BluWave's

KPI Matrix Whitepaper

A Modern list of Key Performance Indicators for your Plant's Continuous Improvement

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# Skip to your Department

01. Departmental KPIs

Breaking KPIs into departments has proven successful in KPI culture adaption, engagement and improvement. Being able to take a step-by-step approach opens up opportunity for innovation at each department level, reflection on best-practices and gives insight to potential pitfalls or hidden inefficiencies.

Each department is unique and so is each KPI that falls within them. So, we have taken a simple approach to help companies identify the leading KPIs in each department to ensure operational success.

Implementing KPI Dashboards is a great way to start tracking and trending the right KPIs for your organization to identify new areas of improvement. With the flexibility of role-based dashboards to track anything from anywhere, you are empowered to keep your finger on the pulse and in the driver seat of your operational performance.
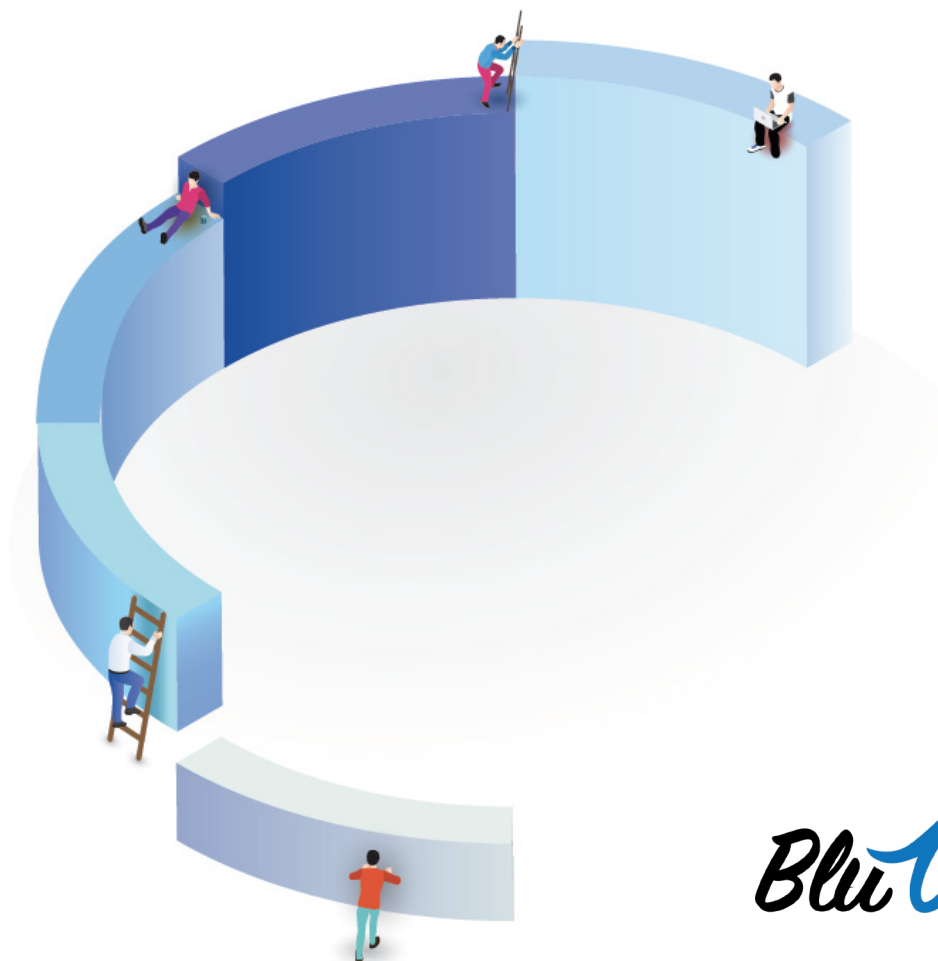
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02. Production KPIs

1 Line OEE
Availability x Performance x Quality (as %)

OEE (Overall Equipment Effectiveness) is a "best practices" metric that identifies the percentage of planned production time that is truly productive. This KPI helps operations to improve machine productivity, identify losses and identify production bottlenecks.

2 Line Productivity
(# of Goods Produced / Target # of Expected Goods) x 100

Example: Each person is expected to produce 5 widgets per minute. 6 people worked on line #1 for a total of 42 production hours. The expected production is 75,600 widgets, but only 64,000 were produced. The line productivity was 85%

3 Product Yield
(Actual Yield / Theoretical Yield) x 100

Example: A facility has determined the a theoretical yield is 78% for a cooked meat product. The facility cooked 15,000 lbs of raw meat. Based on the Theoretical yield, they should have produced 11,700 lbs but only produced 10,000 lbs. Their product yield was 85.47%

4 Scheduled & Unscheduled Downtime
The Sum of Each as % of Production Time

This KPI helps operations to better manage downtime, make better maintenance decisions and ultimately, keep production running longer at an effective rate. A good way to visualize this KPI is in a Double Bar Graph with an upper control limit and goal line to help monitor and minimize downtime altogether.

5 Utilization
(Plant Output during Shift x 100) / Maximum Output during Shift

Utilization is a KPI that is an accurate proportion of time that manufacturing equipment is used. What this means is that this measure is essentially a measurement of filled potential for this line or machine.

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03. Quality KPIs

1 **% First Pass**
# of Good Units / by the Total # of Units

This metric is tracked with data throughout the entire process to help identify quality bottlenecks and improve overall product quality.
Example: 20,000 widgets were milled and 19,850 were packaged.
(19,850 / 20,000) = 99.25% first pass

2 **Non-Conforming Product**
(# of Units on Hold / # of Units Produced) x 100

The objective is to measure the ratio of product that does not meet customer requirements. This helps to minimize customer complaints, improve production processes and maximize runtime.

3 **Complaints or CPPM**
On-going tracking of the Sum of Complaints

This could be the number of complaints, rejects or returns over a specific period of time matched with the number resolved during a specific period. You can also track the average time taken to resolve customer complaints on a long-term trend.

4 **CAPA**
Sum # of Response Days / Sum # of CAPA's

Over 60 indicator = # of CAPA's that are open over 60 days. With this KPI, it is helpful to have upper and lower control limits with alerts to minimize CAPA response days and the overall amount of CAPA's to perform.

5 **Supplier CA Request**
Sum of all Formal SCAR's Issued to a Supplier

Data can be tracked per supplier over time for maximum impact, this percent is calculated based on # of SCAR's issued / total # of shipments received * 100. With this KPI, you should be able to trend categorized SCAR issues over time to make better, more informed supplier decisions.

What if you could increase
Product Yield by 8% or more?
See the Case Study at BluWavedata.com **+8%**

04. Safety KPIs

1

Total Recordable Incident Rate (TRIR)
of Incidents x 200,000 / Total # Hours Worked Annually

Number of Incidents x 200,000 / total number of hours worked in a year (As defined by OSHA). In this metric, it is best practice to measure Near Misses against it for direct comparison. This KPI can help you develop the safest practices, which is critical for your operation.

2

Non-Compliance Events
Total # of Given Guideline Deviations

In a KPI, Non-Compliance events are most helpful tracked on an annual basis broken down by each regulatory agency. Time, reasons, and resolutions should be tracked along with this KPI and will give you options to trend this KPI based on reasons and dates.

3

Audit Score %
(# of Elements Audited - # of Non-Conformances) x 100

The Audit Score % KPI should be trended in KPIs based on reason, date, agency and other details, if included. This KPI will help you to improve your audit process and overall quality of your production.

4

Lost Workdays Rate
of Days Lost to Injury/Illness x 200,000 / # of Hours Worked

This annual and quarterly KPI can reflect costs associated with lost workdays, be broken down by department and trended by different categories.

5

Workers Comp Cost
Sum of Workers Compensation

For the Workers Comp Cost KPI, it is best to track in hours, currency and the cost per hour rate, if possible. This KPI helps to reduce costs and help you better manage departments or employees individually.

At BluWave, we place a large emphasis on Safety KPIs due to their catastrophic consequences in the plant and for consumers.

See more Workplace Safety KPIs Here

05. Maintenance KPIs

1 **Downtime %**
Ratio of Downtime to Operating Time

Keep this KPI running daily and monthly to give you instant visibility and analysis for long-term planning. Downtime % of operating time can help you to better monitor line production throughout operations and manage or reduce downtime overall.

2 **PM Completion %**
(Completed PM's / Scheduled PM's) x 100

Preventive Maintenance completion % ensure that your machines are always at their highest quality for performance and to maximize production time. For this KPI, it is best to track this measurement in a progress bar on a daily basis and in a bar graph on a monthly basis.

3 **WO Completion %**
(Completed WO's / Scheduled WO's) x 100

Similar to PM Completion %, Work Order Completion % help maximize production and ensure the safety of all equipment. The WO Completion % is helpful to categorize in KPIs to better manage departments and types to reduce them and help your operation plan more effectively.

4 **% Planned vs. Emergency Maintenance WO's**
Sum # of Response Days / Sum # of CAPA's

This KPI shows where scheduled maintenance takes place, versus more disruptive/un-planned maintenance. This will help to minimize the un-planned events and make planned mainenance more effective and efficient.

5 **Labor Cost**
Sum # of Labor Costs

This KPI helps to reflect direct labor hourly rate by the time required to complete each job or project. Trending this data over time will allow you to make more informed decisions about managing maintenance projects and minimizing costs associated with them.

Maintain Good Habits

06. Shipping KPIs

1

% On Time Delivery
(# Delivered Parts On Time / Total Delivered Parts) x 100

% On Time delivery is a direct ratio of on time product to total delivered product. Use this KPI in a stacked bar graph to represent on time and late parts or a total number trending monthly.

2

% Order Accuracy
(# Accurate Orders / Total Orders) x 100

This KPI is best used in an area graph to represent the amount of product is to spec when it arrives from your shipping location. You can set alerts and control limits on this KPI to improve order accuracy and take any corrective action, if needed.

3

Rejections RMA Cost
Sum # of Reject RMA Cost

Best displayed in a bar graph with totals trending over months, this KPI is a total cost of your rejected product that your customer has filed with your operation. This cost can be displayed by product, customer and other metrics included in the RMA forms.

4

Transport Cost
Sum # of Transport Costs

Transport costs are some of the most costly after production. Tracking this KPI is vital to lowering your costs as an overall company and making informed decisions about transportation partners.

5

Labor Cost
Sum # of Labor Costs

This KPI helps to reflect direct labor hourly rate by the time required to complete each job and/or delivery. Trending this data over time will allow you to make more informed decisions about your supply chain and maximize its efficiency.

> *We're now getting insight to our operations we never had before BluWave.*
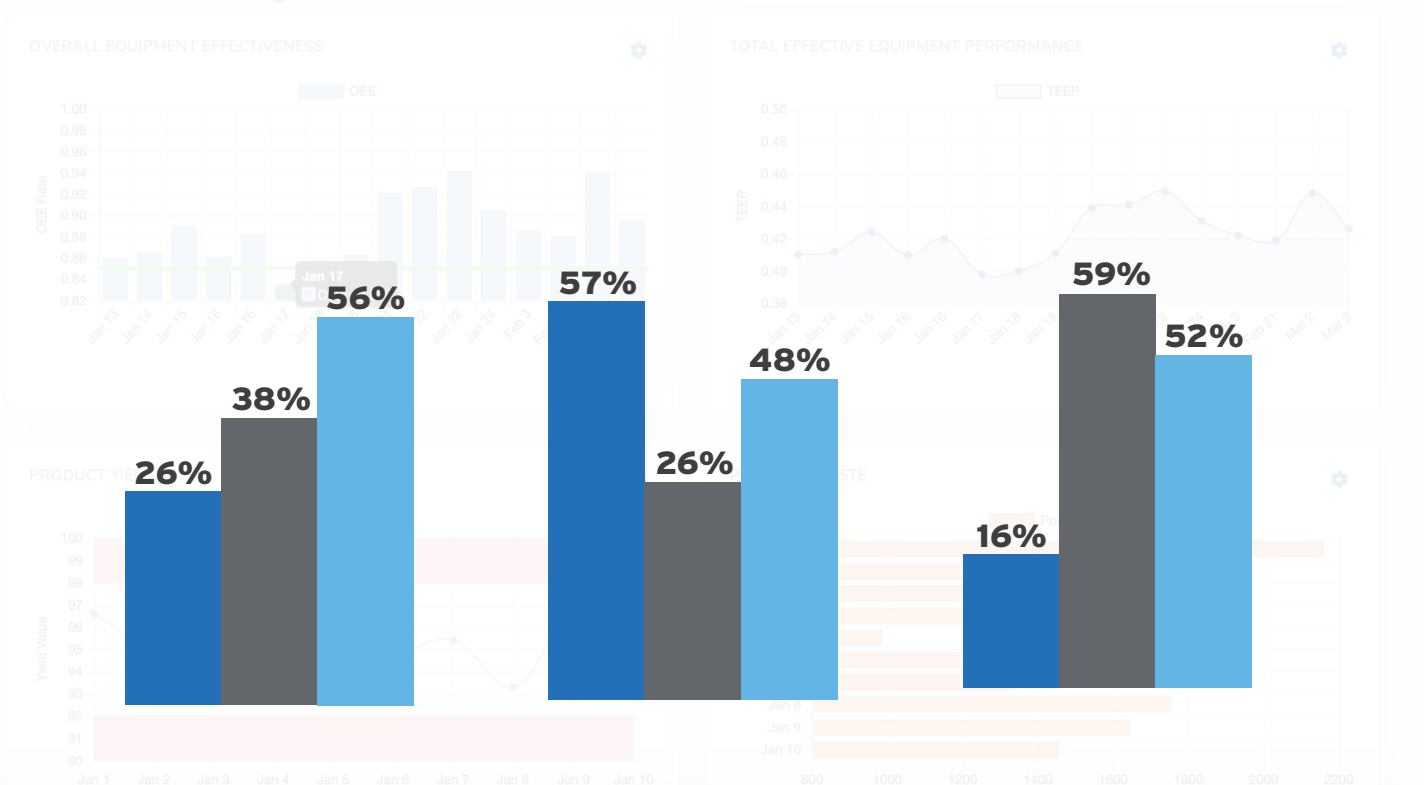
07. Additional KPIs

Quality & Safety

1. # of Deviations (with Alerts)
2. Regulatory Non-Compliances
3. Recall Incidents and Quantity Pounds
4. Shelf Life Pass %
5. Audit Observations
6. Non-Compliance as %

Operations & Shipping

1. Throughput
2. Changeover Time
3. Manufacturing Cycle Time
4. Product Waste
5. Performance Rate
6. % Giveaway

Manufacturing Dashboard

OVERALL EQUIPMENT EFFECTIVENESS

TOTAL EFFECTIVE EQUIPMENT PERFORMANCE

26% 38% 56% 57% 26% 48% 16% 59% 52%

08. How it Works

The first step to effectively use KPIs is to retrieve accurate, high-quality data, then the rest is to automate and improve. Here's how we do it:

Collect High-Quality Data

whether through our Digital Forms solution, API (application programming interface), or PLC network, we collect the most crucial data from your operations.

Automate Reporting and Results

after data is collected, then there are automated calculations added, alerts created, schedules set and new ways to recieve your results via email or text.

Track and Trend Leading KPIs

to identify these improvements and put newfound data to use, all of these results are configured to KPIs that match your organizations Continuous Improvement goals.

Generating the right KPI's for the right production processes can be a daunting task. That's why we've established a proven way to help companies identify the most impactful KPIs for their organization through our on-site or virtual KPI Asessment.

Throughout this pre-implementation stage of our solutions, we help companies identify potential pitfalls of implementation, strategic planning for KPIs and launch methods to help improve KPI success. We then take a consultative approach to better help you identify new KPIs, what they mean and how to ask effective questions from KPI results.

Learn more about our KPI Assessment HERE

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