TRA2022

TRANSPORT RESEARCH ARENA
LISBON 2022

POSTER SESSION

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Advanced Analytics Enhancing Infrastructure Availability

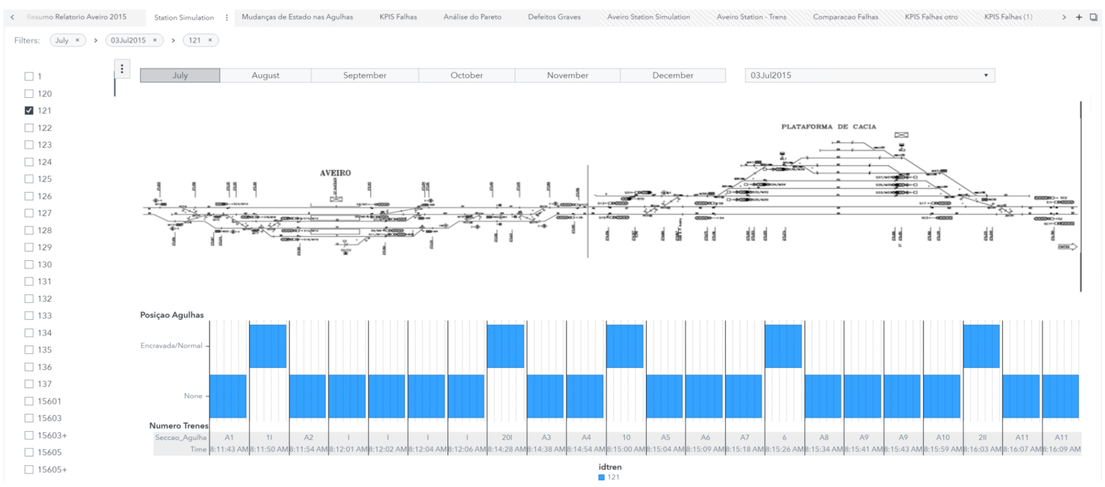
PROBLEM TO ADDRESS

Railway turnouts are a sensitive element of the railway infrastructure. A single failure of a turnout leads to important traffic disruptions and the unavailability of the railway infrastructure until a maintenance team solves the issue. In 2019, turnout failures were responsible for 30% of total delays due infrastructure issues.

A better understanding of their behavior throughout the operational phase will lead to better maintenance and fewer failures. Current solutions to address this problem are mainly the use of external sensors, at great additional cost.
This POC used a different approach: using data related to turnout movements and getting relevant knowledge of their behaviour using advanced analytics, without the need to install sensors.

DATA SET

The data set used comprised 6 months of the Aveiro Station on the Linha do Norte.



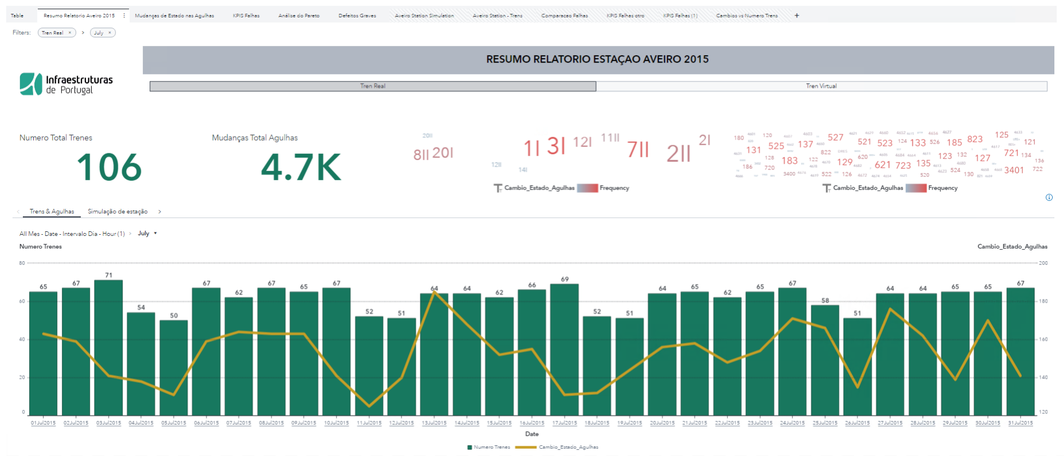
PROOF OF CONCEPT

Analysis of data generated on the Operational Command Centres without current useful use, to obtain knowledge about turnout movements and anticipate failures.

RESULTS

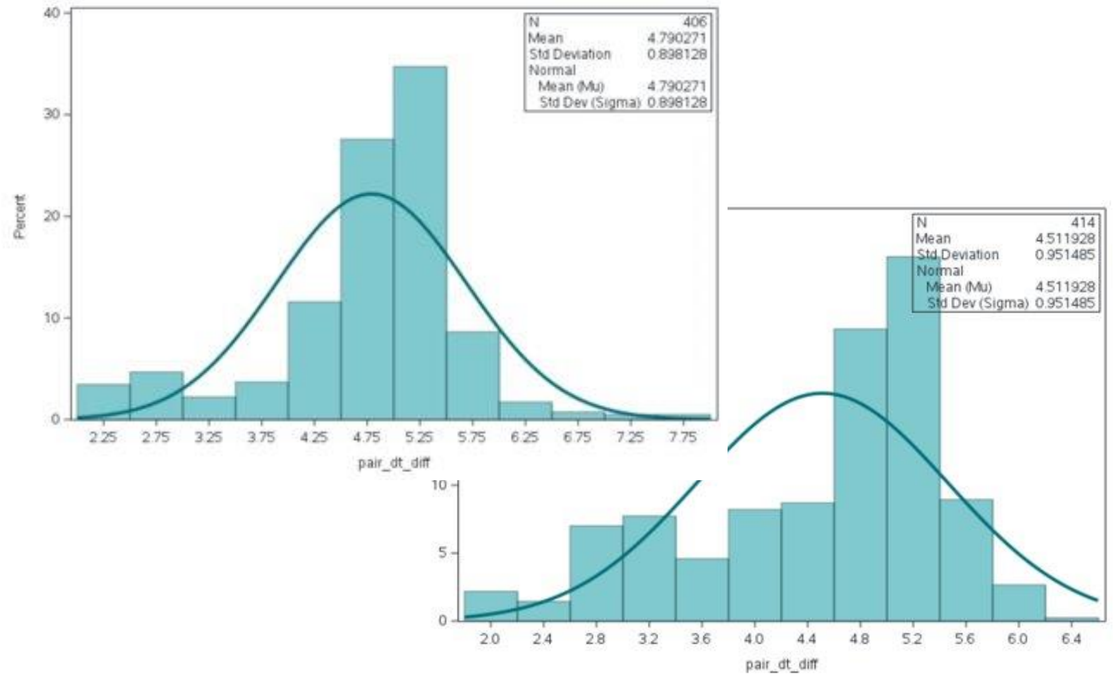
KNOW YOUR ASSETS

The first phase was to correctly know and understand the assets and its behavior.



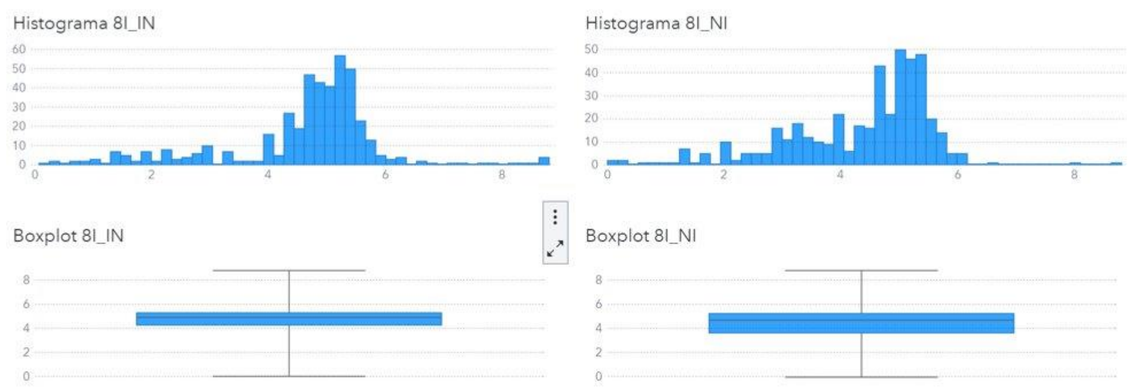
UNDERSTAND ITS ALARMS

The next phase was to define a baseline and observe and analyze outliers to that baseline.



PREDICT ITS ALARMS

The following phase will be through the usage of advanced analytics and machine learning models to predict when such alarms will happen



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