

After Sales Service

Function : #Warranty | Industry : #Manufacturing Industry

Goal

- To represent the root cause of failures.
- To determine the time for first failure of an equipment part and forecast number of future breakdown calls for that part.
- To identify interdependency of part failures.

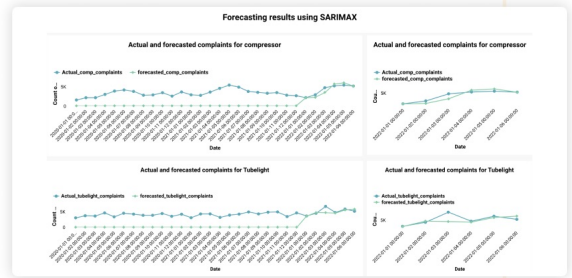
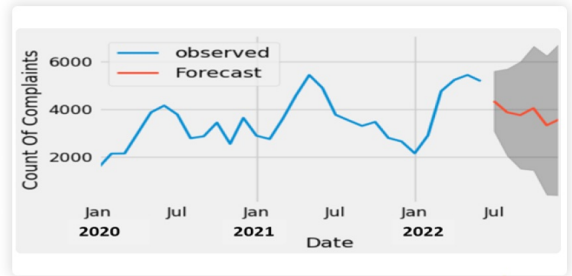
Technique

- Statistical Analysis
- Root cause Analysis
- Reliability Analysis
- Time Series Forecasting
- Visualization

Impact

- Based on root causes of failure, location/maker wise strategies can be planned to avoid early failure.
- Reduction in number of breakdown calls and associated cost.
- Early warning breakdown calls helps in taking preemptive measures.
- Identified sequence of patterns for failure of parts, helps in preventive actions.

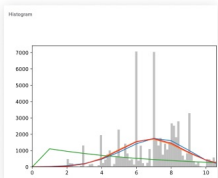
Result



Value Points

Understand the what, why, when, where & how

Reliability Analysis



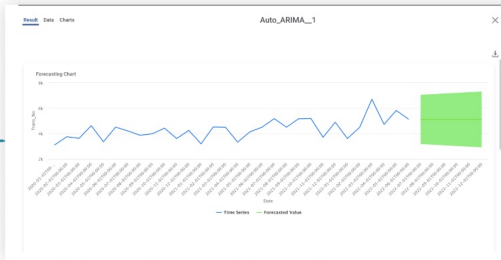
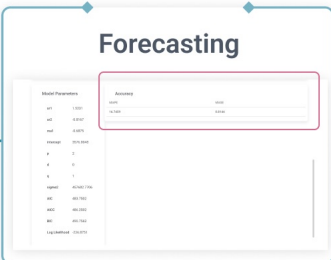
Distribution - Beta
 Location: 8.721 | Scale: 7.9066 | Shape: -3.3905

Time period - 5 yrs
 Probability of failure before 5 years: 24.05 %
 Reliability Estimation at time 5 years: 75.95 %

Distribution fitting and extracting parameters for reliability analysis

Determining the failure probability of equipment at different stages of its lifecycle serves a critical role in establishing the warranty period for that equipment.

Forecasting



Forecasting Breakdown Calls Using Auto-ARIMA And SARIMAX Models

Forecasting future breakdown calls for that part, helps in taking preemptive measures.

Association Rules

Log Trace Custom Component Log

Problems Suggestions

- 0 No Cooling (Light defective: 6, No power: 6, Door Problem: 4, Wiring problem: 4)
- 1 Light defective (No Cooling: 6, No power: 6, Door Problem: 5, Wiring problem: 5)
- 2 No power,Light defective (No Cooling: 3, Wiring problem: 2, Door Problem: 2)
- 3 No Cooling,Light defective (No power: 3, Door Problem: 2, Wiring problem: 2)
- 4 No Cooling,No power (Light defective: 3, Wiring problem: 2, Door Problem: 2)
- 5 No power (No Cooling: 6, Light defective: 7, Door Problem: 5, Wiring problem: 5)
- 6 Door Problem (No Cooling: 4, Light defective: 4, No power: 4)
- 7 Door Problem,Light defective (No Cooling: 2, No power: 3, Wiring problem: 2)
- 8 No Cooling,Door Problem (Light defective: 2, No power: 2)
- 9 Wiring problem (No Cooling: 4, No power: 4, Light defective: 5, Door Problem: 1)
- 10 Wiring problem,Light defective (No Cooling: 2, No power: 3, Door Problem: 2)
- 11 No Cooling,Wiring problem,Light defective (No power: 1)
- 12 No Cooling,No power,Light defective (Wiring problem: 1, Door Problem: 1)

Association Rule Mining Using Apriori Algorithm

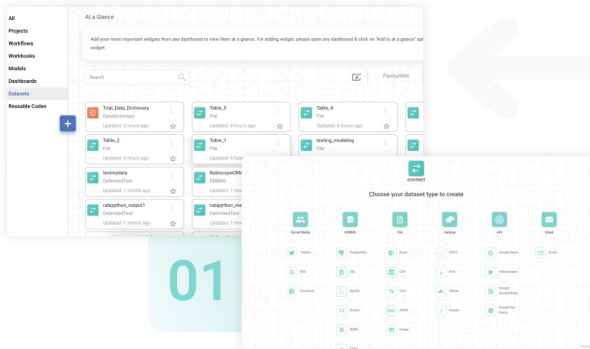
To identify interdependency of part failures using association rules which helps businesses to plan the demand for spare parts availability.

Multi Persona DSML Platform

For all your data needs- Data Engineering, Data Science, Data Visualisation, IoT



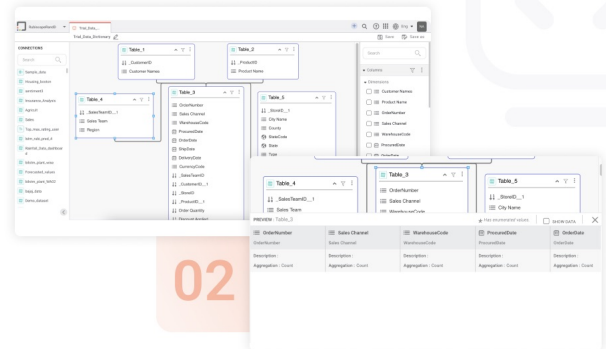
Data Connect



01

After Sales Service Data

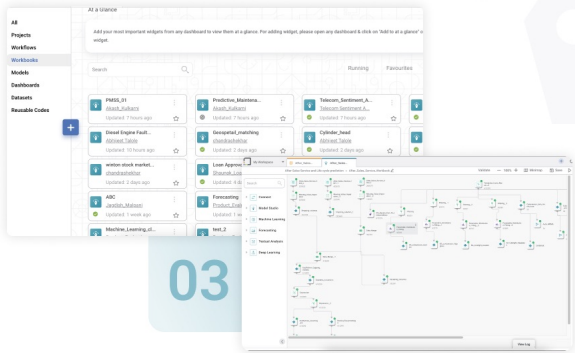
Metadata Manger



02

Comprehensive Data Operations, encompassing Metadata Management

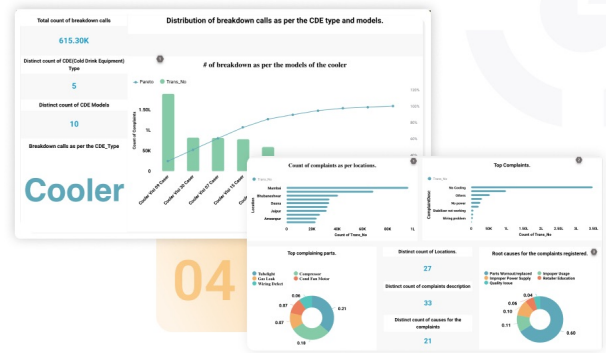
Model Studio



03

Modelling, encompassing the selection and configuration of models

Visualisation



04

Viz Ops, Illustrating The Core Trends And Graphical Representations

Agile Data Science

Encapsulating best practices, tools and methods

Data Ops

Data Architect Data Manager

ML Ops

ML Experts Data Scientist

Viz Ops

CXO Analyst

Tech Ops

Administrator Cloud architect

Ideate

- What is the goal?
- How can you leverage the data?
- What do you want to predict?

Acquire

- How is data sampled?
- Which data is relevant?
- Any data privacy issue?

Explore

- Plot the data
- Are there anomalies?
- Are there patterns?

Model

- Build a model
- Fit the model
- Validate the model

Present

- What did we learn?
- Do the results make sense?
- Can we tell a story?

Deploy

- Where to Deploy?
- What is the Structure of Pipeline?
- How to Optimise and Scale?