downtime causes for each lines.

Gain – customer case:
The customer can view the weekly performance overview of each line, along with the site's total performance data, including changeover performance. The customer can make week-to-week comparisons by selecting a week from the pull-down menu in the top left. Additionally, the customer is calculating other performance metrics, such as labor cost for each shift, which is utilized by their finance department. *(Automotive supply product manufacturer)*

Select week

Each line's top 3 downtime reasons for the week



Line	Stop Cause	Time Lost (hrs)
LINE 1 -	Microstop	10.26
	Change Over	7.09
	Water	6.14
LINE 2 -	Quality Issue	6.42
	Microstop	6.28
	Other	3.68
LINE 3	Change Over	11.39
		1.95
	Microstop	1.80
LINE 4	Change Over	26.86
	Quality Issues	3.84
		2.71
LINE 5 -	Waiting for Materials	9.27
	Change Over	7.91
	Palletiser System	5.44
LINE 6	Change Over	13.15
	Filler	12.25
		3.27
LINE 7	Supplier Issue	16.00
	Change Over	10.54
	Microstop	2.41

Line	Availability	Performance	Quality	OEE	Unplanned Downtime (hrs)	Total Units Produced	Total Litres Produced
LINE 1	72.55 %	68.04 %	100.00 %	49.37 %	34.22	144,655	86,158.90
LINE 2	78.69 %	81.16 %	100.00 %	63.86 %	24.09	193,649	108,903.20
LINE 3	73.12 %	80.77 %	100.00 %	59.06 %	18.37	37,716	117,379.00
LINE 4	51.05 %	93.72 %	100.00 %	47.85 %	40.78	39,794	29,011.03
LINE 5	59.77 %	87.49 %	100.00 %	52.30 %	31.46	151,186	538,285.00
LINE 6	42.86 %	97.23 %	100.00 %	41.68 %	41.85	36,478	82,998.50
LINE 7	54.47 %	87.66 %	100.00 %	47.75 %	16.61	39,174	21,224.00

Availability	Performance	Quality	OEE	Unplanned Downtime (hrs)	Total Units Produced	Total Litres Produced	Rate loss while running	Total Value Adding Time (%)	Total Change Over Time (hrs)	Changeover Stops	Average changeover time (hrs)
61.79 %	85.16 %	100 %	52.62 %	207.38	642,652.00	983,959.63	42,407.00	82.37 %	80.06	29	2.76

Each line's weekly performance, OEE, Downtime, units produced etc.

Site performance, including changeover performance

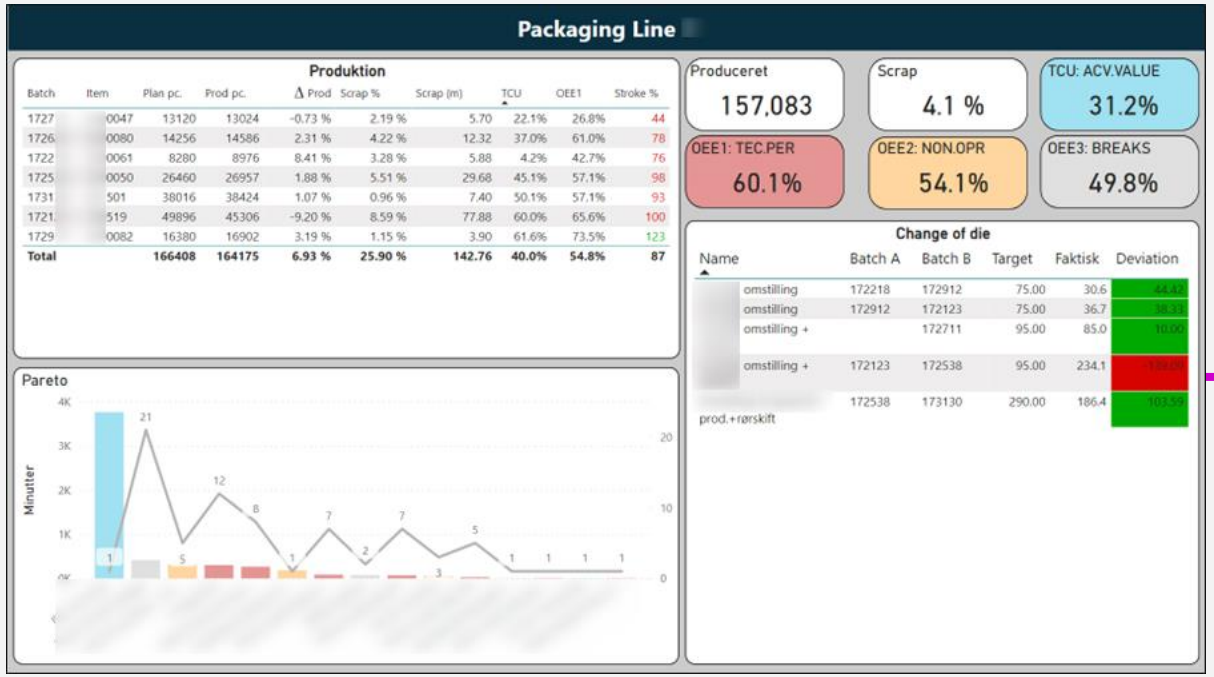
Weekly report

How they use:
Weekly report showing the batches that have been produced in the week, along with various KPI's and targets, including scrap rate.
Changeover performance calculated and visualized.

Gain – customer case:
The customer runs batch-based production and can monitor the performance of each batch, including waste (scrap and scrap rate). The customer also tracks changeover performance between batches, enabling them to determine if changeovers have met their targets, as changeover is major downtime.
(Food manufacturer)

Each batch's performance including OEE and scrap rate.

Downtime reasons parato chart

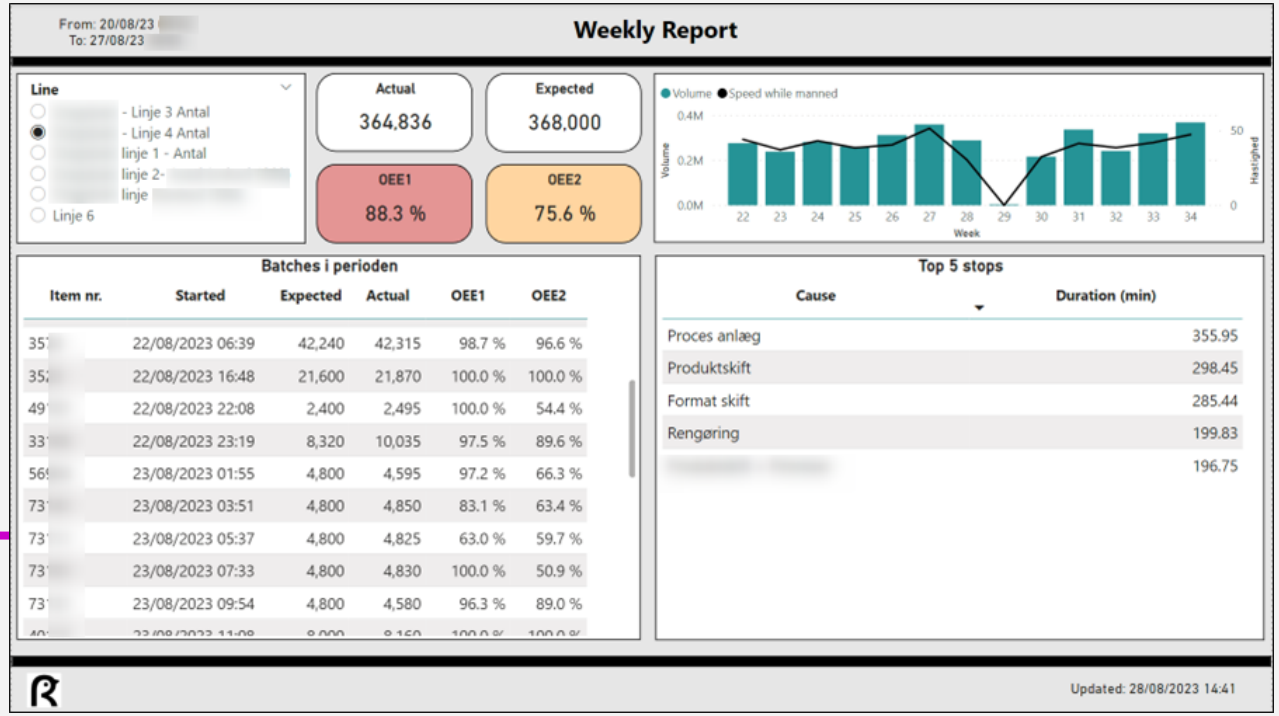


Change over performance against target

Weekly report

How they use:
Weekly report showing actual output vs expected output, including each batch's performance.
The batches displayed in a table along with key measures.

Gain – customer case:
The customer runs batch-based production and OTIF (On-time-in-full) is a KPI for delivery performance. The customer can track OTIF "did we deliver the batch at the planned time and was the volume as expected" weekly.



Each batch performance for OTIF tracking (On-Time-In-Full)

Weekly productivity trend: speed and volume

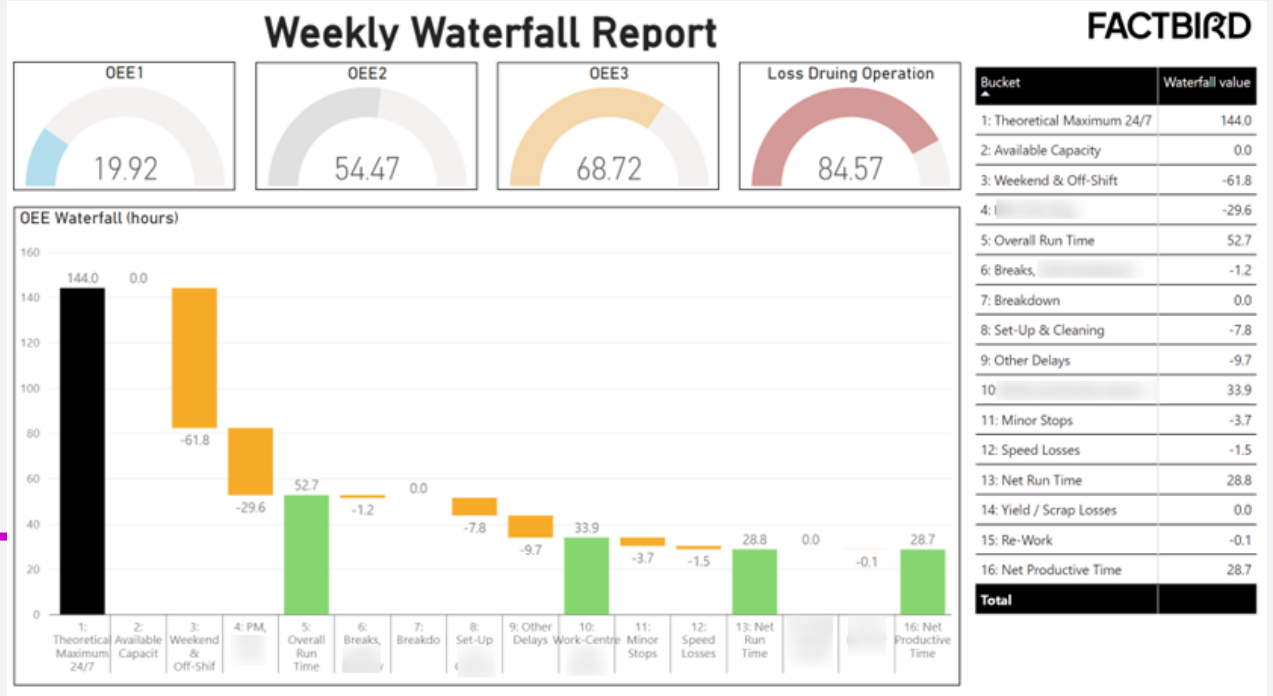
Weekly report

How they use:
Weekly report focusing “loss” - downtime
Customized OEE metrics is displayed(customer’s own definition of OEE calculation)

Gain – customer case:
The customer can automate the calculation of OEE metrics (different definitions than those in the Factbird software). The report, which emphasizes losses, provides management with insights on how to improve. *(Pharmaceutical)*

The customized OEE metrics according to the customer’s definition

The lost hours of the week shown in a waterfall diagram with a summarizing table on the right



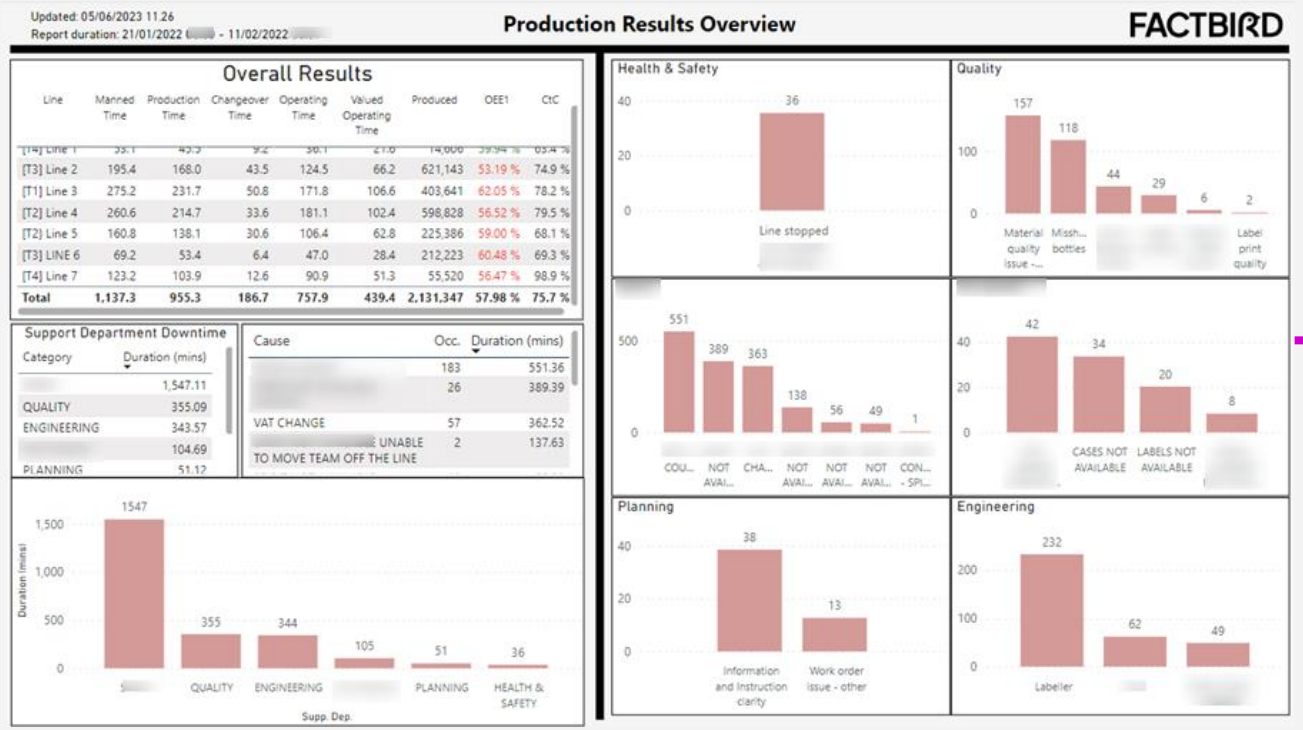
Weekly report

How they use:
Categorized downtime analysis, e.g. quality related downtime, planning related downtime
Overall weekly result with each 7 lines performance

Gain – customer case:
The customer can see downtime by categories, which is respectively taken care by different department, e.g. engineering team, quality team, planning team etc. This allows each department to efficiently focus on relevant issues. *(Beverage manufacturer)*

Each lines performance across 7 different lines: OEE, units produced, changeover time etc.

Pareto chart grouped into department level



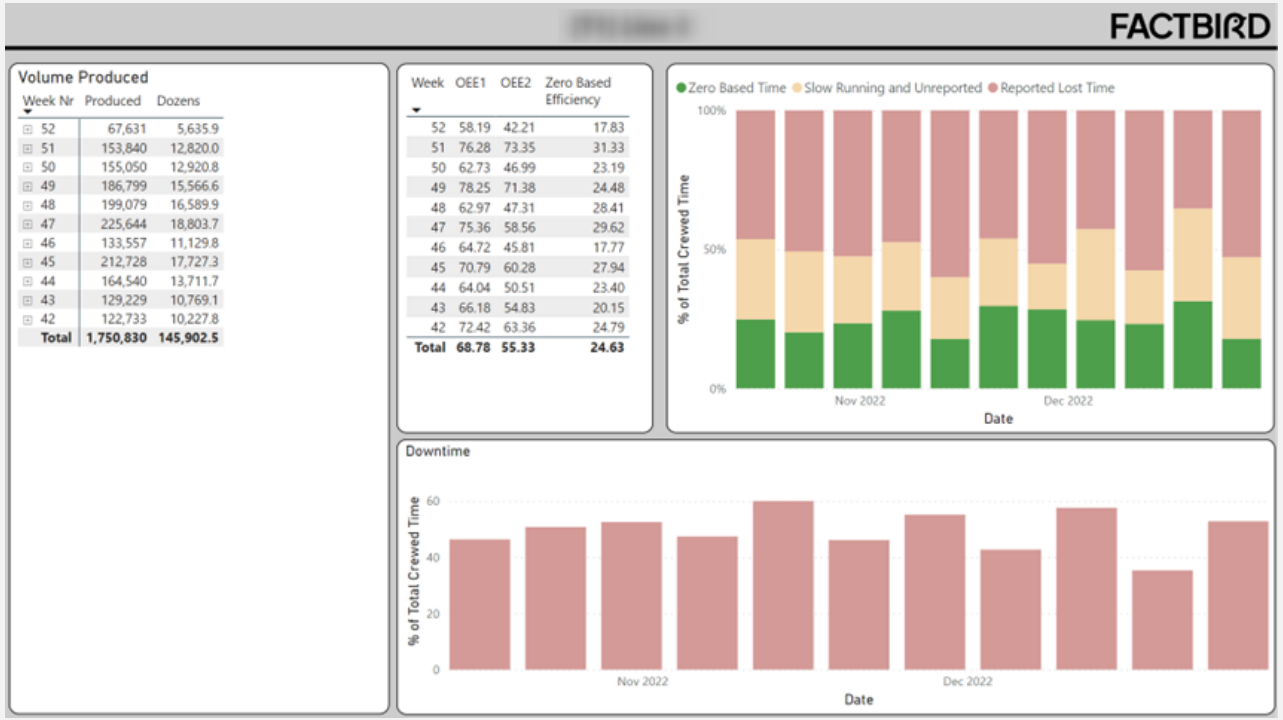
Each department's relevant downtime on pareto chart

Weekly report

How they use:
Weekly report for a specified line showing the produced values along with OEE1, OEE2 and a customized measure “Zero Based Efficiency” for the line (custom definition).

Gain – customer case:
The customer can track the line's performance transition, including the number produced, OEE, and loss time. Observing this trend over weeks helps the customer determine if they are headed in the right direction.

Total produced volume each week



Line performance rate (good run, run, lost) visulized on the chart

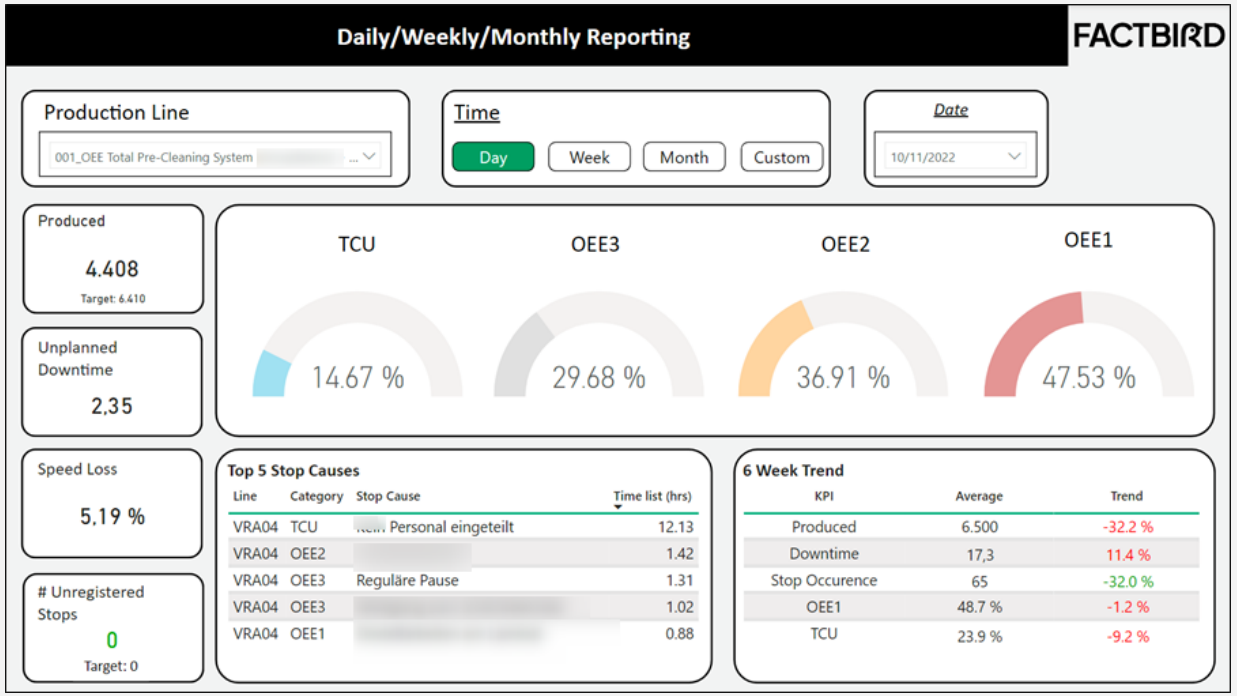
Analysis report

How they use:
Analytical report allowing the user to select their desired time frame and line they want to view.

Gain – customer case:
The customer can efficiently analyze performance data from various lines over different timeframes using the same visualization, eliminating the need to navigate across multiple pages in the software or spreadsheet.

Line selection, time frame selection

Line overview during the selected time frame



A 6 weeks trend table which compares the selected date to the average values seen in a 6 week window.

Analysis report

How they use:
Analytical trend report allowing for a date selection with 4 weeks worth of data prior to that date
OEE1 and Produced output displayed on a daily basis to view the trends

Gain – customer case:
The customer can efficiently analyze performance data from various lines over different timeframes by toggling between multiple production lines.

Line selection, date selection

Daily OEE transition within the month

Daily produced volume transition within the month

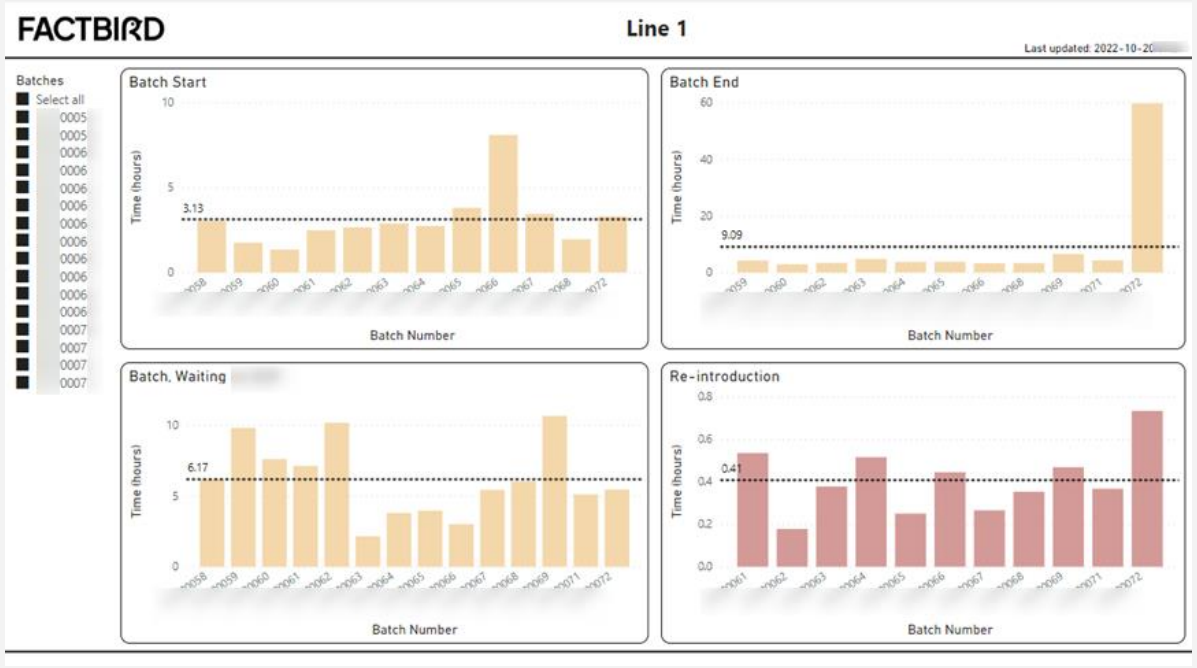
Top 5 downtime reasons during the selected time frame

Analysis report

How they use:
Analytical report showing 4 different types of process steps across batches for a specified line

Gain – customer case:
The customer used the data to evaluate the duration of their process steps, with each of the 4 categories representing a step. The customer can monitor the duration of each step against the target.

Batch selection



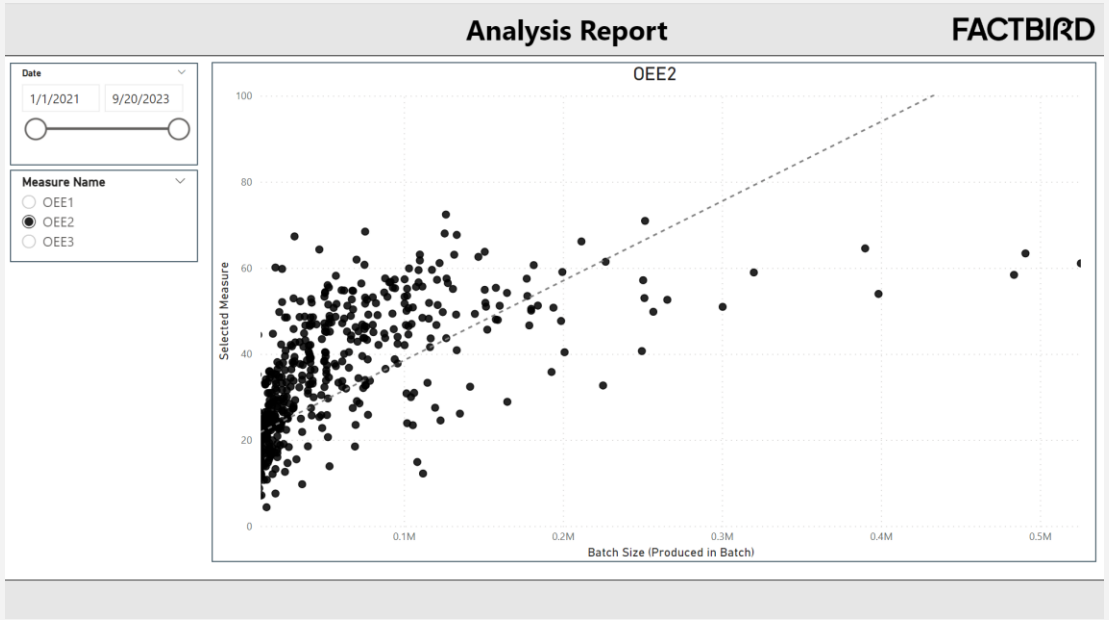
Duration of each step in four categories for each batch comparing against expected average.

Analysis report

How they use:
Analysis report showing batch size plotted vs OEE measures with a trendline
Analysis of correlation of batch sizes and OEE result

Gain – customer case:
This analysis helps the customer prove the assumption of the trend “the bigger the batch sizes are, the better OEE” by using the Factbird data. *(Pharmaceutical)*

Time selection and metrics selection



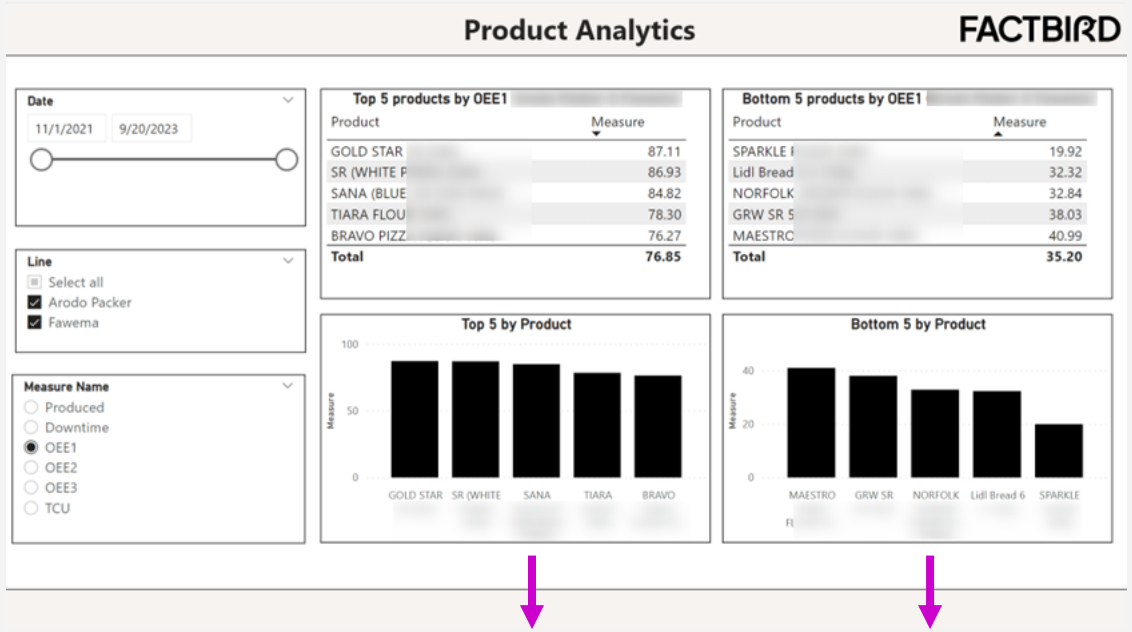
Relation of batch sizes and OEE on scatter plot chart

Analysis report

How they use:
Interactive analysis report giving insight into top 5 and bottom 5 products in terms of OEE
Selectable time frame and lines

Gain – customer case:
The customer is analyzing by-product OEE, with a focus on both high OEE and low OEE products. It is an eye-opener to see the significant difference in OEE between these products. *(Food manufacturer)*

Time selection and metrics selection



OEE top 5 products

OEE bottom 5 products

Analysis report

How they use:
Interactive analysis report giving insights into the top stop causes through a pareto chart and a table showing number of occurrences and total duration.

Gain – customer case:
The customer can analyze multiple lines that produce similar products. Downtime pareto charts across lines indicate low hanging fruit for the customer to improve. *(Food manufacturer)*

Time frame, lines and stop causes selection

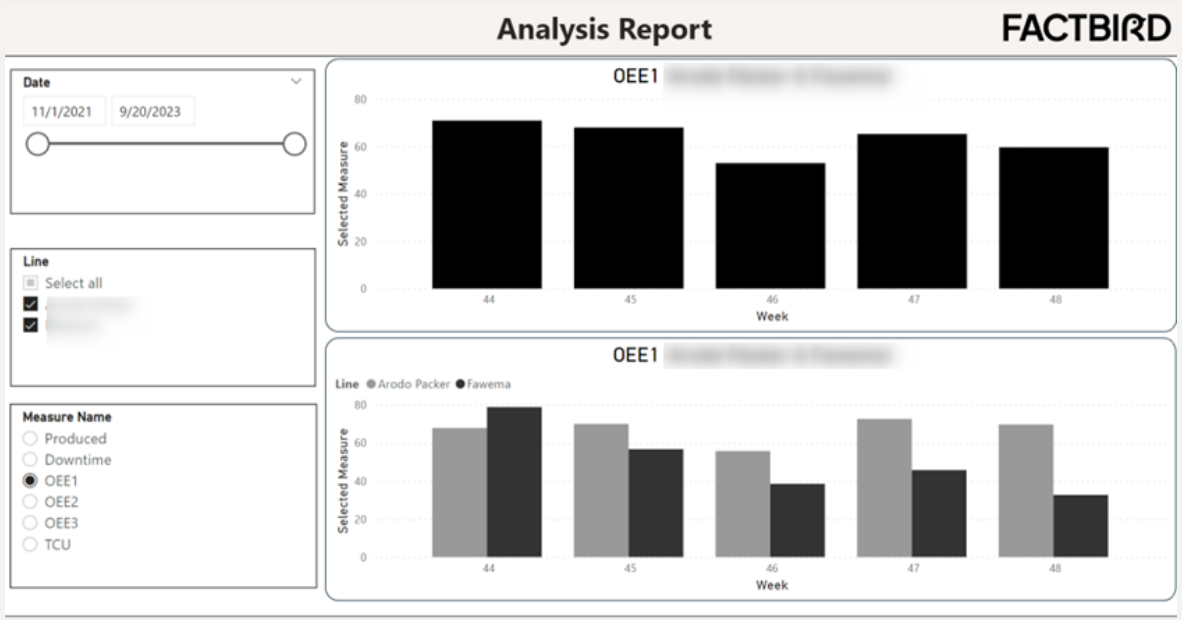
Stop cause pareto charts across lines

Number of occurrences and total duration of each stop cause

Analysis report

How they use:
Interactive analysis report showing aggregate OEE values of multiple lines as well as individual values week to week.

Gain – customer case:
The customer can see the transition of OEE both for line total and for individual lines over few weeks. *(Food manufacturer)*



Time frame and line selection

OEE of total lines

OEE of each line

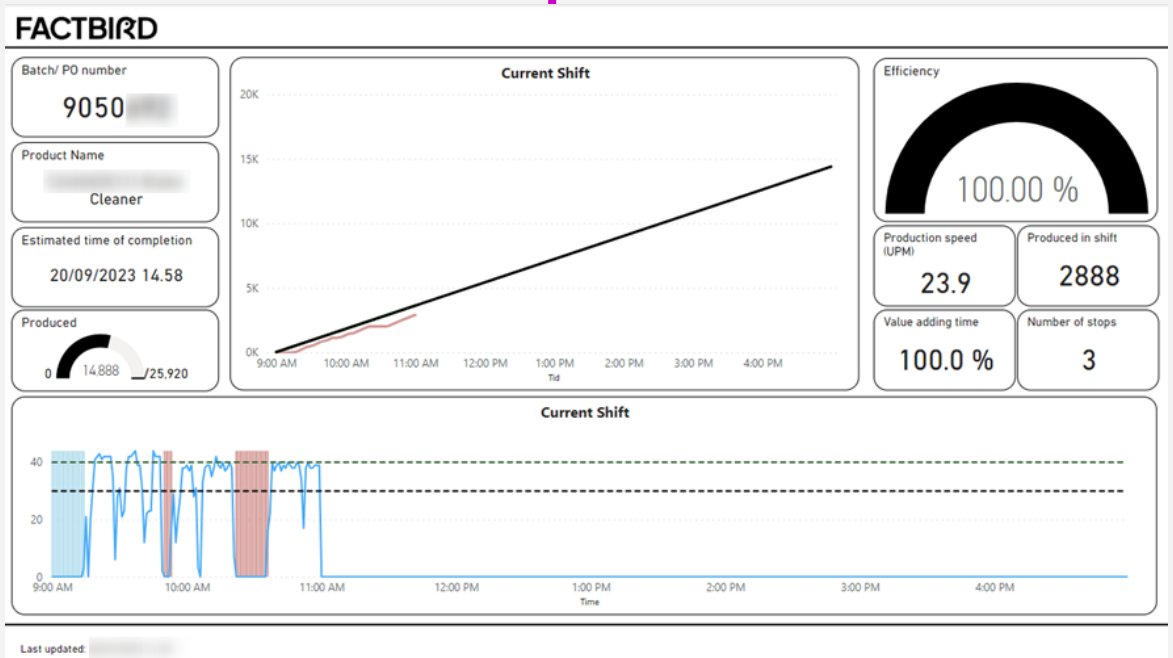
Dashboard

How they use:
Live dashboard giving a quick glance of the status of a production line

Gain – customer case:
The customer displays this dashboard on a flat screen on the production floor, to give quick insights into the production line. Factbird's standard software offers the similar dashboard, and the customer customized it with additional metrics and visualization on this dashboard. *(Automotive supply product manufacturer)*

Current shift progress

Batch information

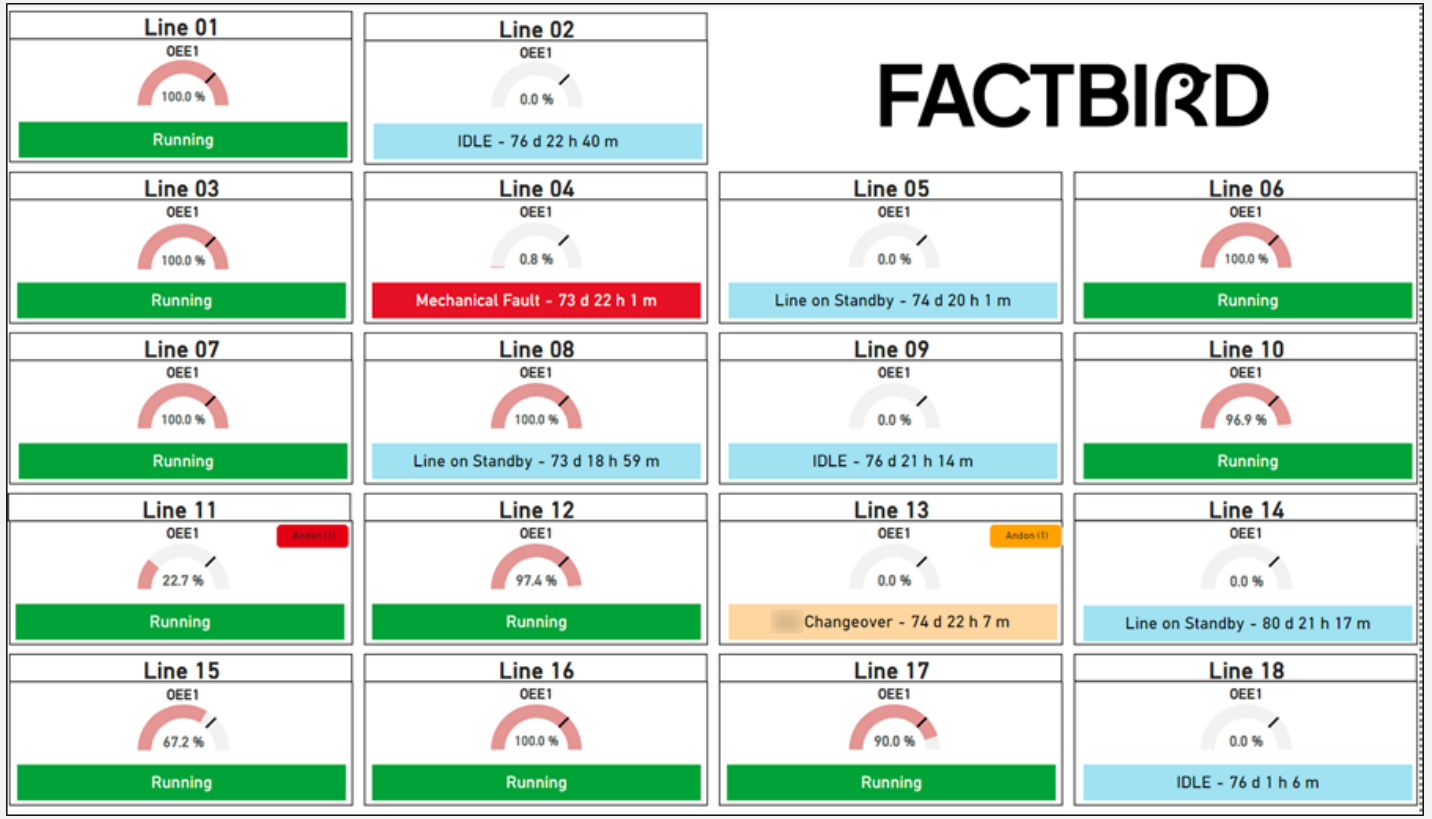


Dashboard

How they use:
OEE and line status (running or not) of 18 lines are visualized on one screen and updates every minute.

Gain – customer case:
The customer displays this dashboard on a flat screen on the production floor to provide visibility of all line status to the team. *(Building material manufacturer)*

All 18 lines' OEE and line status are visualized on one screen



Dashboard

How they use:
Live batch dashboard visualizing real time progress of 2 currently running batches.

Gain – customer case:
The customer displays this dashboard on a flat screen on the production floor, gaining a quick overview of currently running batch status. Factbird's standard software offers a similar dashboard, which the customer customized to display two batches on one screen along with additional metrics for batch production which helps the customer understand more about the orders they are producing. *(Consumer goods manufacturer)*

Average production speed on this order

Expected average speed

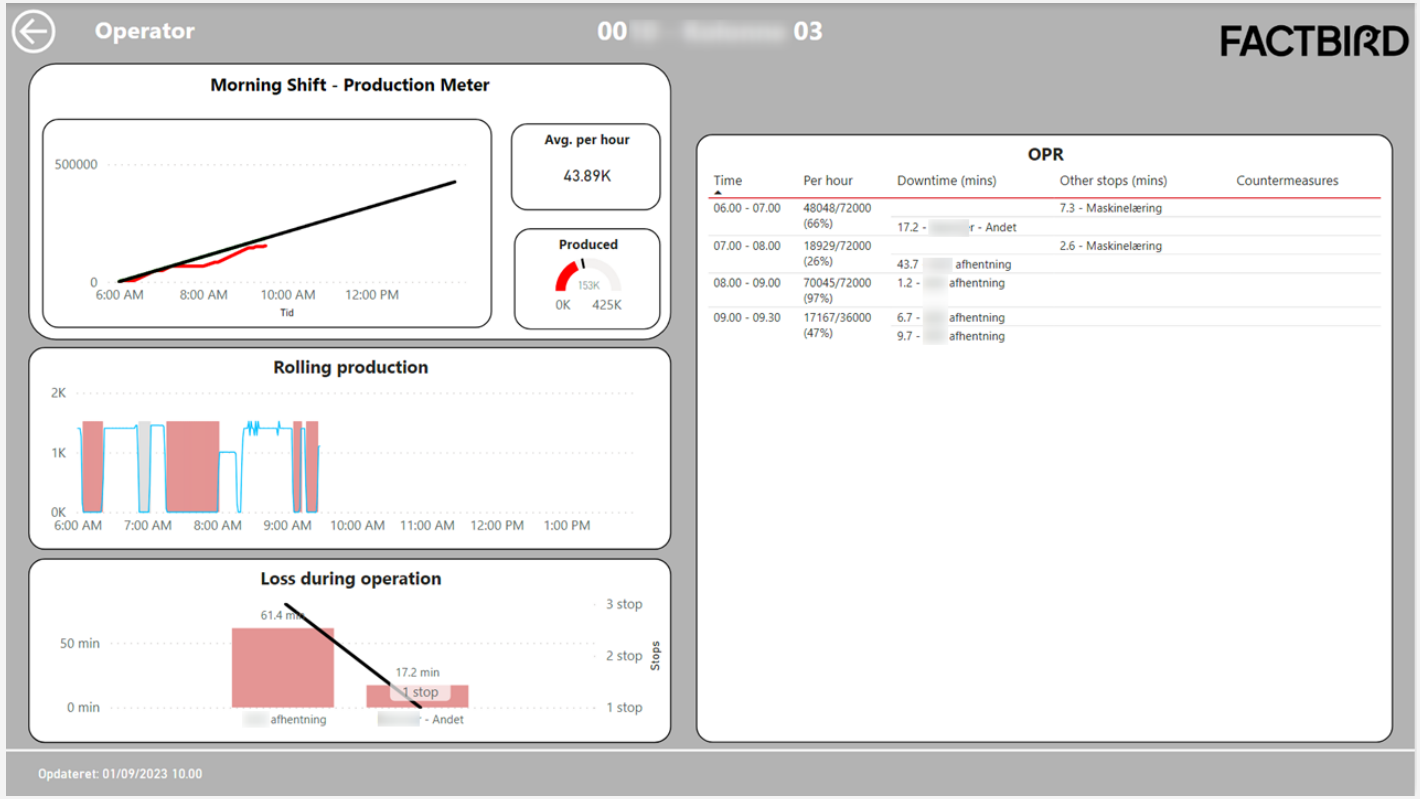
Units produced in the last one hour

Role Base Dashboard 1/3

How they use:
Live dashboard for operators on the production floor, showing shift progress, technical loss, hourly performance list.

Gain – customer case:
The customer creates multiple dashboards tailored to each role, such as Operator or Supervisor. Each person in their respective role can easily access the specific information they need. This is for operators to quickly gain the current shift progress. *(Beverage manufacturer)*

Shift progress



Hourly performance
e.g. 6-7 am, 7-8 am

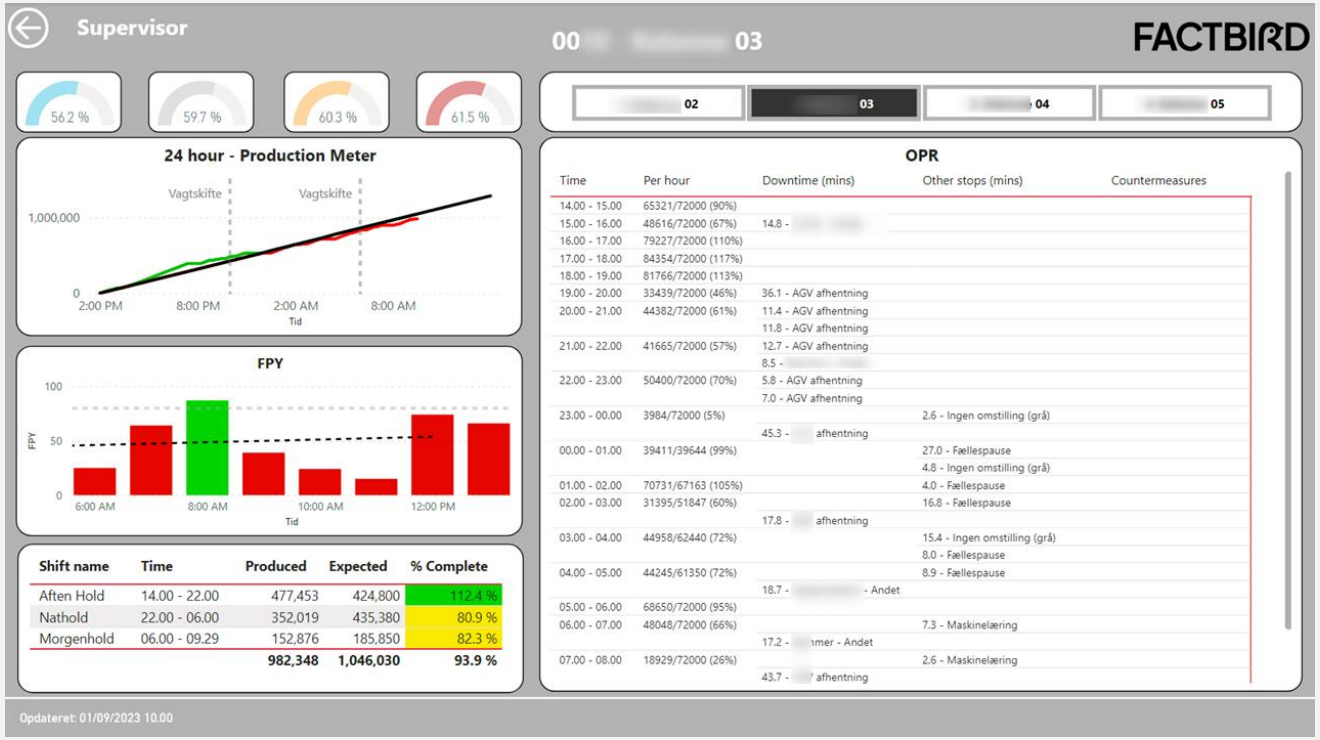
Role Base Dashboard 2/3

How they use:
Live dashboard for supervisors on the production floor, showing shift progress & result, hourly performance list across lines

Gain – customer case:
The customer creates multiple dashboards tailored to each role, such as Operator or Supervisor. Each person in their respective role can easily access the specific information they need. This is for supervisor to understand what is happening in the last 24 hours across multiple lines. *(Beverage manufacturer)*

24-hour view containing 3 shifts

Hourly result against target shown in red or green



Line selection

Hourly performance overview
e.g. 6-7 am, 7-8 am

Role Base Dashboard 3/3

How they use:
Live dashboard for supervisors on the production floor, showing weekly and daily OEE of multiple lines over few weeks
Stop cause pareto chart in site level

Gain – customer case:
The customer creates multiple dashboards tailored to each role, such as Operator or Supervisor. Each person in their respective role can easily access the specific information they need. This is for supervisors to understand the trend of OEE and stops over few weeks. *(Beverage manufacturer)*

OEE transition of each lines

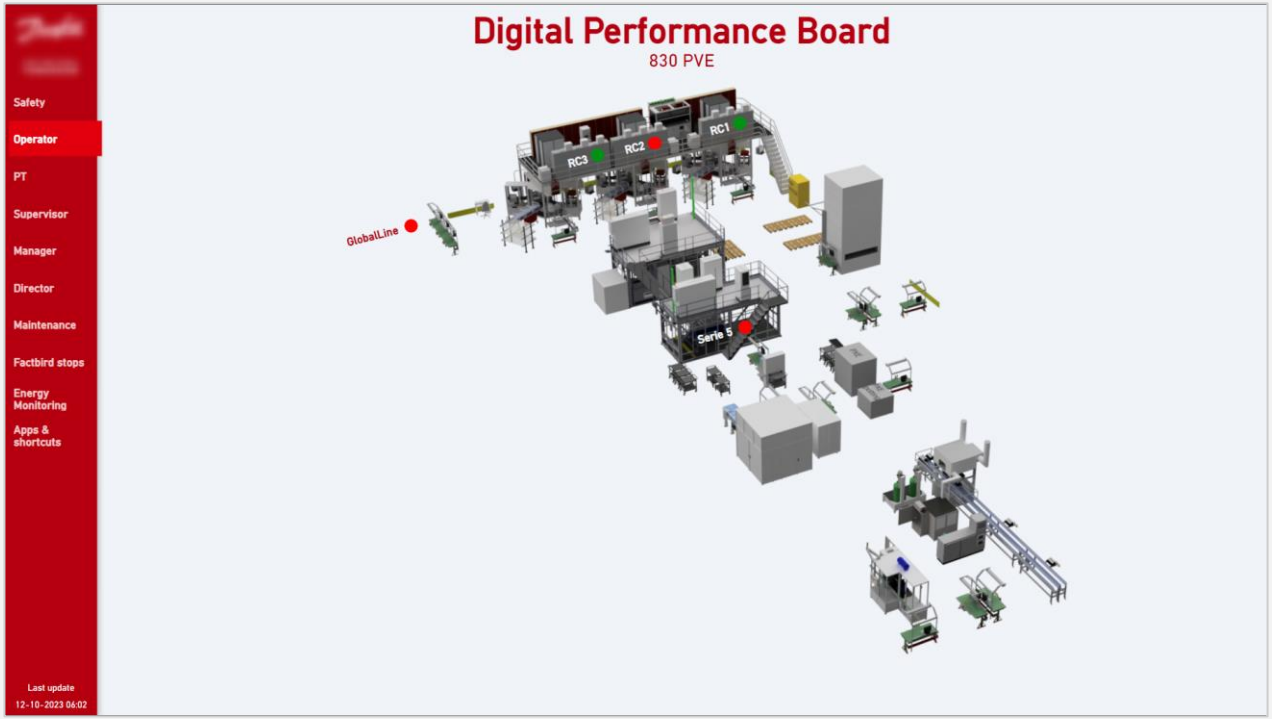
A stop cause Pareto chart at the site level helps identify which line and cause are creating major downtime.

Digital Performance Dashboard 1/4

How they use:
Live dashboard providing a complete view of both real-time and historical status of various processes in a factory.
Role-based analytics for different roles, such as Maintenance, Director, Process Technician, and more.

Gain – customer case:
The customer's various teams can quickly access the real-time data they need, providing complete visibility of factory operations from a high-level overview to in-depth status for each machine. *(industrial component manufacturer)*

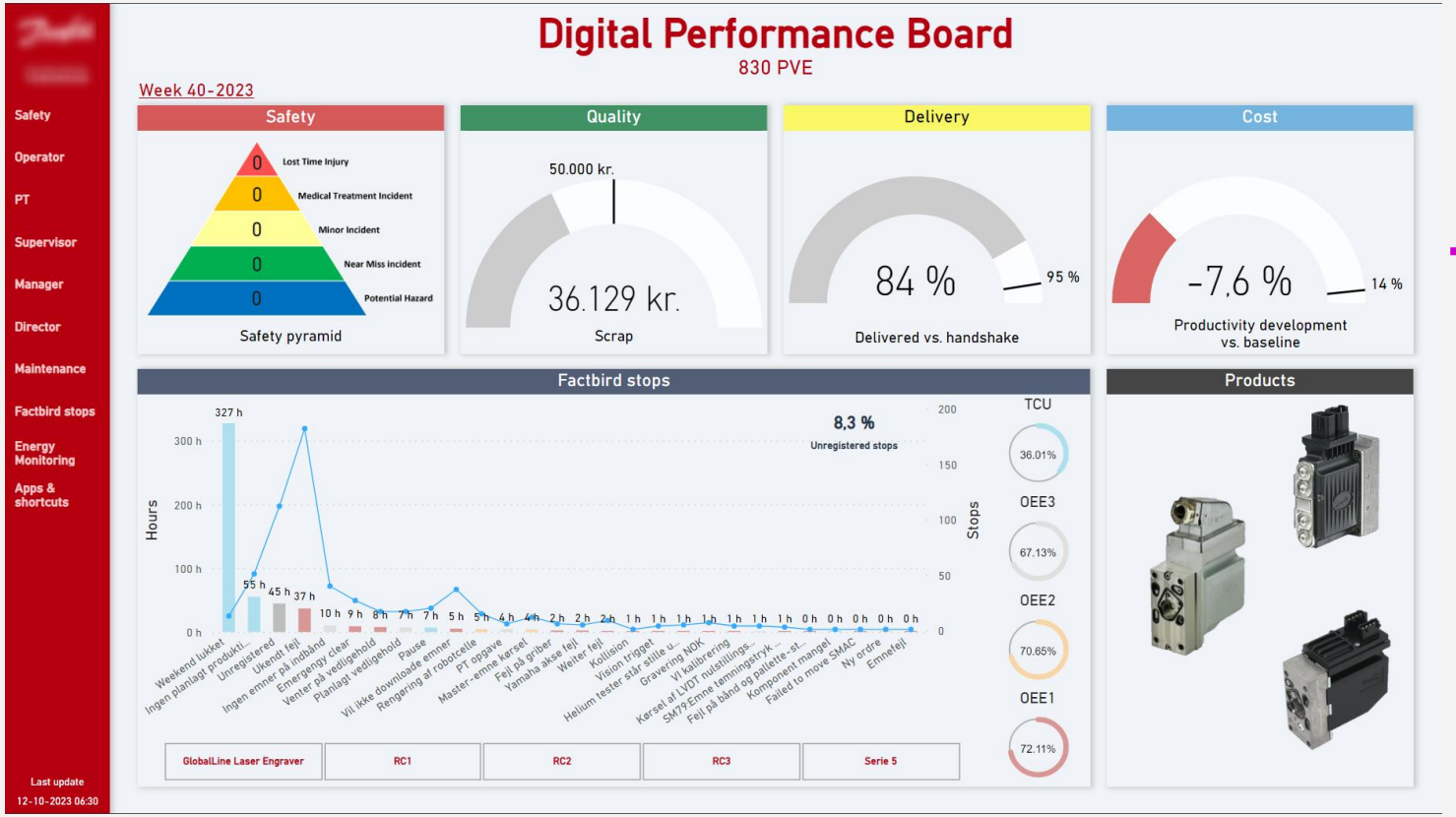
Role selection.
Operator, Manager,
Maintenance, etc.



The factory floor is visualized on a floor map. Clicking on a machine leads to the analytics for that specific machine.

Digital Performance Dashboard 2/4

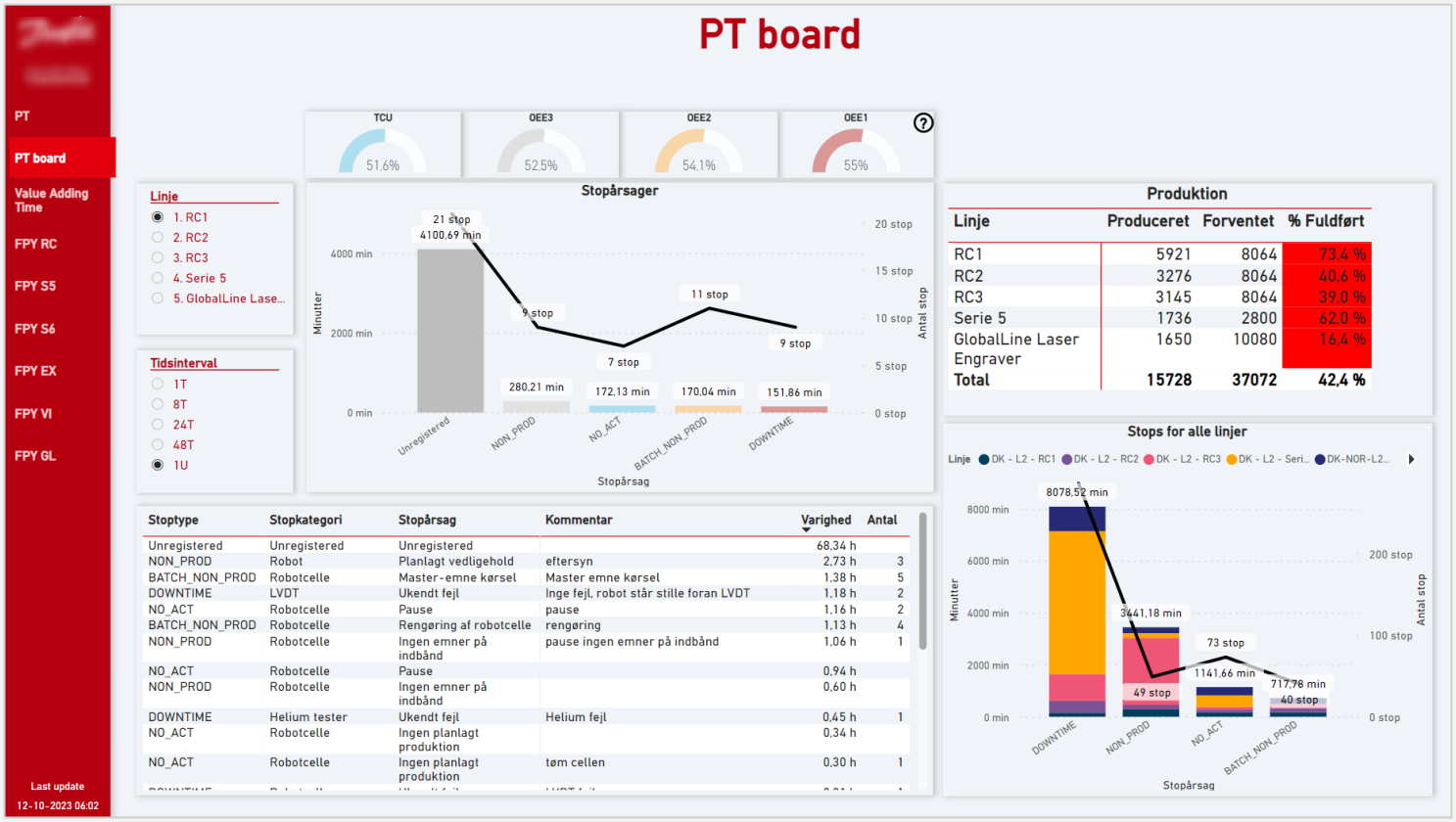
Weekly overview



By-category performance metrics: Safety, Quality, Delivery and Cost

Digital Performance Dashboard 3/4

Analytics for Process Technician



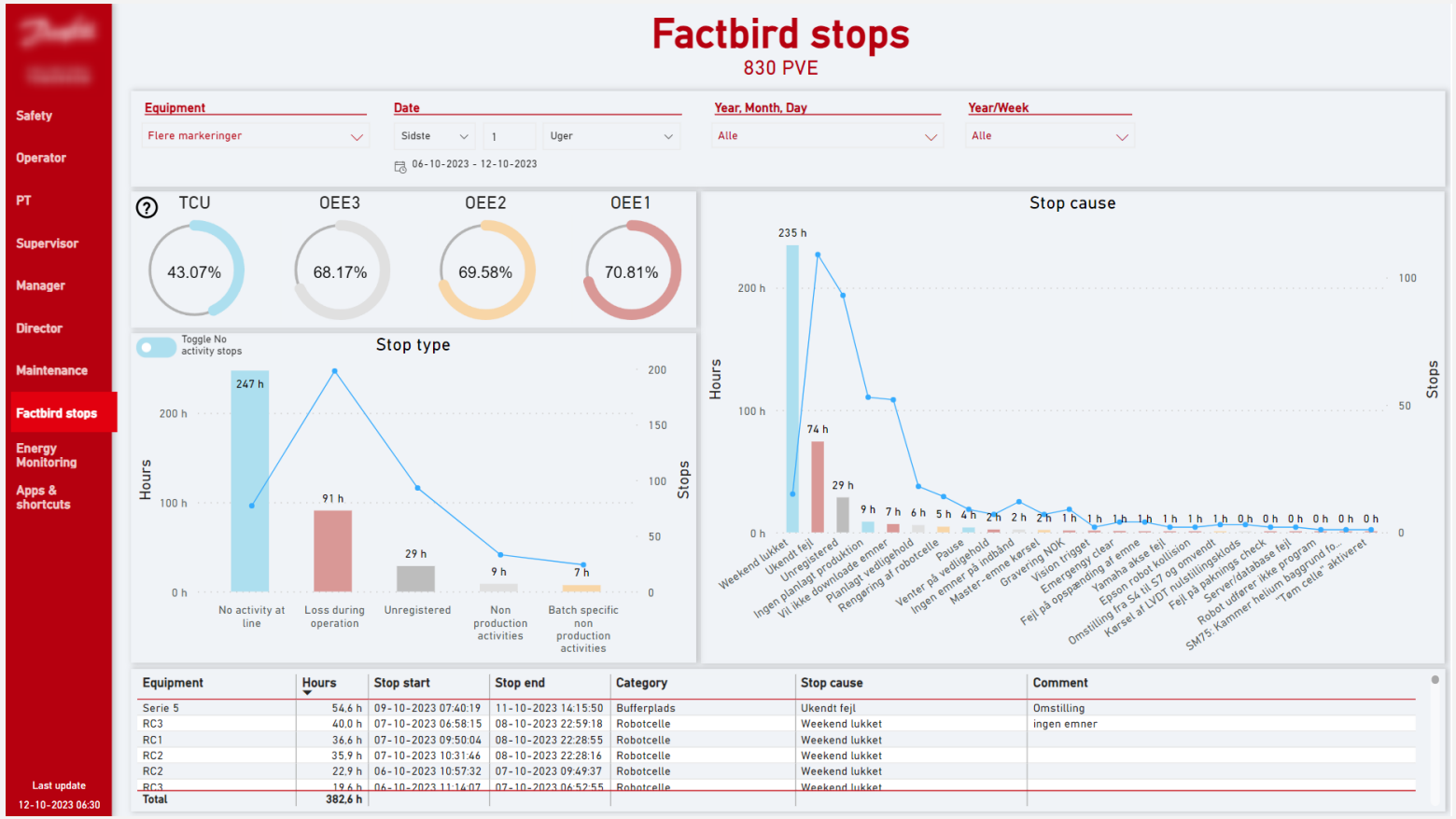
Each line result against target

Stop durations of lines

Stop cause list to see what is causing major downtime

Digital Performance Dashboard 4/4

Downtime overview



Equipment	Hours	Stop start	Stop end	Category	Stop cause	Comment
Serie 5	54,6 h	09-10-2023 07:40:19	11-10-2023 14:15:50	Bufferplads	Ukendt fejl	Omstilling
RC3	40,0 h	07-10-2023 06:58:15	08-10-2023 22:59:18	Robotcelle	Weekend lukket	ingen emner
RC1	36,6 h	07-10-2023 09:50:04	08-10-2023 22:28:55	Robotcelle	Weekend lukket	
RC2	35,9 h	07-10-2023 10:31:46	08-10-2023 22:28:16	Robotcelle	Weekend lukket	
RC2	22,9 h	06-10-2023 10:57:32	07-10-2023 09:49:37	Robotcelle	Weekend lukket	
RC3	19,6 h	06-10-2023 11:14:07	07-10-2023 06:52:55	Robotcelle	Weekend lukket	
Total	382,6 h					

Data analysis and visualization expertise provided by emendo DIGITAL

Who is emendo digital?

	Tools & Applications	Developing everyday business aapplications, customized for organizations
	Data Analytics	Generating insights using state-of-the-art data modelling techniques
	Digital Transformation	Assisting organisations in aaligning technology with business goals
	Automation & Real-Time Control	Engineering machine-intelligence with autonomous system technologies

THANK YOU☺

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