Downtimes

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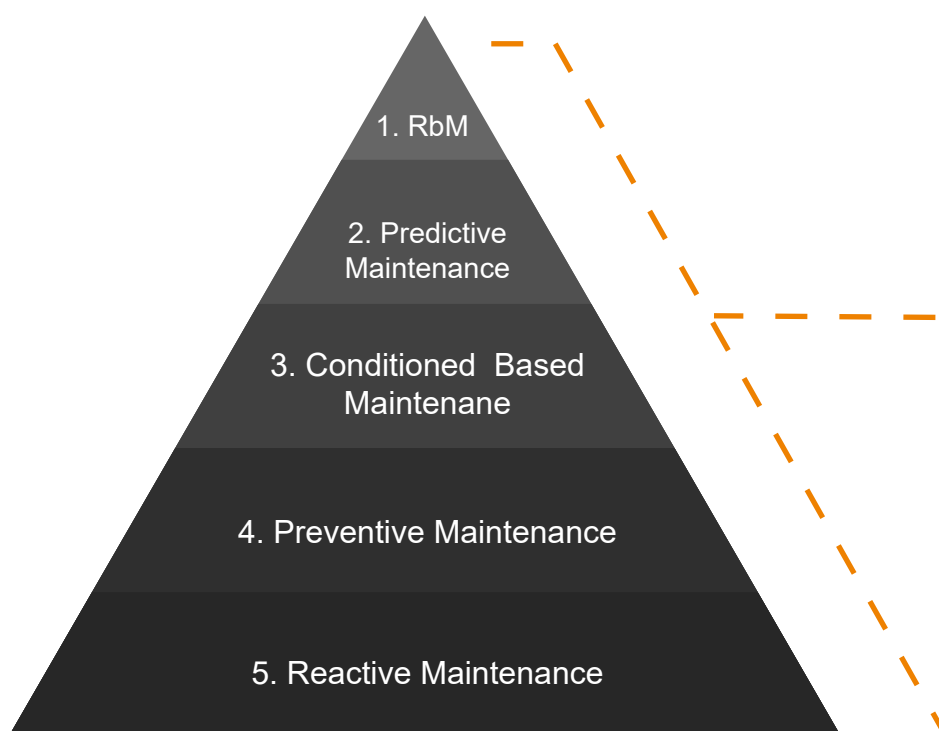
It's based on the best maintenance practices to monitor your Key Performance Indicators (KPI) in real time through event management, unscheduled stops and equipment monitoring.

Downtimes has been developed taking into account the best maintenance practices, which aim to monitor the performance of assets, optimize their production to achieve and improve the objectives of reliability, safety and performance of their industrial equipment.

This management is based on the level of maturity of an organization within the context of industrial maintenance 4.0, which can be understood in the following figure:

1. RbM

2. Predictive Maintenance

3. Conditioned Based Maintenane

4. Preventive Maintenance

5. Reactive Maintenance

From this perspective Downtimes adapts to each organization and allows it to face the current reality and prepare to climb the pyramid in the context of industrial maintenance.

1. Risk-Based Maintenance (RbM): Focused on equipment that is more sensitive to risk, it first collects asset data, then evaluates the likely failures to occur and their possible consequences, classifies them, creates inspection plans over time and; Finally, repeat the cycle. This maintenance mainly benefits the reliability and safety of the equipment.

2. Predictive Maintenance (PdM): Try to anticipate incidents through the monitoring of active equipment using complex algorithms; Moving away from the idea of performing maintenance based on equipment specifications, this allows identifying the best time to perform maintenance based on their active status.

3. Condition-Based Maintenance (CBM): In which the current status of the equipment is monitored through sensors that indicate signs of decreased performance or the next breakdown. The advantage is that it does not stop operation, as it is possible to during your exercise, thus also minimizing unscheduled downtime due to failures.

4. Preventive Maintenance: In this case, the machine is intervened thanks to a record of past inspections or a list of faults, which allows it to anticipate errors, giving the equipment a longer useful life and improving its productivity. In addition, this ensures the correct execution of operations to reduce costs by preventing instead of waiting for malfunctions to occur.

5. Reactive Maintenance: Also called breakdown maintenance, it consists of repairing a piece of equipment when it has a fault and can continue its usual course, there is no planning for its execution and it is low-cost in the short term. It represents the most basic of the types of maintenance; but at the same time, their presence is mandatory, since some teams cannot be completely predicted.
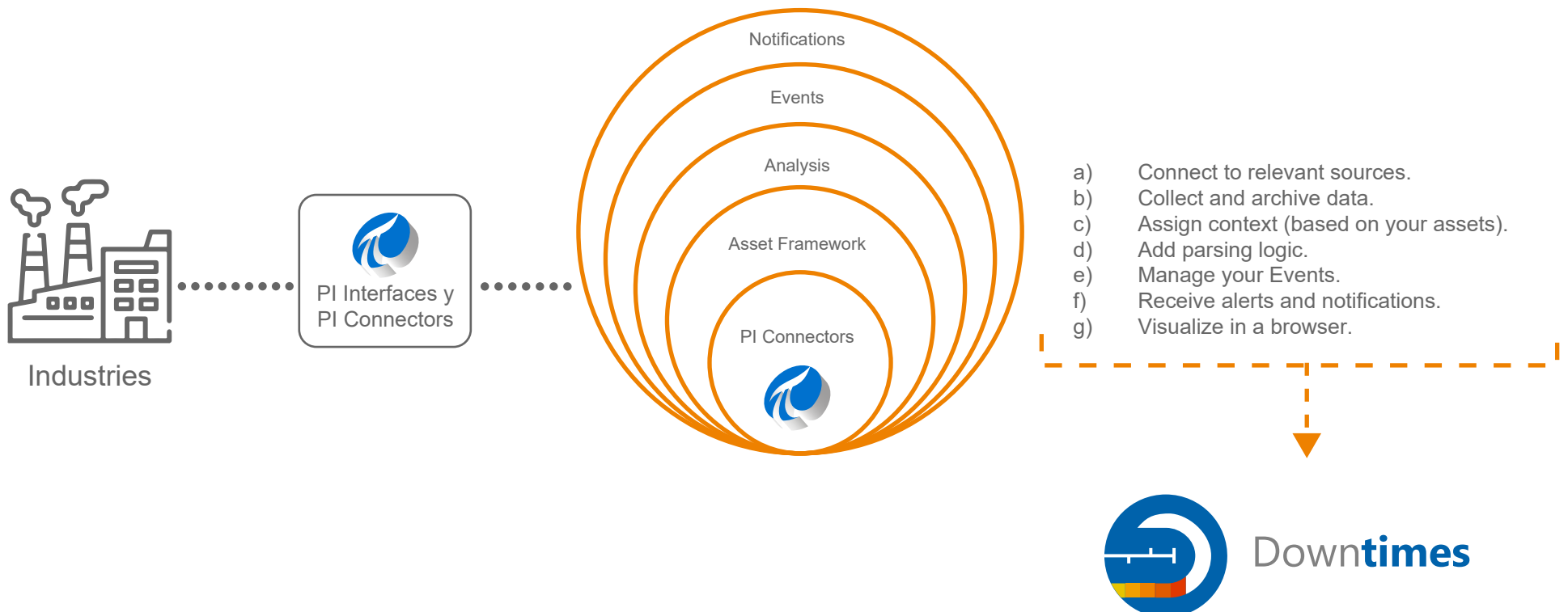
Optimized operating strategy
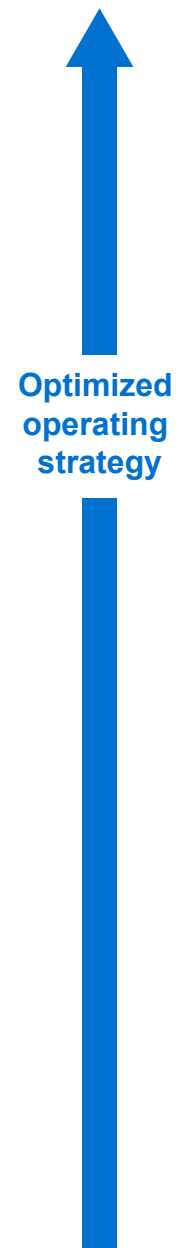
Downtimes provides information on the use of assets, which allows time-based maintenance to be carried out, as well as real-time monitoring of the conditions of critical assets, in order to opt for condition-based maintenance (CBM).

In addition, our solution can automatically generate key maintenance indicators, to display your KPIs in a friendly way, such as: Physical and mechanical availability, utilization, Mean Time to Repair (MTTR), Mean Time Between Failures (MTBF) , Overall Equipment Effectiveness (OEE), Top ten of teams and Top ten of faults, as part of the management of events and stops of the teams.

PI System is used for data collection, history, search, analysis, delivery and visualization. PI Server is the core product of the PI System and includes PI Data Archive, PI Asset Framework (AF), and other products for collecting and processing data. Downtimes works here to help with different types of maintenance for anomaly detection and root cause analysis.

Industries

PI Interfaces y PI Connectors

Notifications
Events
Analysis
Asset Framework
PI Connectors

a)   Connect to relevant sources.
b)   Collect and archive data.
c)   Assign context (based on your assets).
d)   Add parsing logic.
e)   Manage your Events.
f)   Receive alerts and notifications.
g)   Visualize in a browser.

Down**times**

Management Indicators

1. General Maintenance Dashboard

Report designed in a holistic way, to obtain an overview of the performance of the organization, at the level of areas, lines or teams. Thus achieving the calculation of the main Maintenance indicators in the Week to Day (WTD), Month to Day (MTD) and Year to Day (YTD) periods.

2. MTBF & MTTR

Report designed to quickly and accurately calculate and display the estimation of average times, such as the expected time of good operation that a certain piece of equipment or line (MTBF) can experience, there is the expected time for the repair of a piece of equipment, specifically when the type of repair corresponds to corrective maintenance (MTTR).
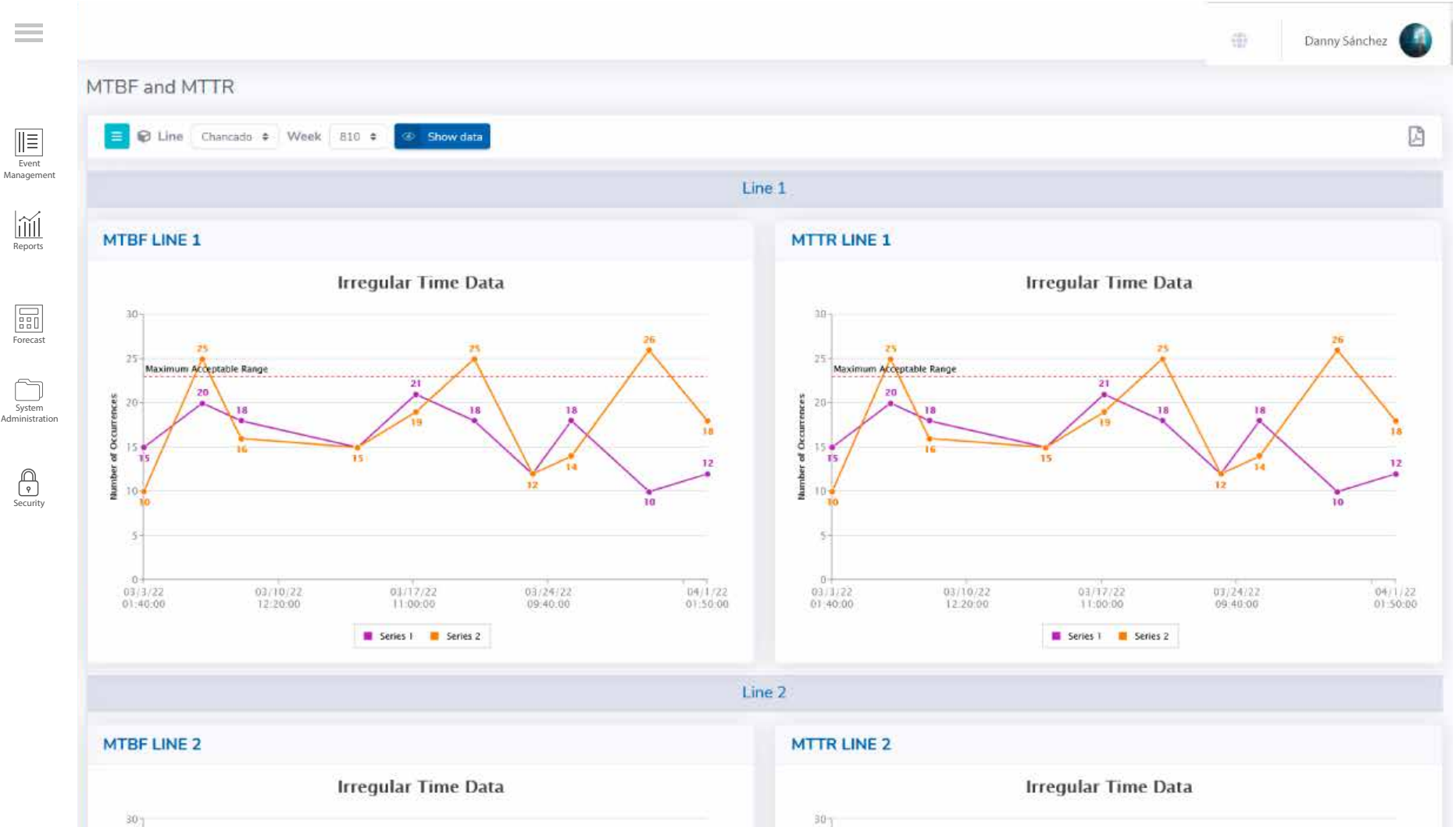
3. Top Ten Detention report

Report that allows prioritizing and visualizing the relationship of the equipment with the main failure modes responsible, this in a sequential manner according to the systems of an equipment, its components and the failure modes that may occur.
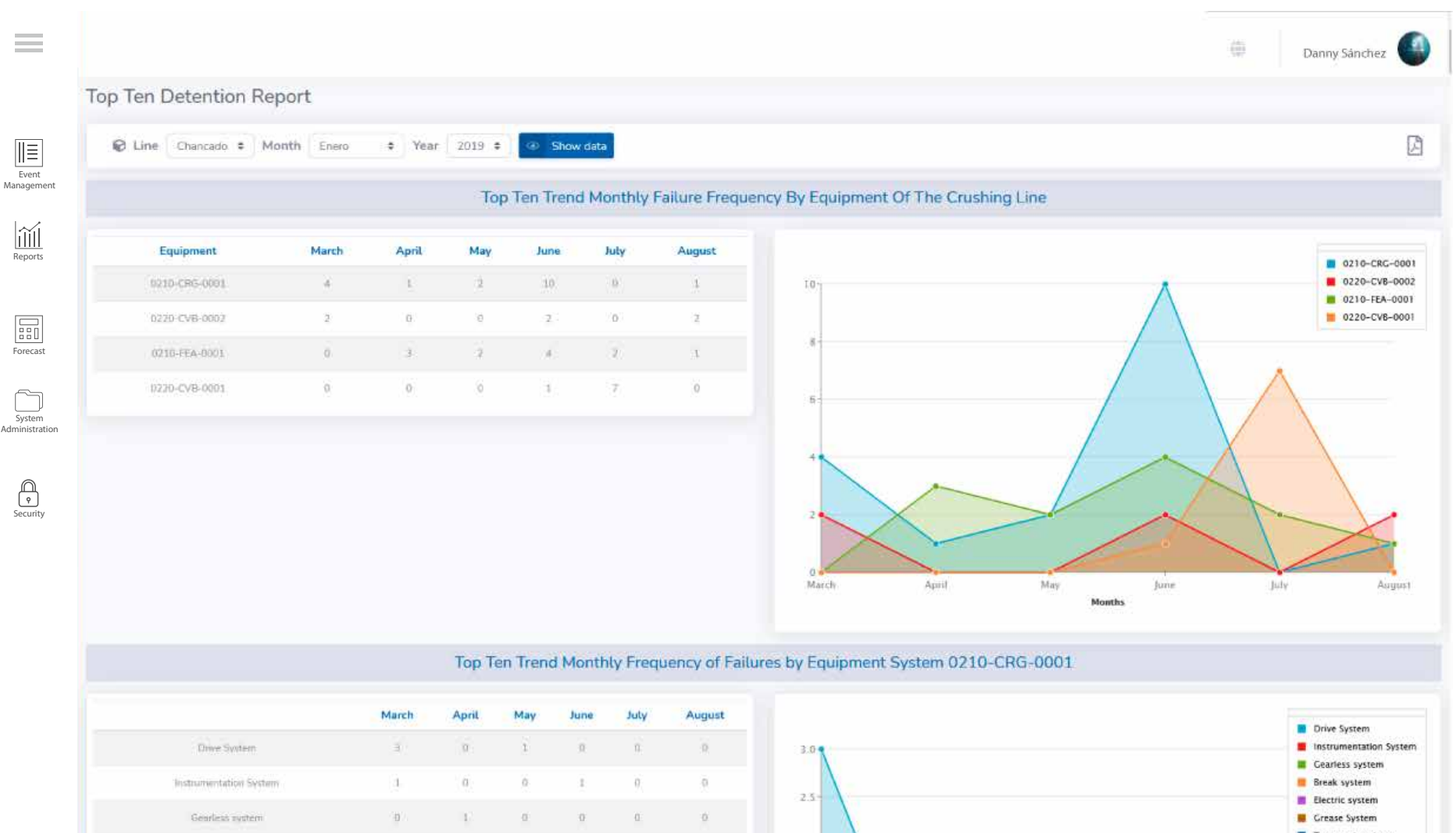
4. Monitoring of Maintenance KPIs

Report designed to quickly and accurately deliver the main maintenance and reliability performance indicators.
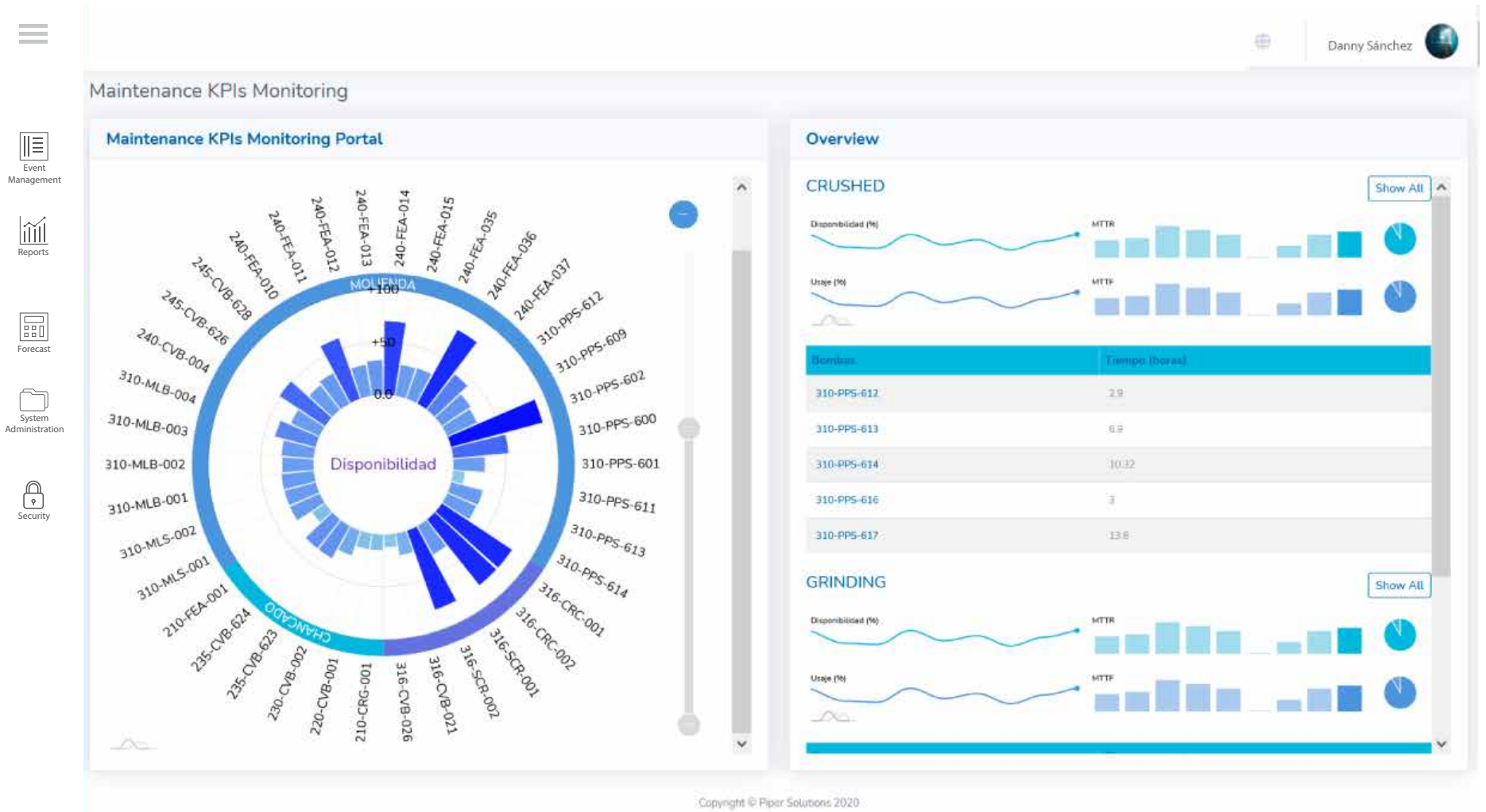
5. Jack-Knife Diagram

Report designed based on the Jack Knife analysis, it allows us to calculate and visualize a comparative-relative analysis of the frequency of occurrence of failures against their repair times, then to be able to graph them in four quadrants according to their criticality: acute , chronic, under control and acute-chronic.
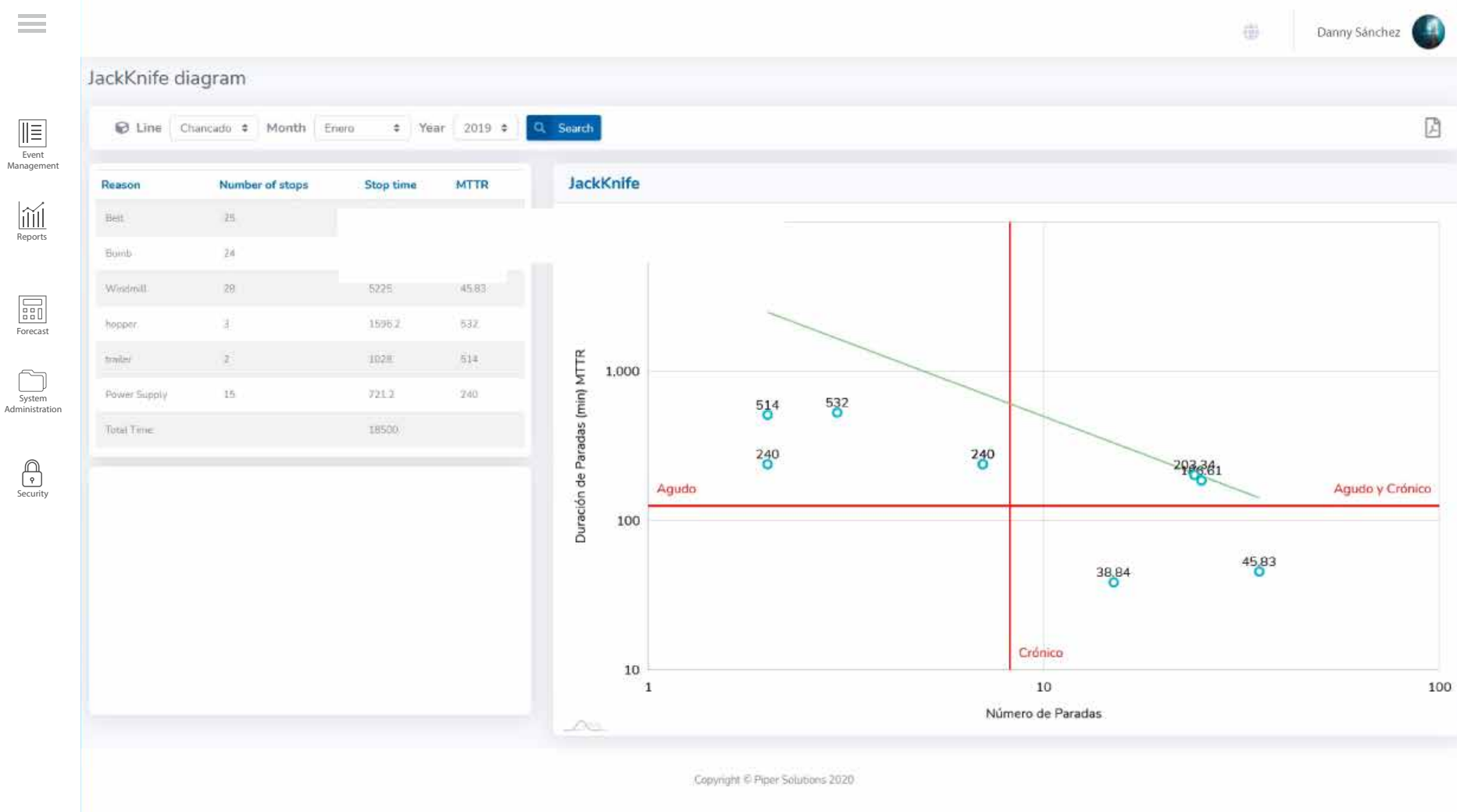
6. Maintenance Times

Report that allows a detailed comparison of the different areas or assignments (times of maintenance, operations, operations or others), previously registered, that intervene in a period of time.
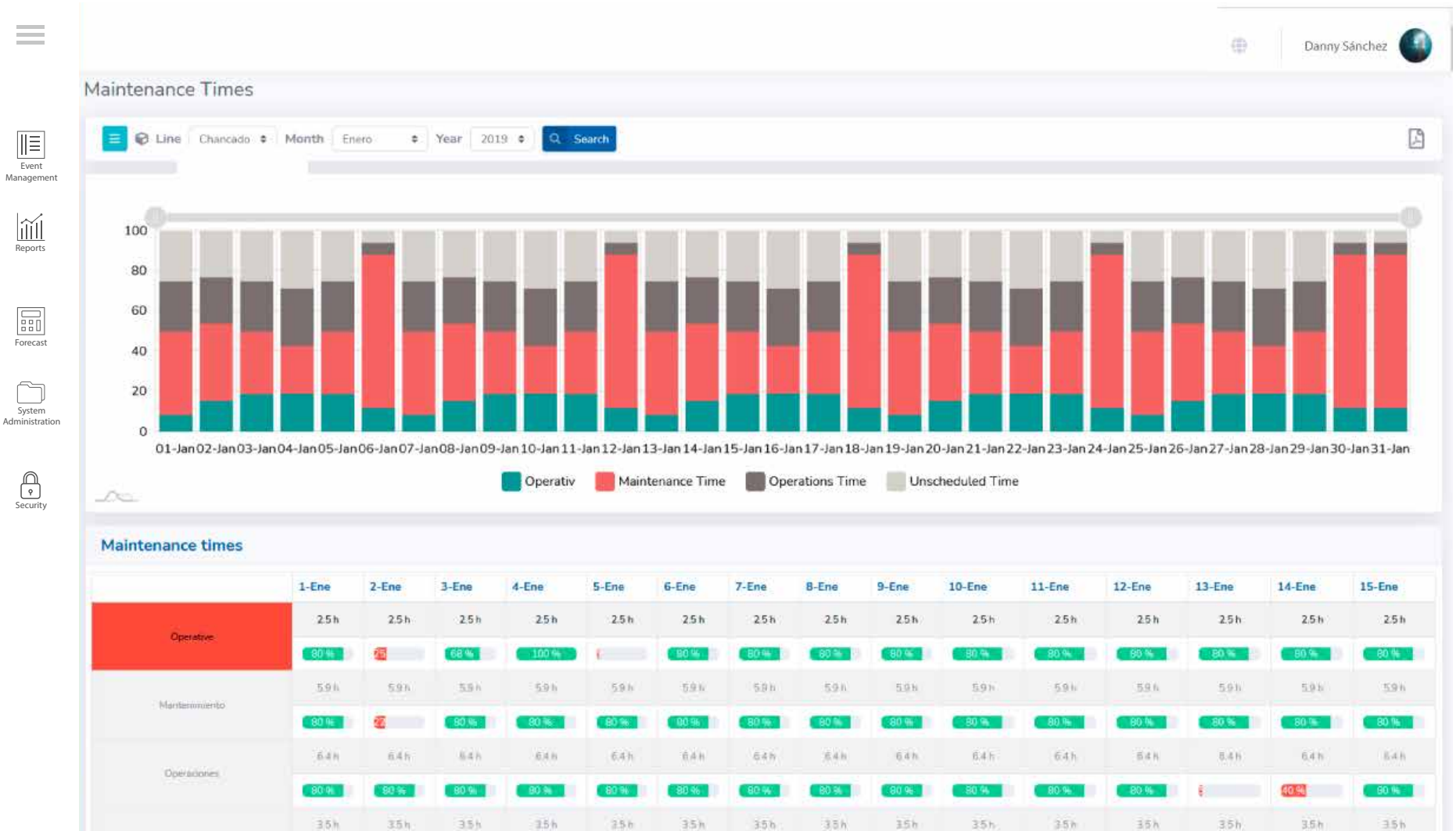
7. Monthly Availability

Report designed to obtain and compare the time that an area, line or equipment was physically available to work in a given period of time, in this case monthly.
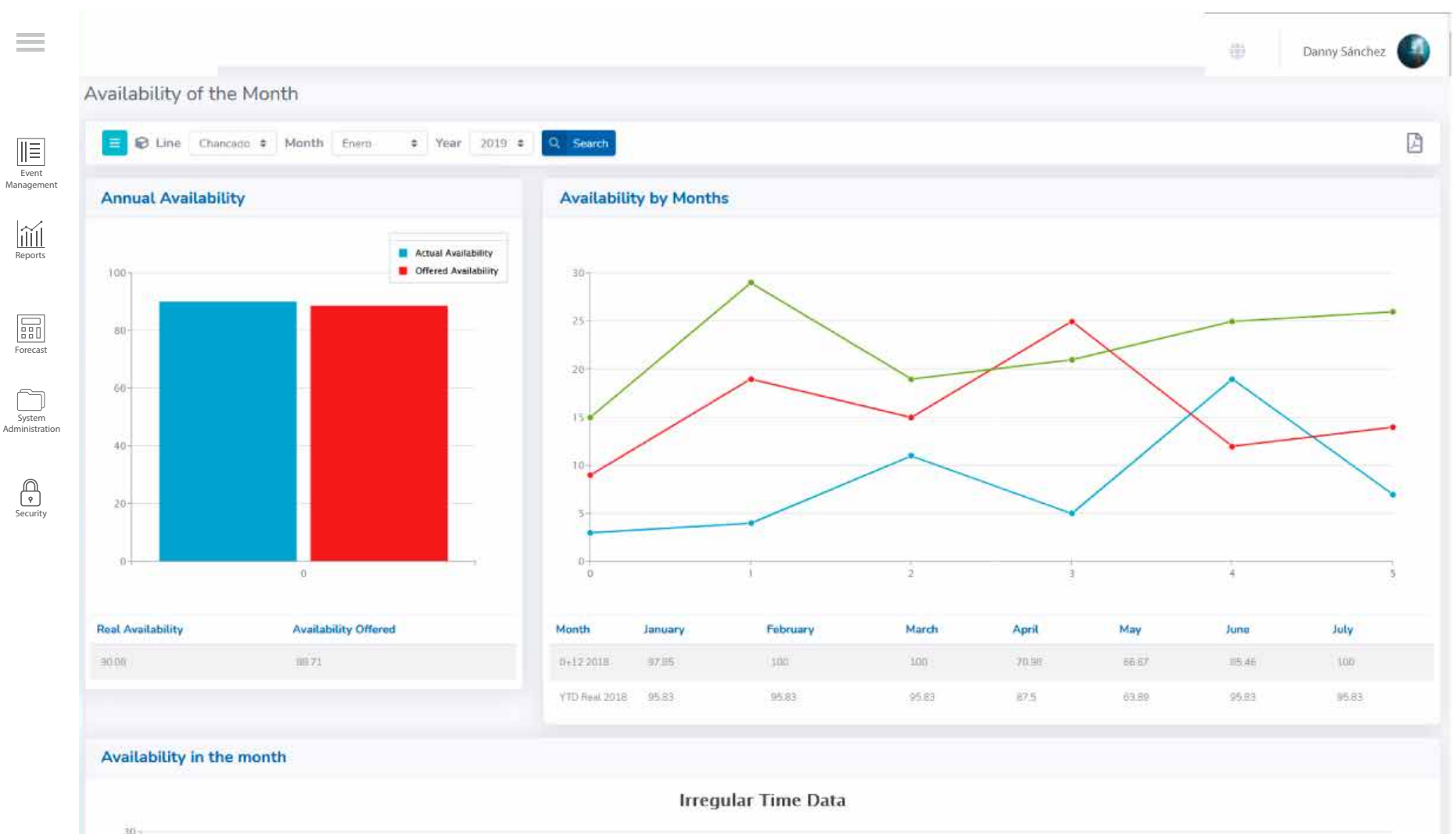
8. Pareto of Detentions

Report designed to visualize in detail the evolution of the availability of the plant or organization, and compare it with the estimate previously entered (Budget – forescast).
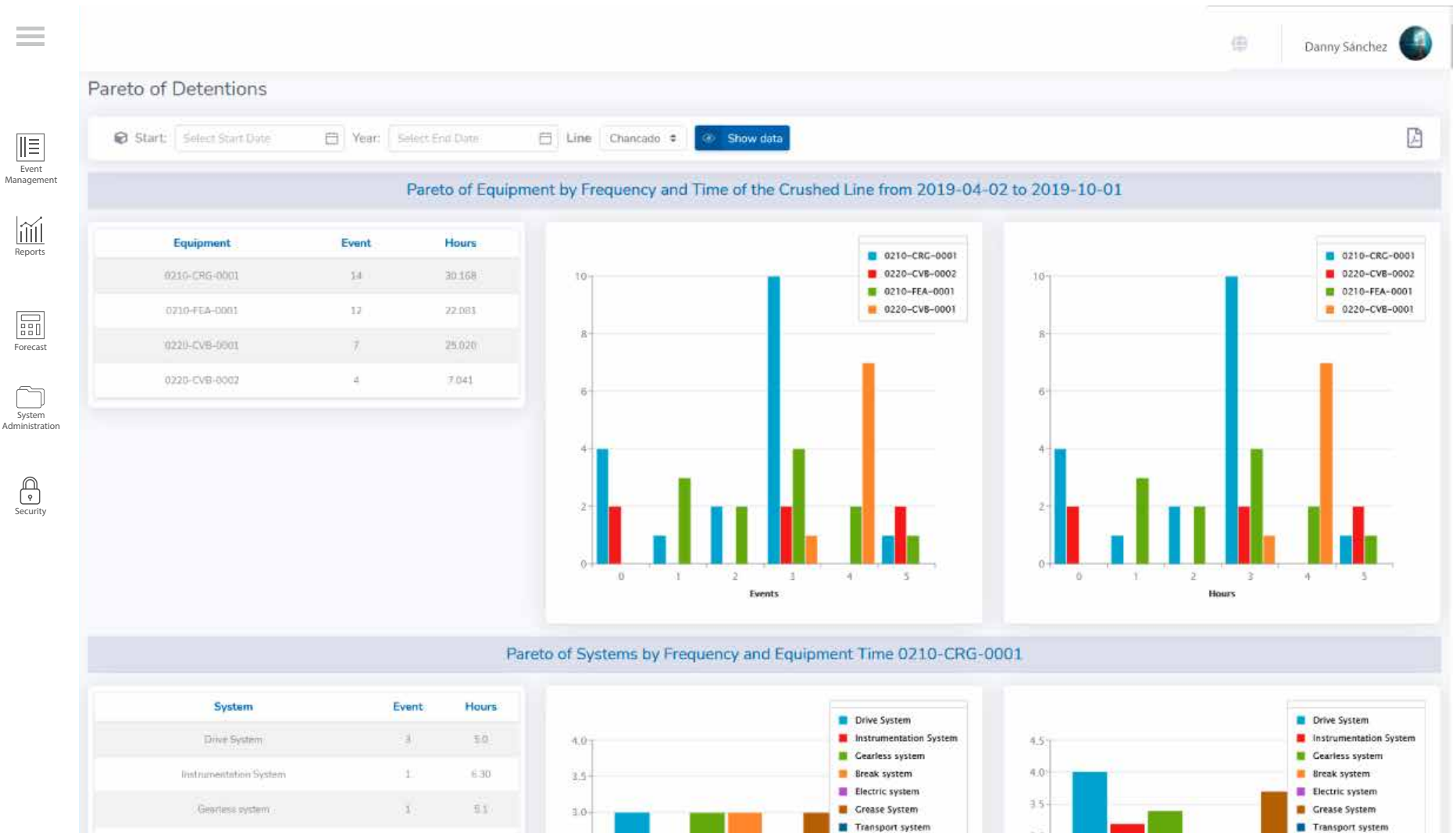
Dashboard 1

Dashboard 2
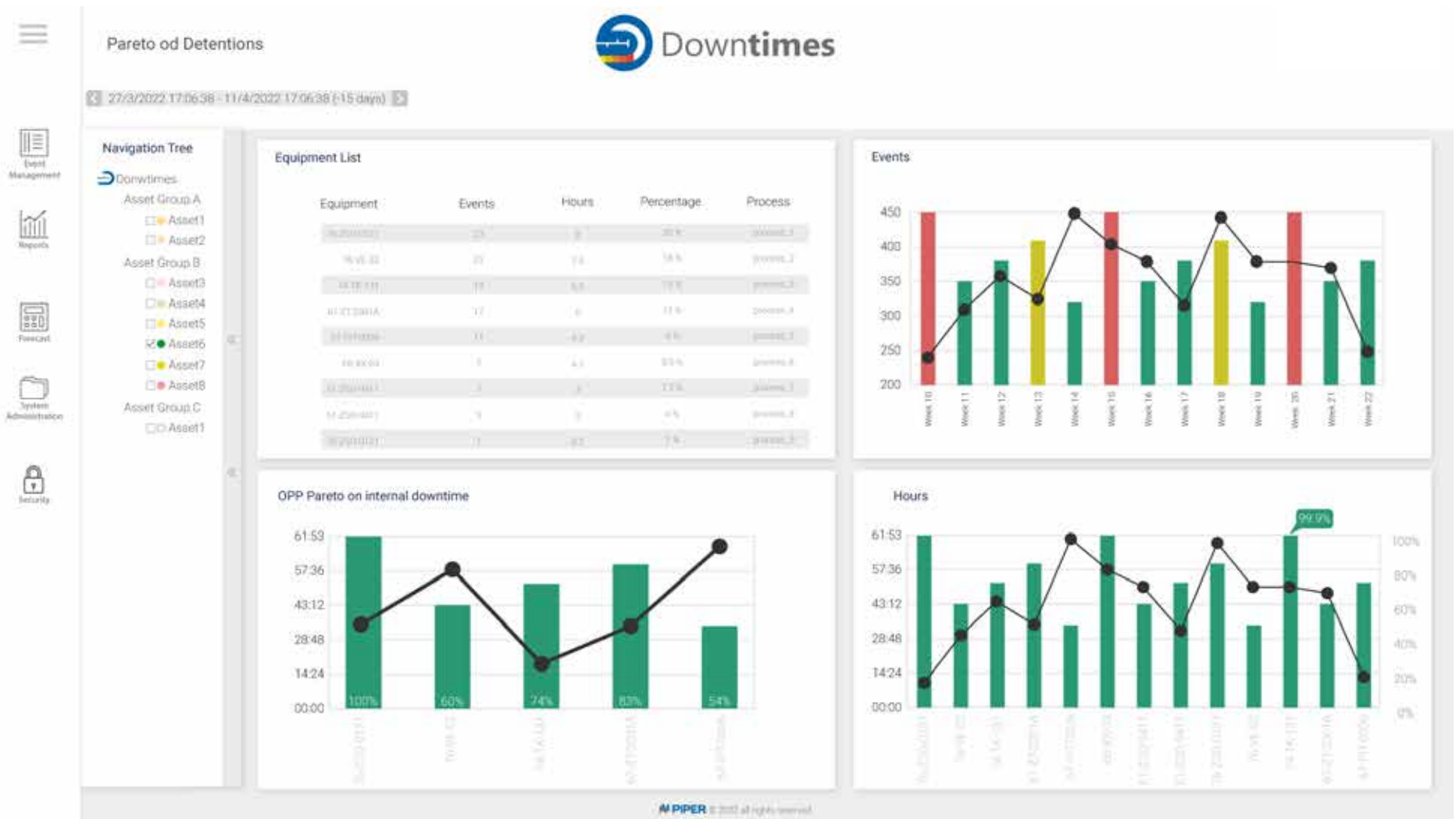
9. Overall Equipment Effectiveness

The OEE module (Overall Equipment Efficiency or General Equipment Efficiency) allows us to visualize the percentage ratio to measure the productive efficiency of equipment, processes and areas of the industry. The advantage of calculating the OEE is that it allows us to measure all the fundamental parameters in industrial production: availability, efficiency and quality.

Dashboard 1
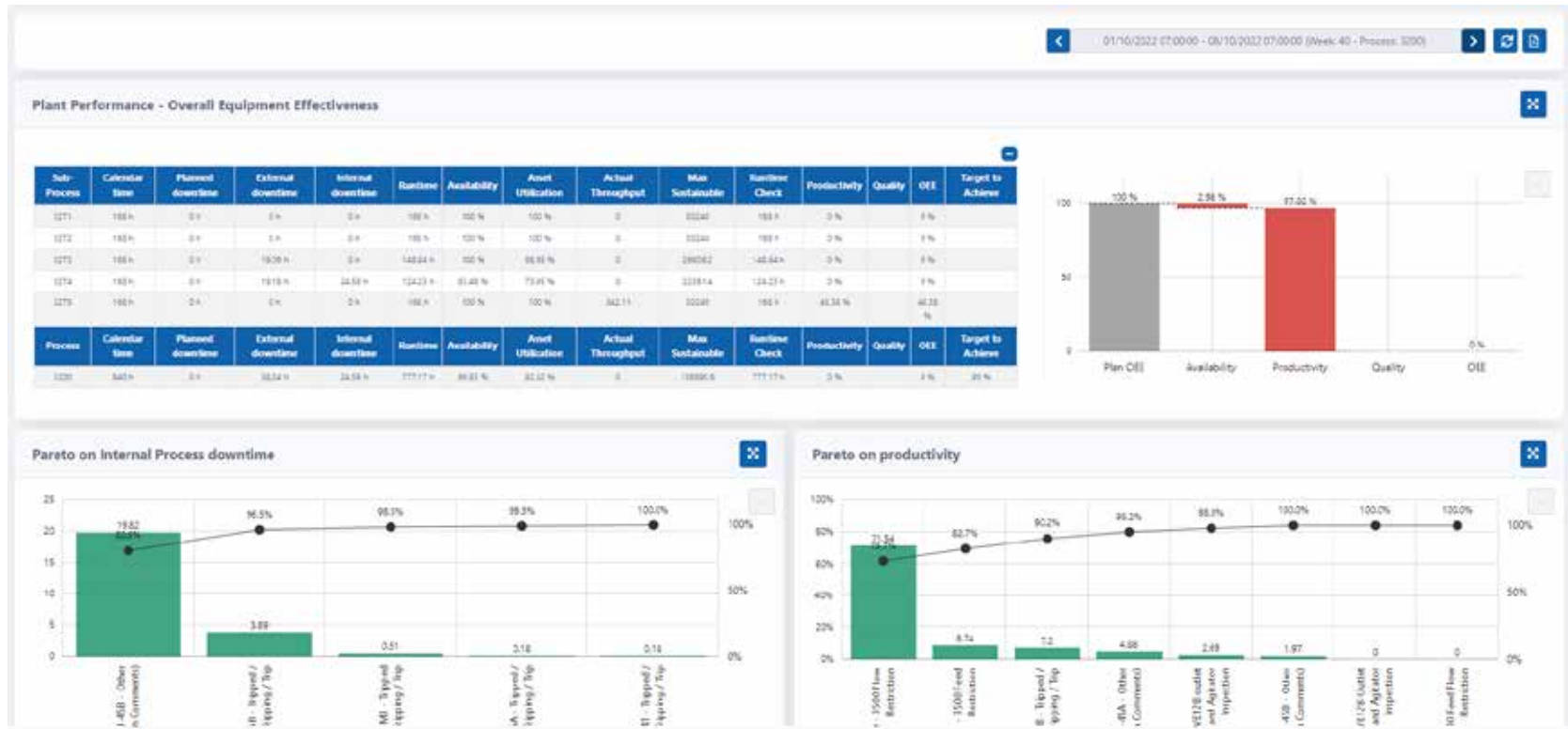
Dashboard 2
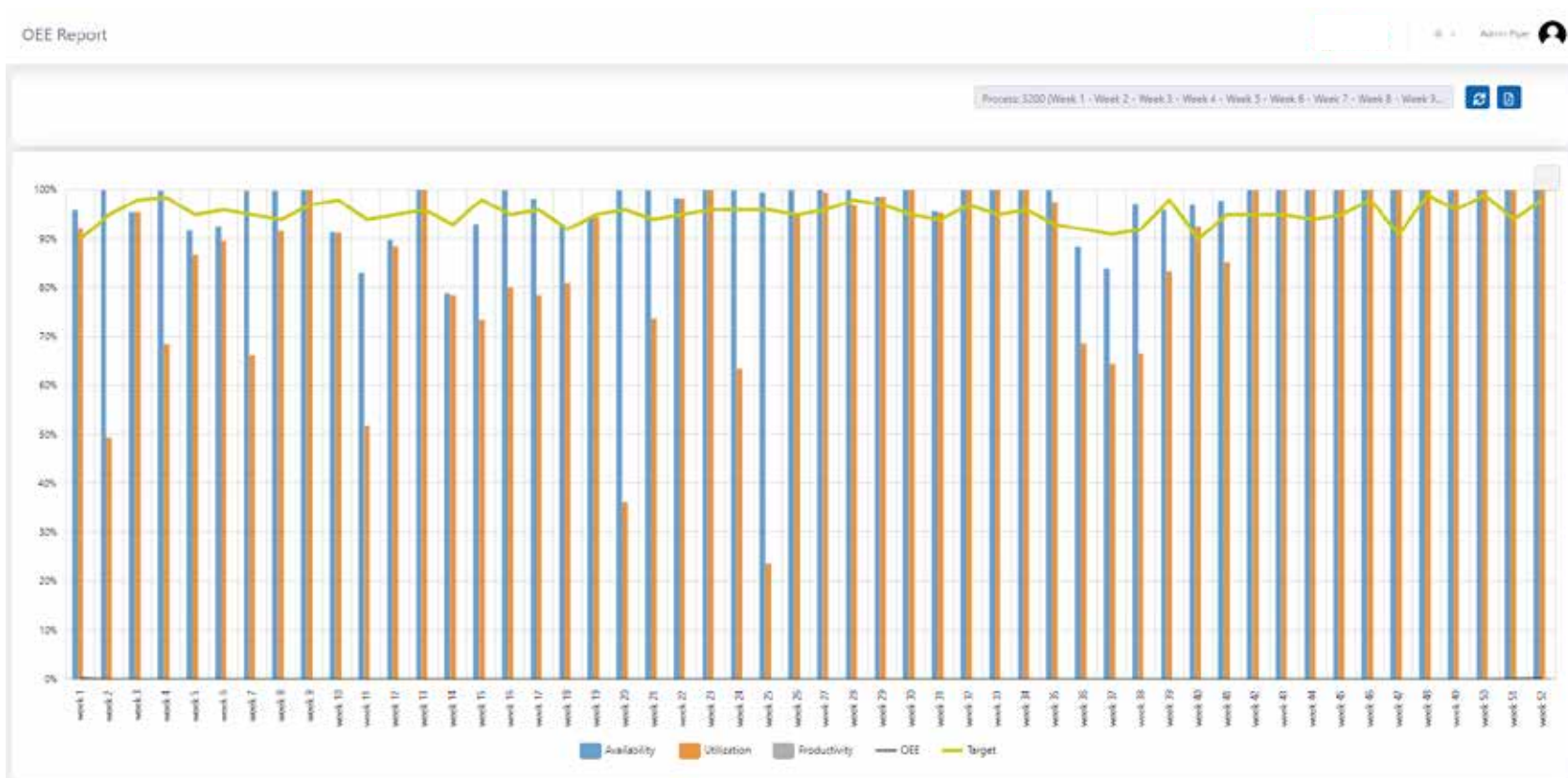
Events

Event Management:

Downtimes allows you to reduce the time used by operators to register events due to Detentions and increase the accuracy of data entered through specific codes (equipment codes, processes, areas, faults, classifications, subclassifications and more).

We managed to systematically improve the productivity of the specialists, and the reliability of the data, in addition to increasing the precision of times, less time dedicated to data management and more time in the analysis and optimization of the process.
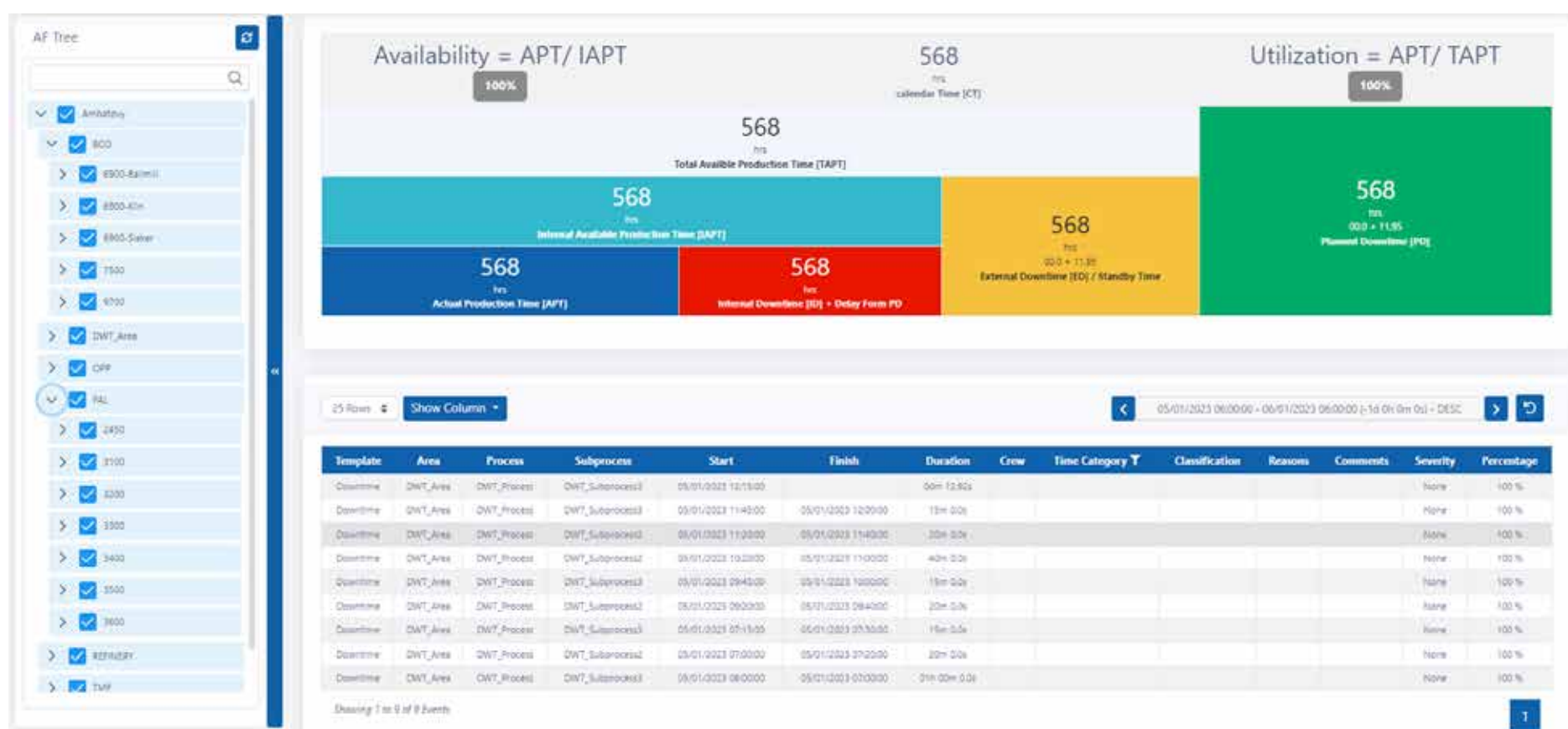
Budget and Forecast

Allows the registration of maintenance schedules, budget and forecast information in order to visualize in real time the comparisons and/or deviations between what is planned vs. what is real.

Maintenance Schedule

Monitoring

Summary of Conditions:

Here the condition of the variables belonging to the equipment is detailed, these conditions may vary according to the type of equipment.

Condition Detai

Visualize in real time the conditions of the asset variables: operating variables, oils, vibrations and wear. The user has the facility to edit the limits of each variable.l

Condition Detail - Create Event

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Analysis

Trends:

Module that allows navigation between plant assets and their corresponding variables. The objective of this module is to carry out an analysis of the behavior of the component of a piece of equipment by means of a trend graph and to be able to compare it with other signals. The module allows cross-checking data with different pieces of equipment and being able to establish limits and appreciate the deviations of the signals. quickly and dynamically.
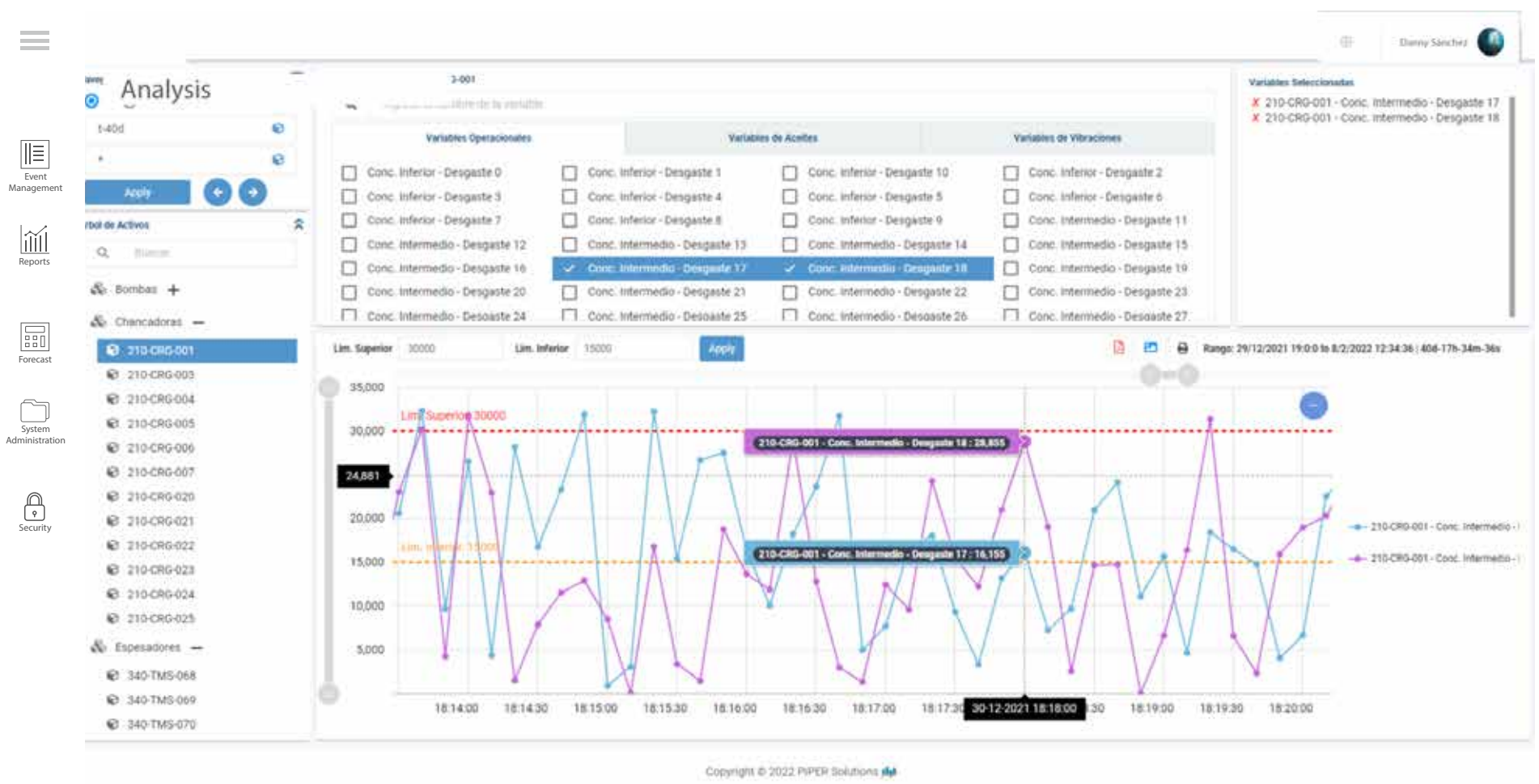
Plant Performance Monitoring:

It allows to monitor your industrial plant in real time, visualize the number of detentions, the workflow and the status of critical assets.
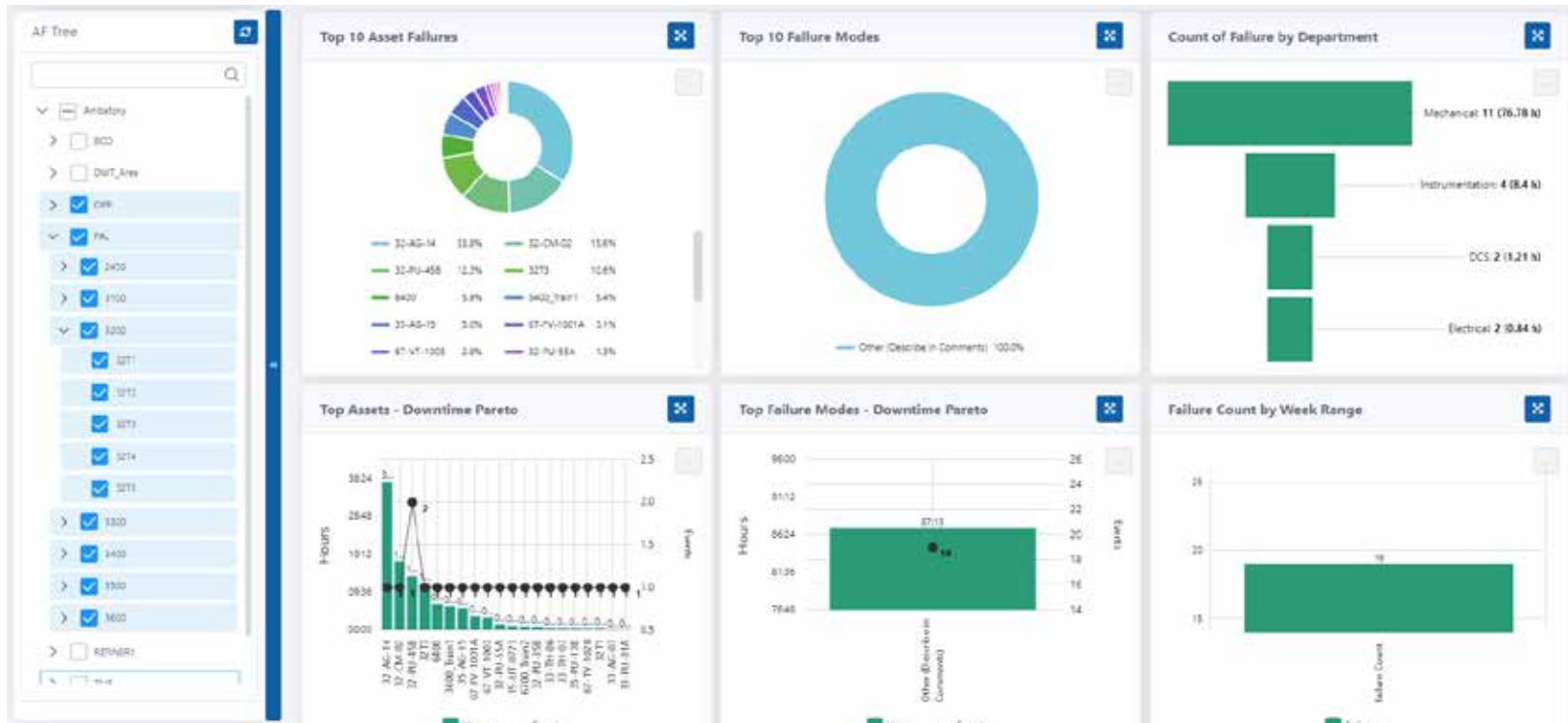
Overall Plant Analysis:

This module allows us to interact with the information entered, at the level of being able to make different combinations and generate specific analyses, either by process area or equipment, as well as being able to separate them by departments, work areas, and even types of failure; all this in dynamic time periods.
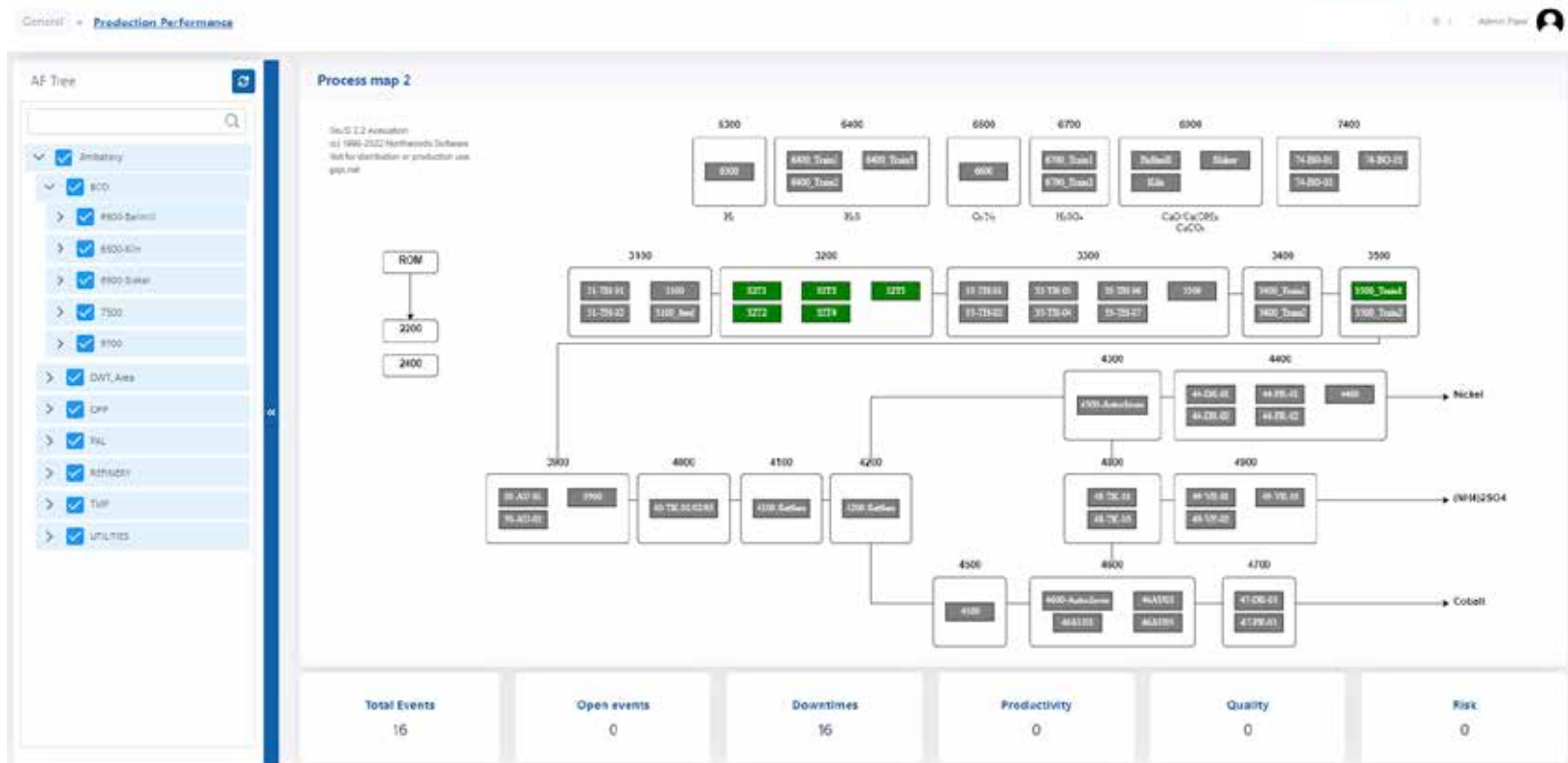
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