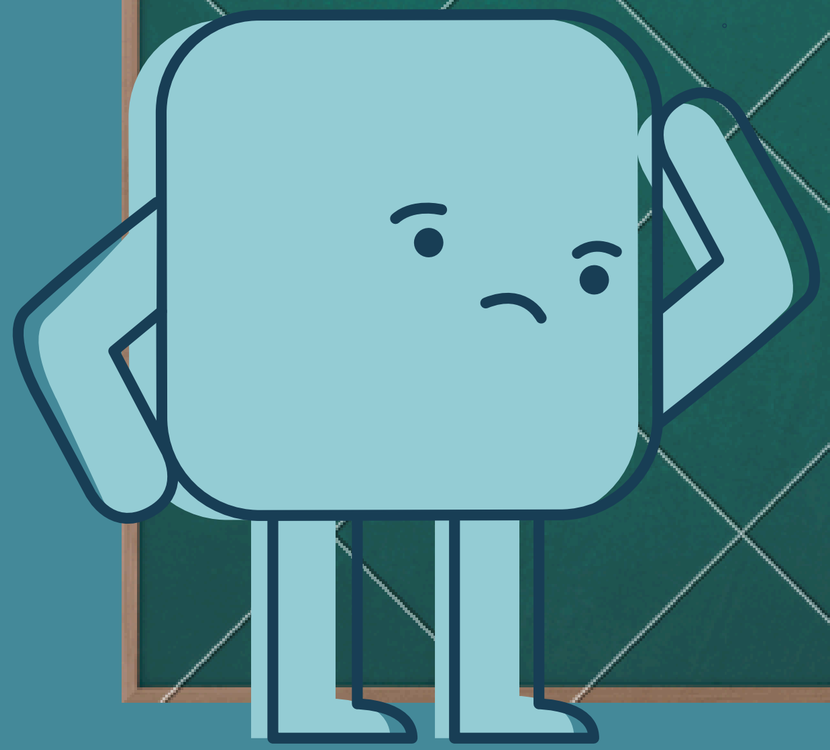

Suppliers Quality Analaysis

TEAM Members

Menna Essam

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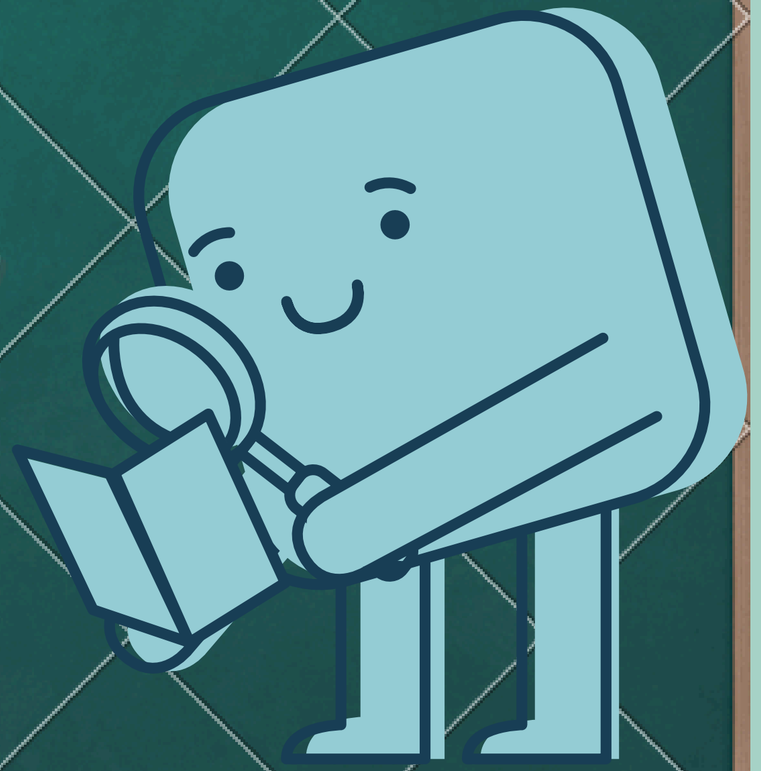
Youssef Mohamed

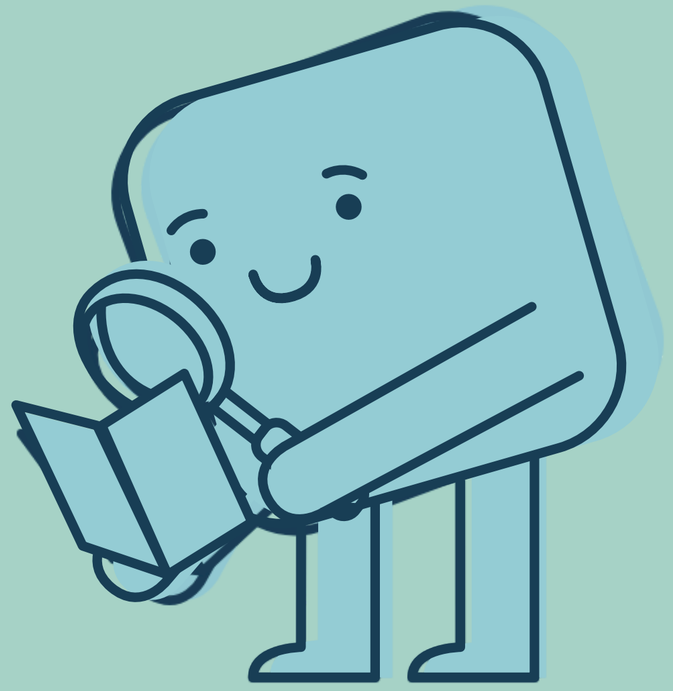
Khaled Elsayed

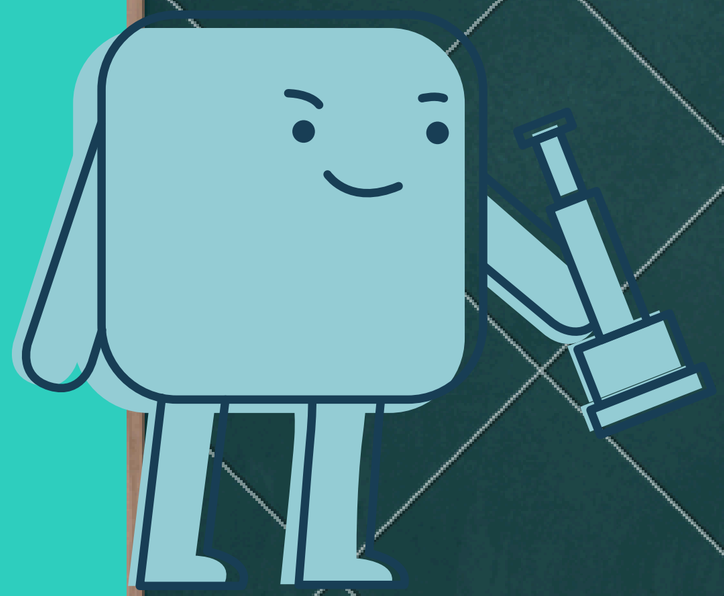
Mohamed Husien



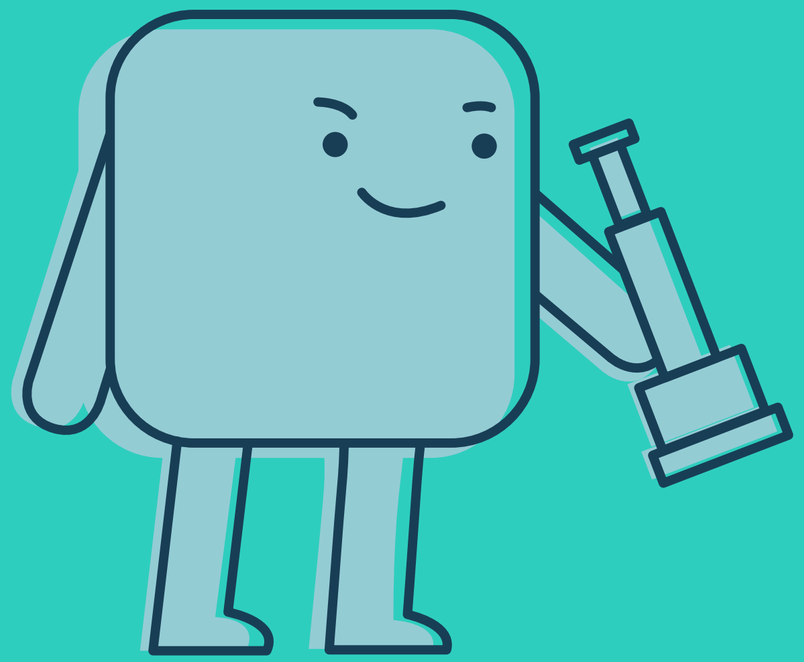
Project Overview

This project analyzes supplier quality by examining defect quantities and downtime across various materials. Using Tableau, we identify trends, high-risk suppliers, and improvement areas to enhance overall supplier performance and production efficiency.





- Who are our best and worst suppliers in terms of quality?
- Which suppliers contribute most to downtime?
- Which suppliers contribute most to defect count?
- Are there specific materials or components that are more prone to defects?



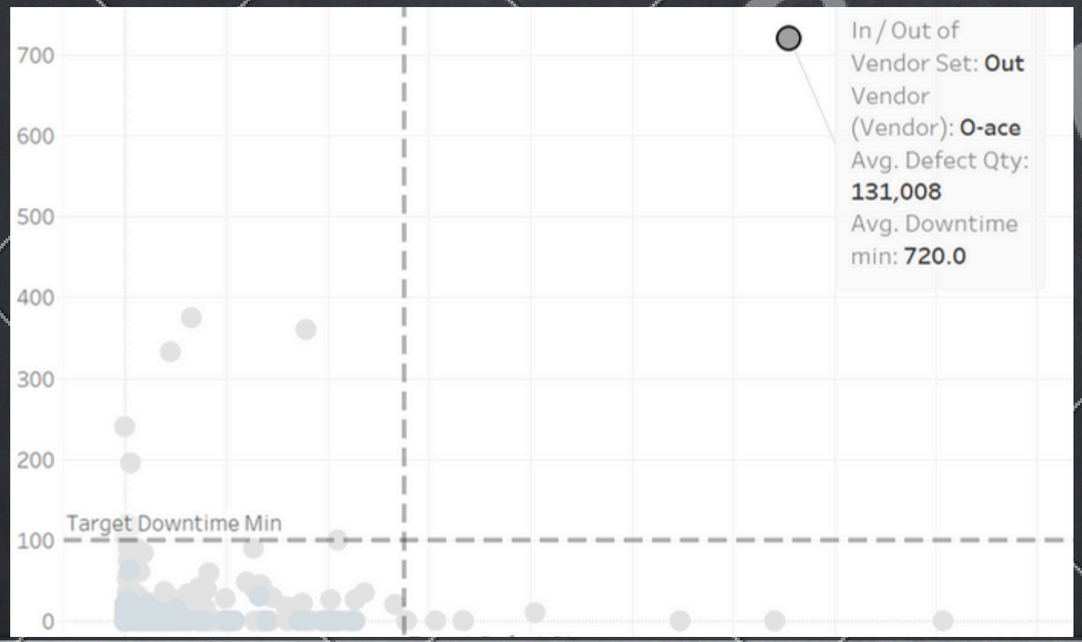
We started by cleaning the data and removing duplicates and remove Nulls using Power Query in Excel and python to ensure accuracy and reliability for further analysis.

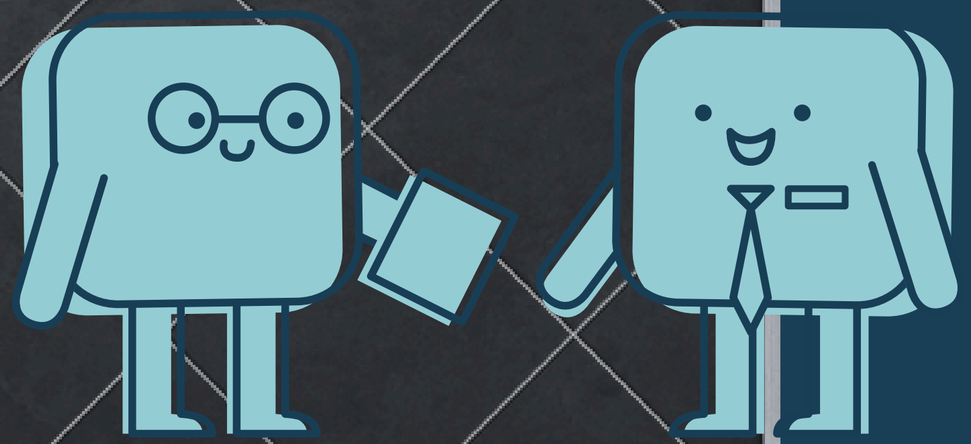
Bad Seams	2
Bad Seams	3
Bad Seams	4
Bad Seams	99
Bad Seams	206

Then using Power Query, we create new dimension which is the Calender

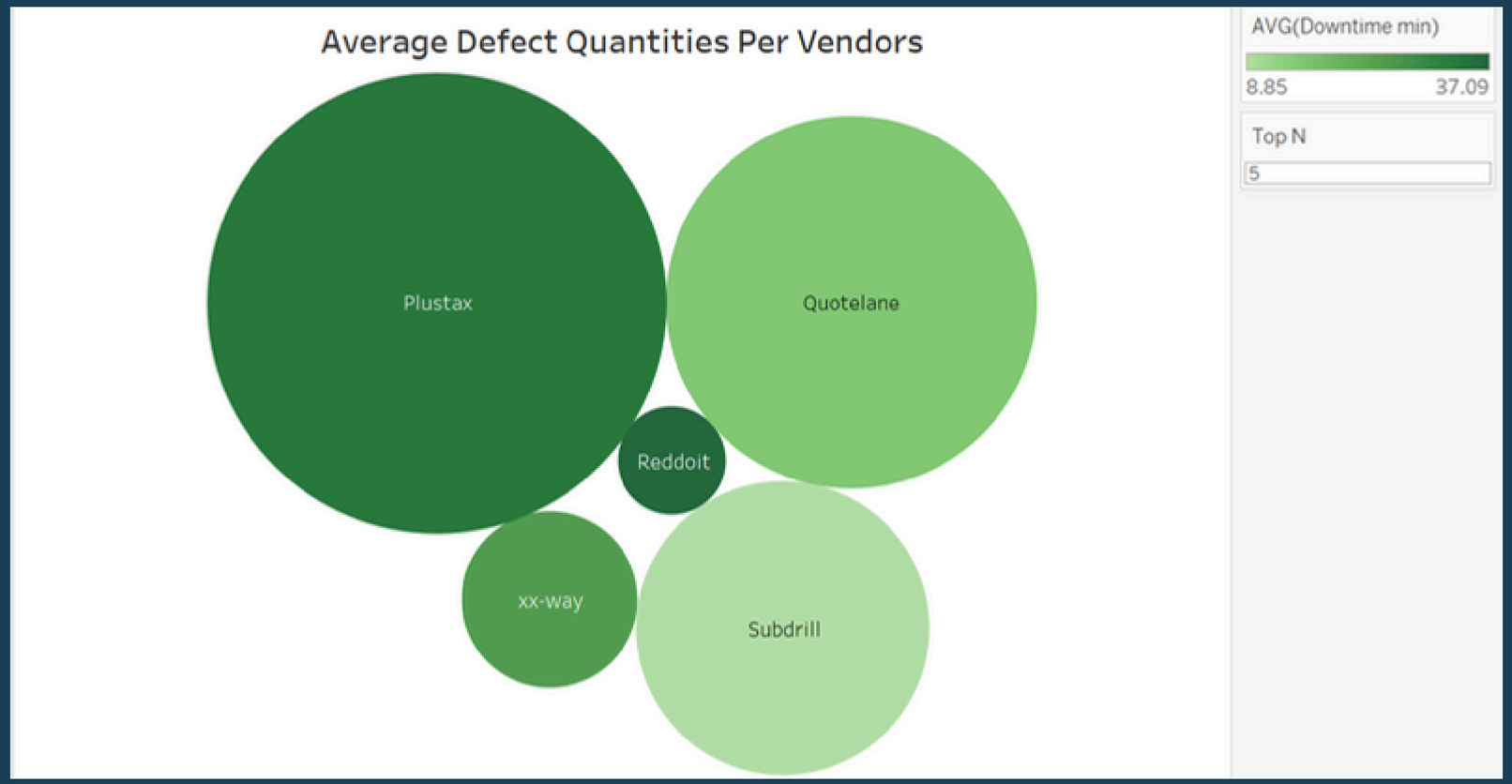

```
let
    StartDate = Date.From(Start),
    EndDate = Date.From(End),
    GenerateDateList = (StartDate as date, EndDate as date) as list =>
    let
        StartNumber = Number.From(StartDate),
        EndNumber = Number.From(EndDate),
        DateList = List.Transform({StartNumber..EndNumber}, each
Date.From(_))
    in
        DateList,
    DateRange = GenerateDateList(StartDate, EndDate)
in
    DateRange
```

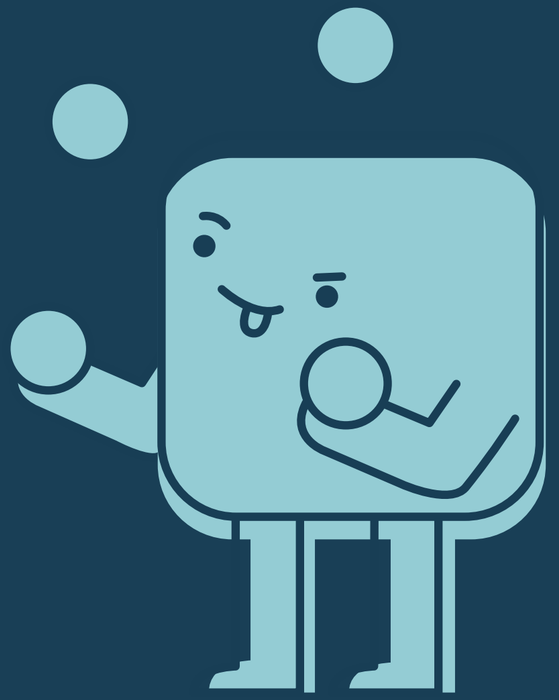
Vendor O-ace, with the highest downtime of 720 minutes, has defects primarily in the packaging category at their Joliet plant.
Recommendation: Addressing these packaging issues could significantly reduce downtime and improve overall efficiency.



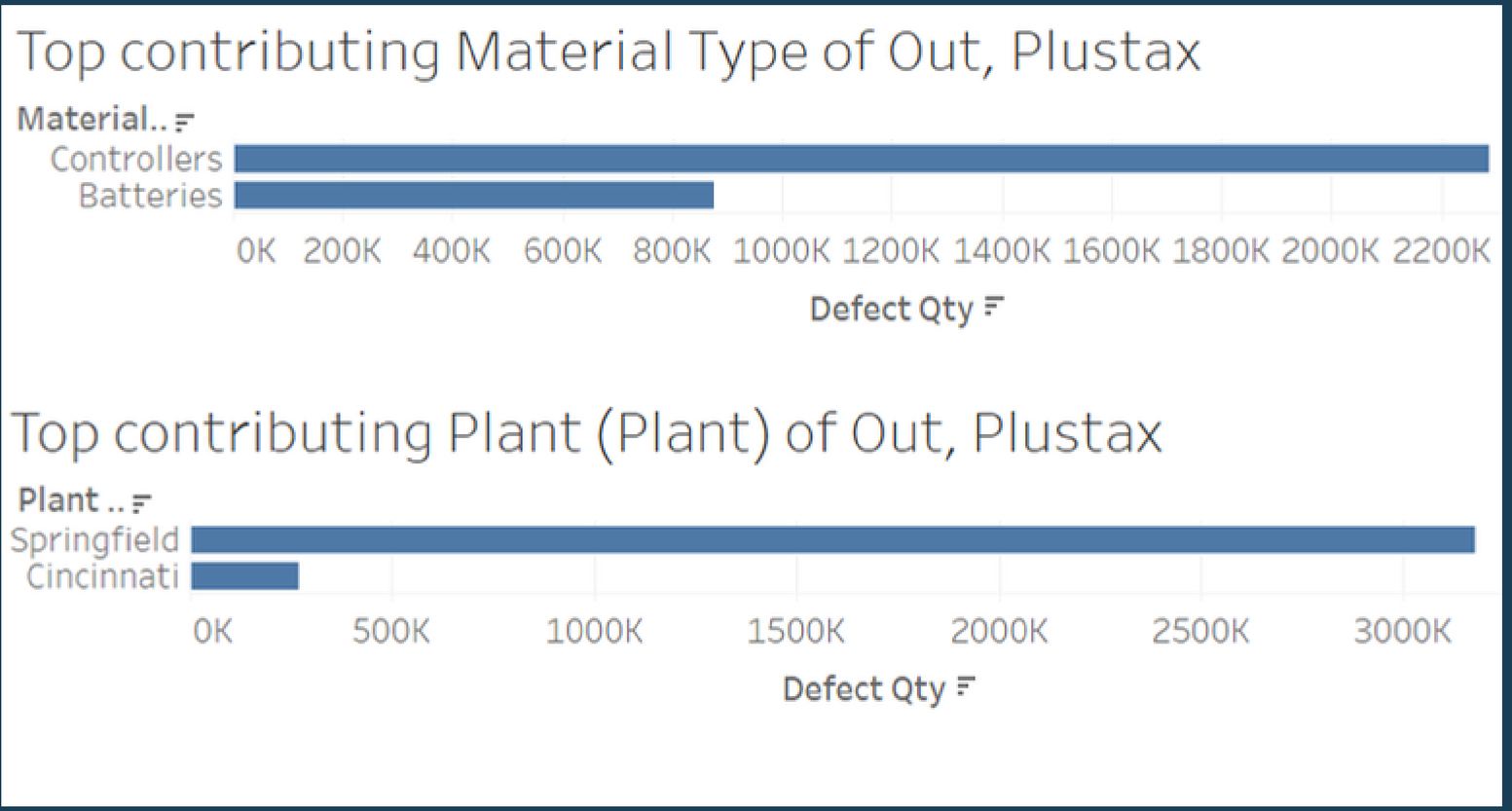


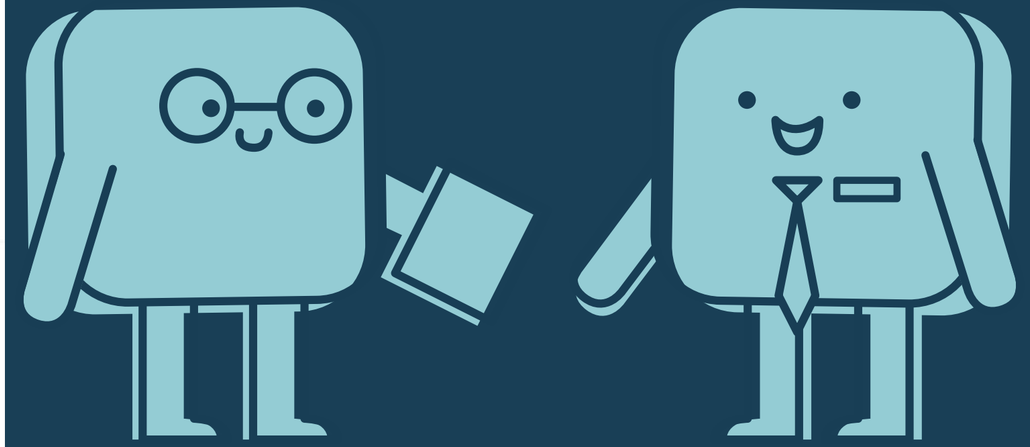
It's clear that Plustax Vendor has the largest Avg Defects Quantity and almost the largest Avg Downtime as shown in the Viz





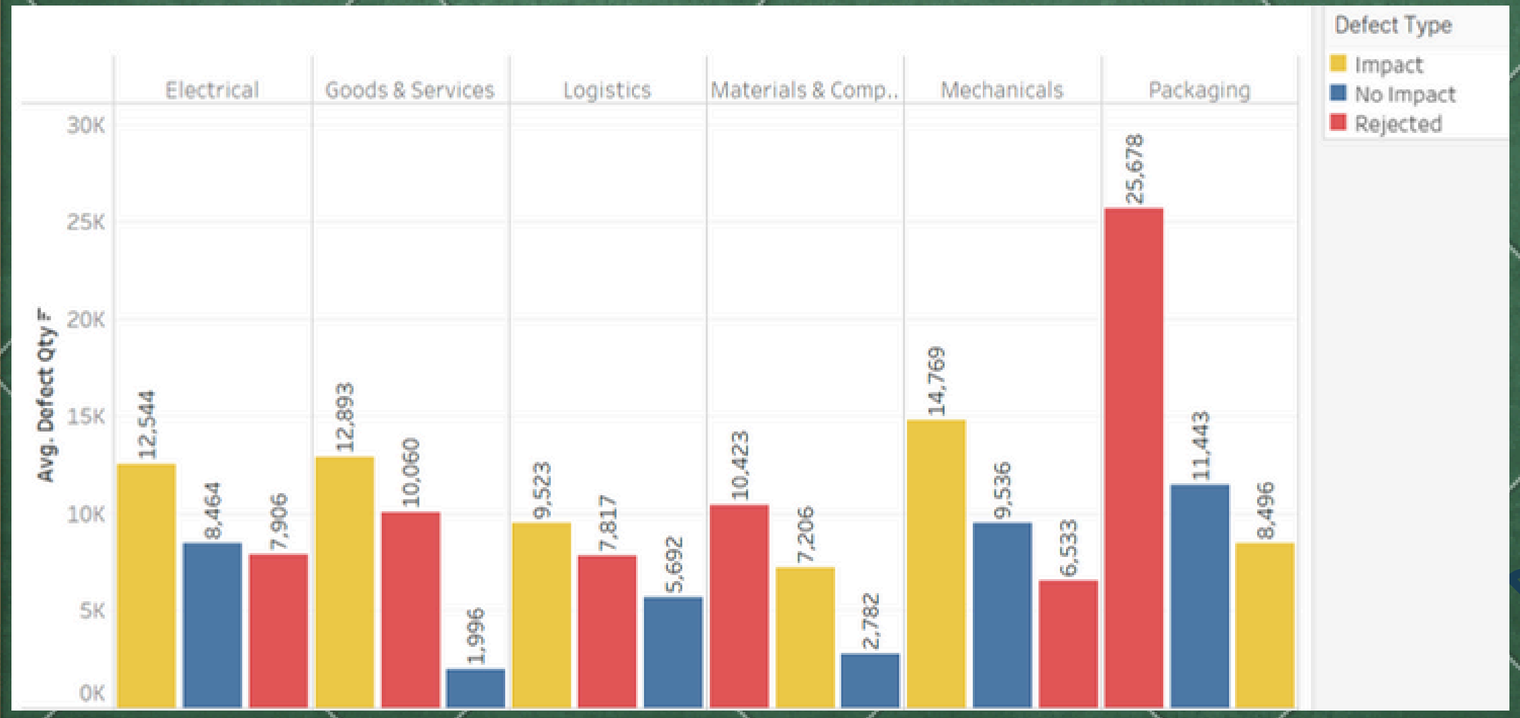
After further analysis, we found that Vendor Plustax faced significant issues in the pain region for the defects Qty, with the Springfield plant being the top contributor to defects. Controllers were the main defective material.

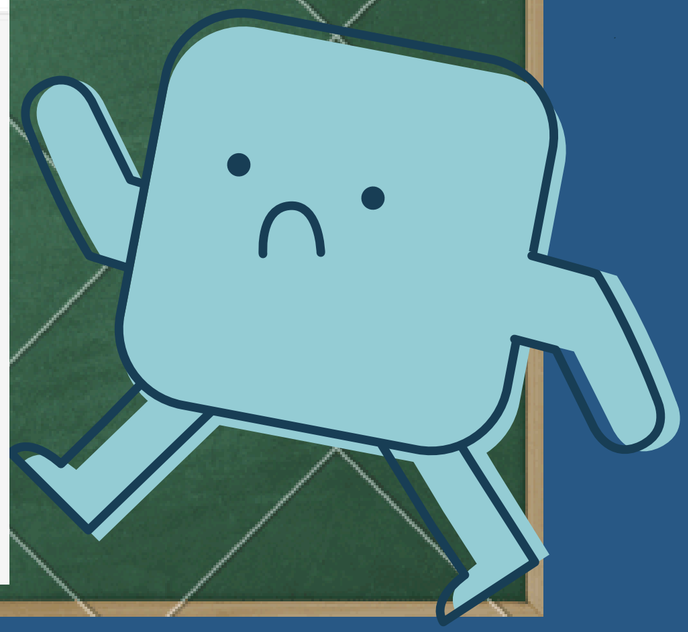




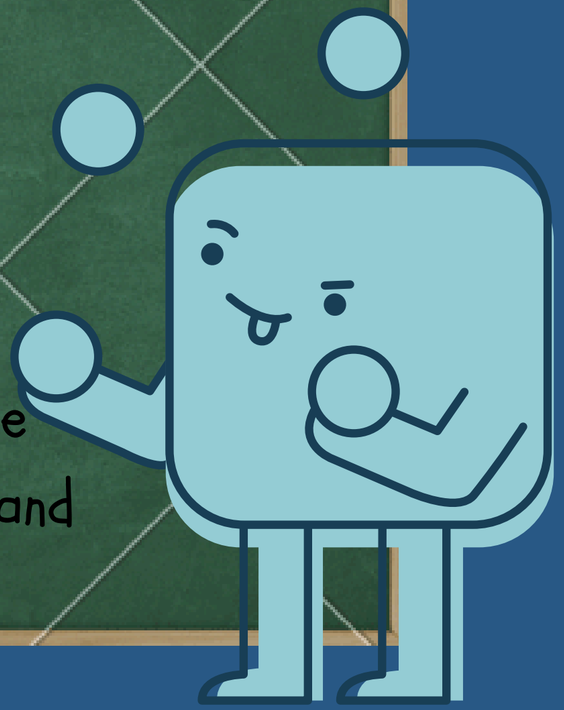
So, We recommend focusing on Springfield and addressing controller issues, Plustax aimed to restore its reputation for quality and efficiency, tackling the problem one step at a time.

We found that the rejected defect type in the packaging category has the highest value, with an average of 25,678.



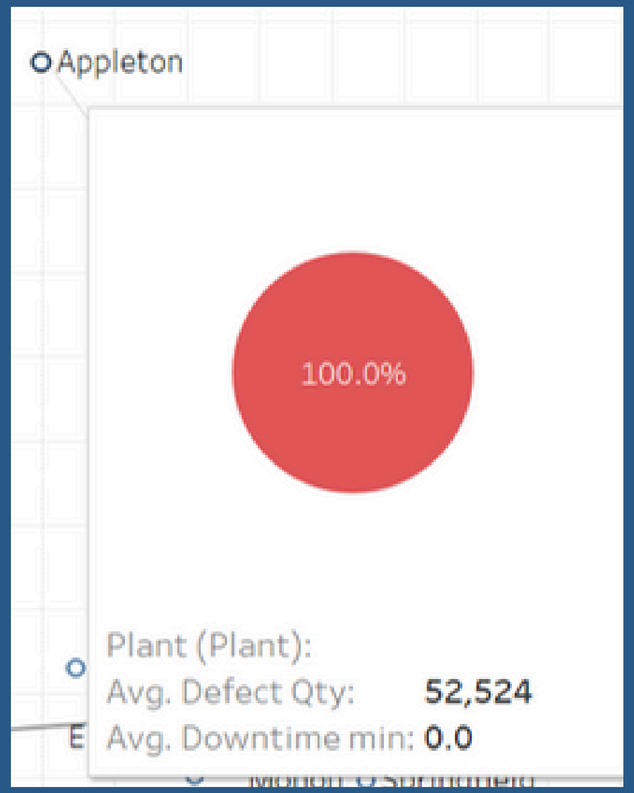


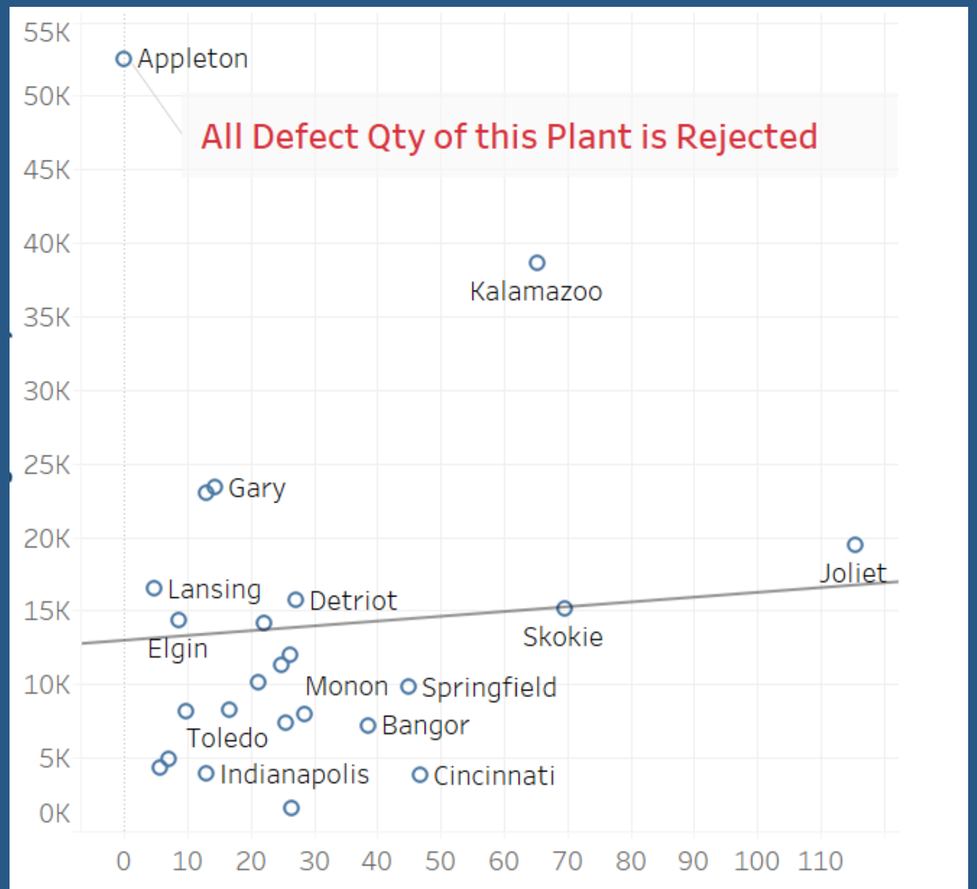
After Further analysis we found the there are two extreme Values



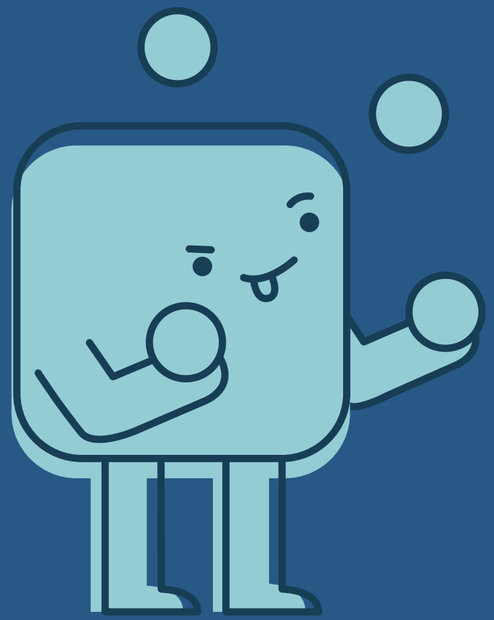
So, We Recommend excluding two extreme values will reduce the average to 23,299. Therefore, these outliers should be reviewed and addressed to improve accuracy.

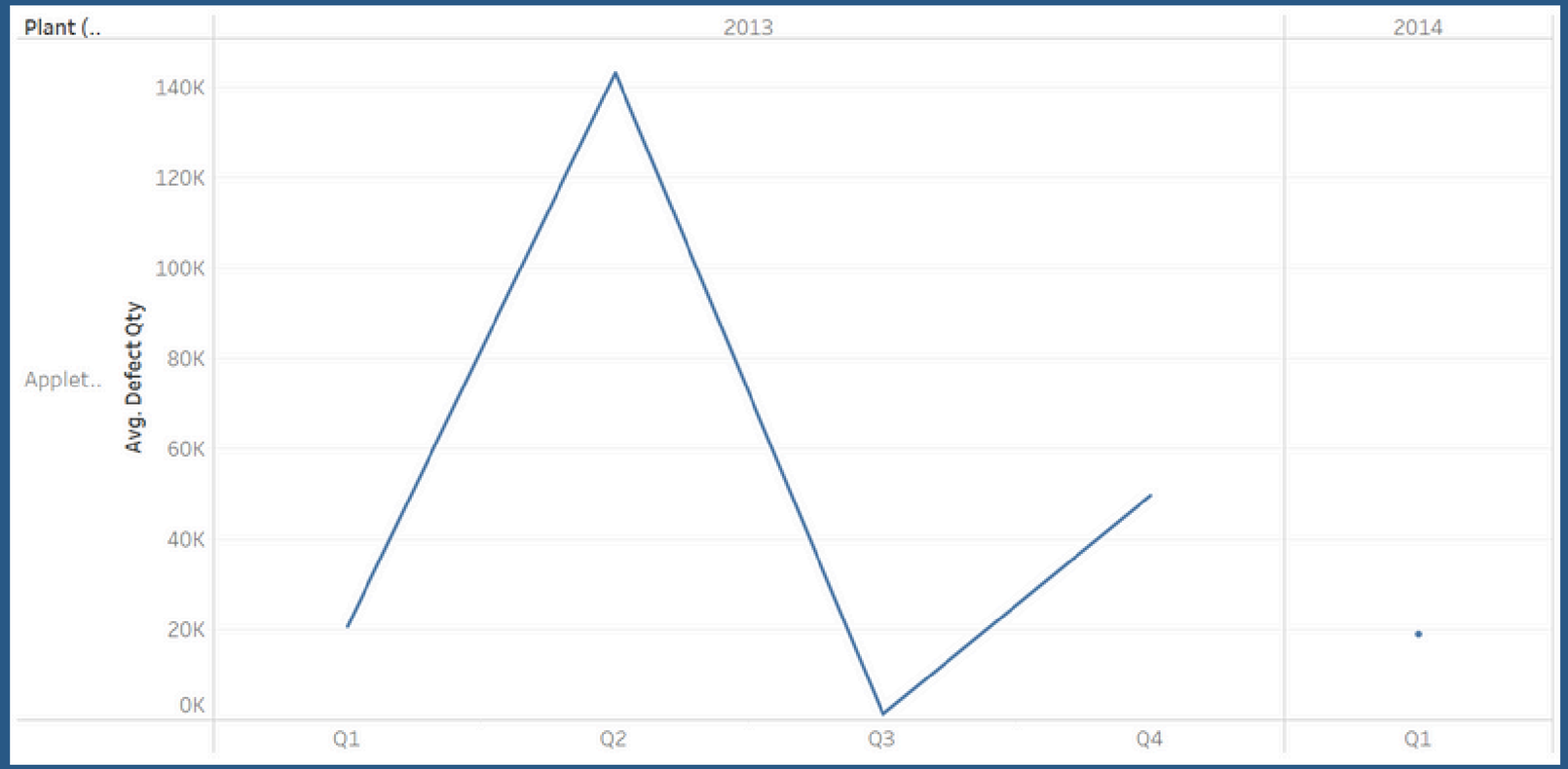
We noticed that Appleton plant stands alone away from other plants
Diving deep into this Viz we found that Appleton Plant all its defects is rejected
So, We need further investigation in this plant



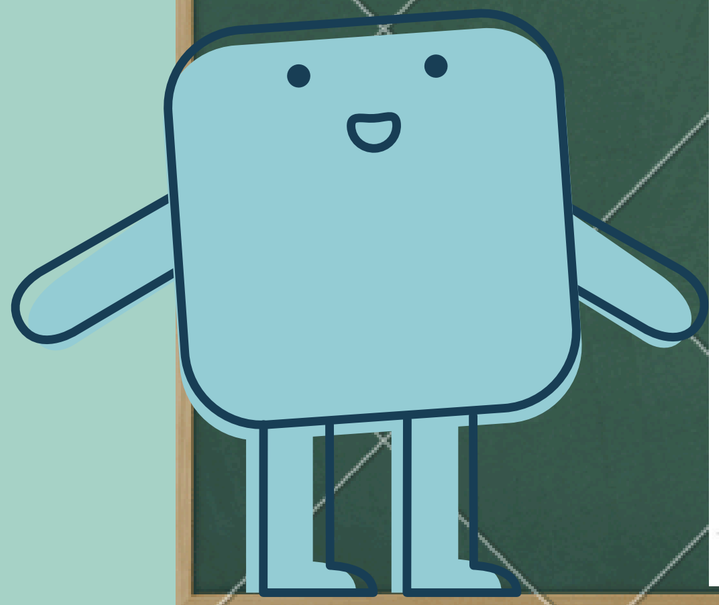


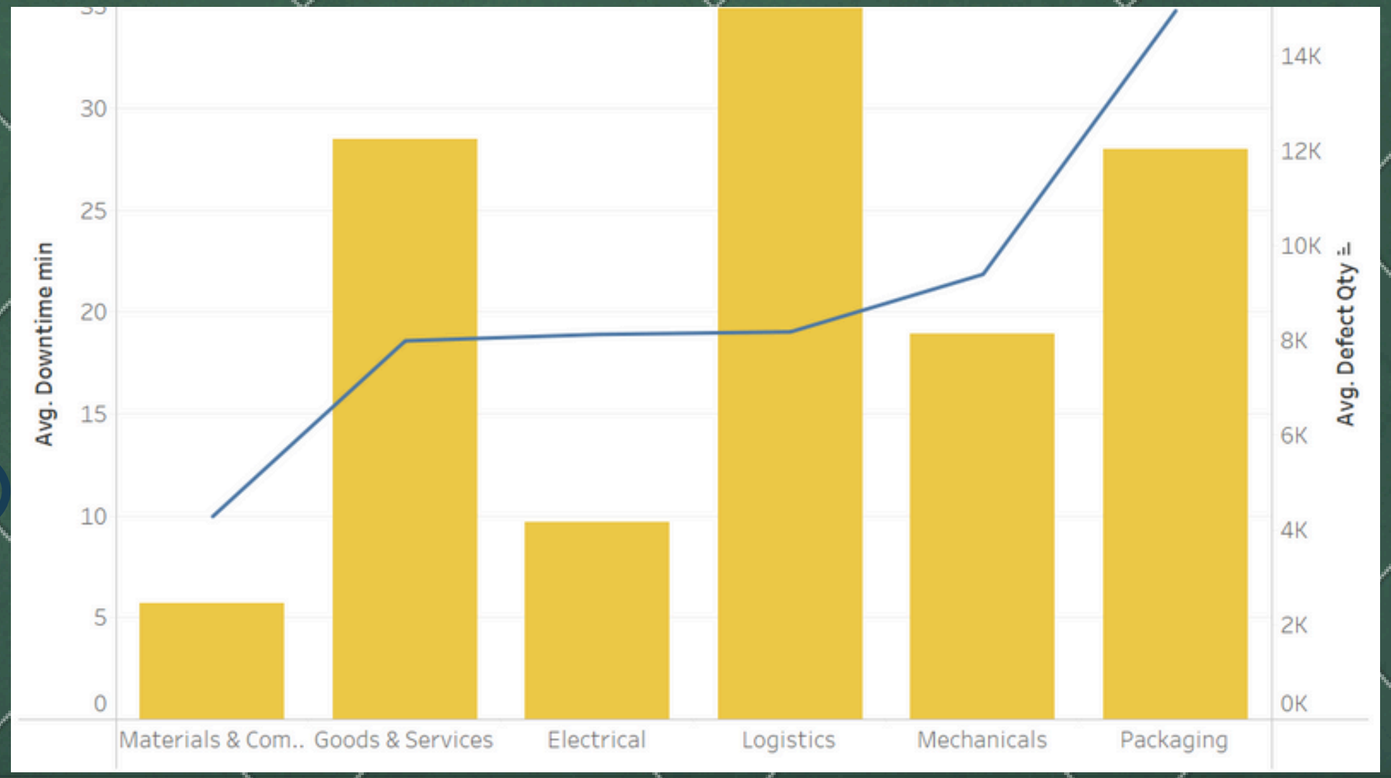
After further investigation we found that the total defect quantity was much lower than the average of defect quantity in the same plant so, we suspect that the production has been stopped, creating a trend over two years, we discovered that the plant's production has been terminated at the end of 2013



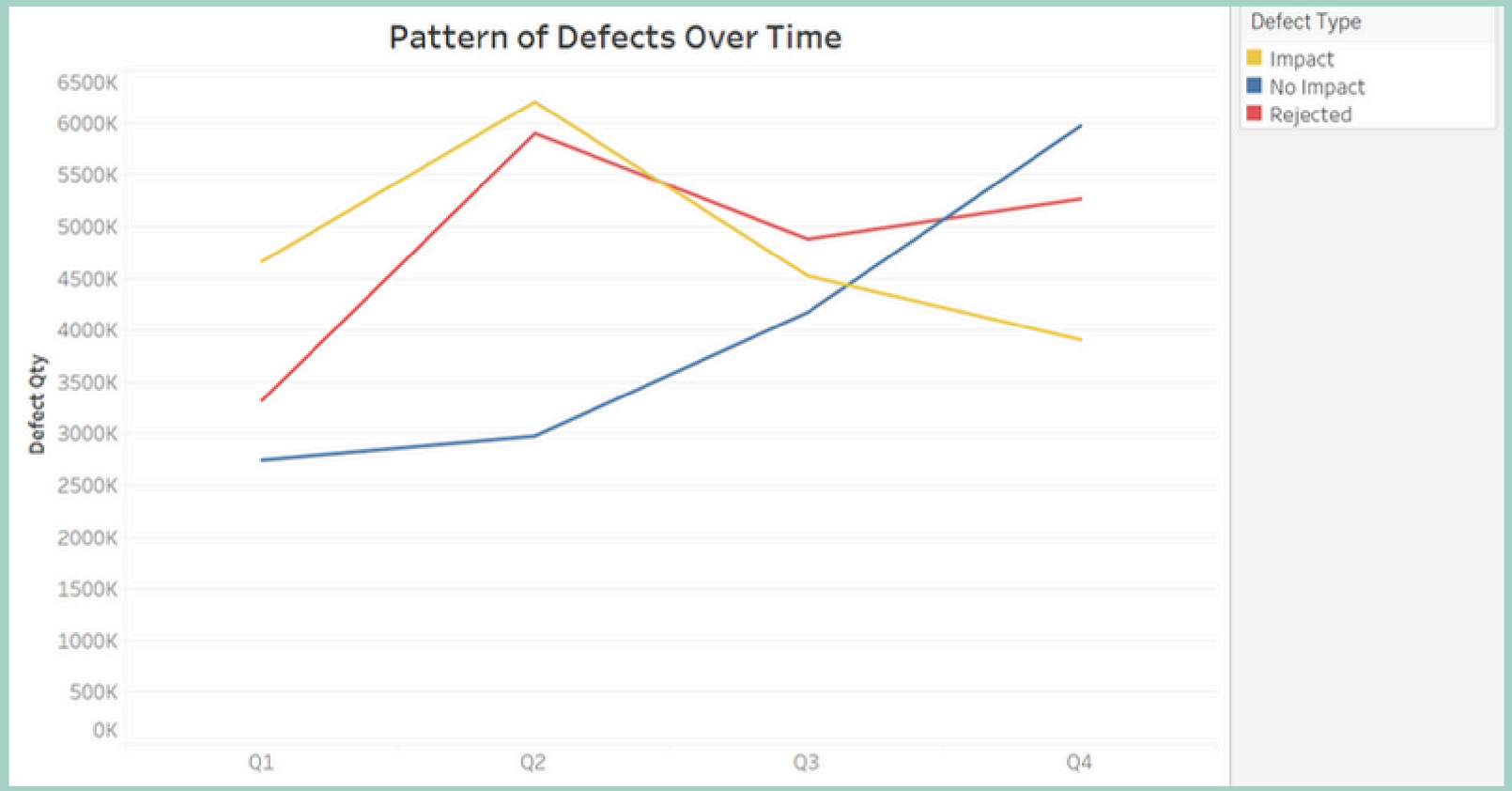


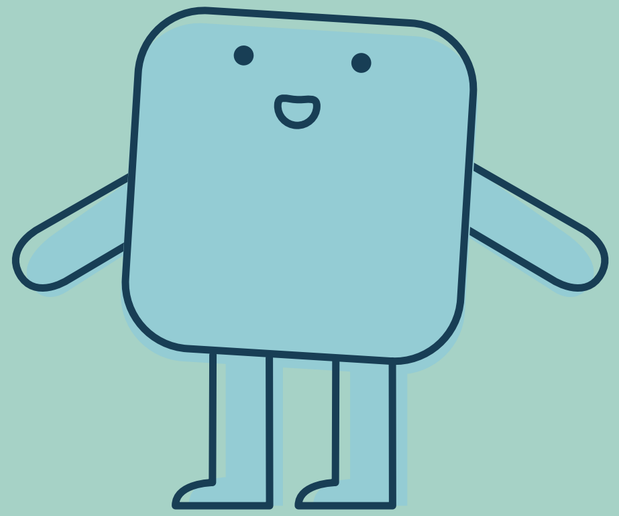
As Shown in the viz, we can see that logistics Category has the largest Avg defect quantity while on the other hand Packaging Category has the largest Avg downtime min



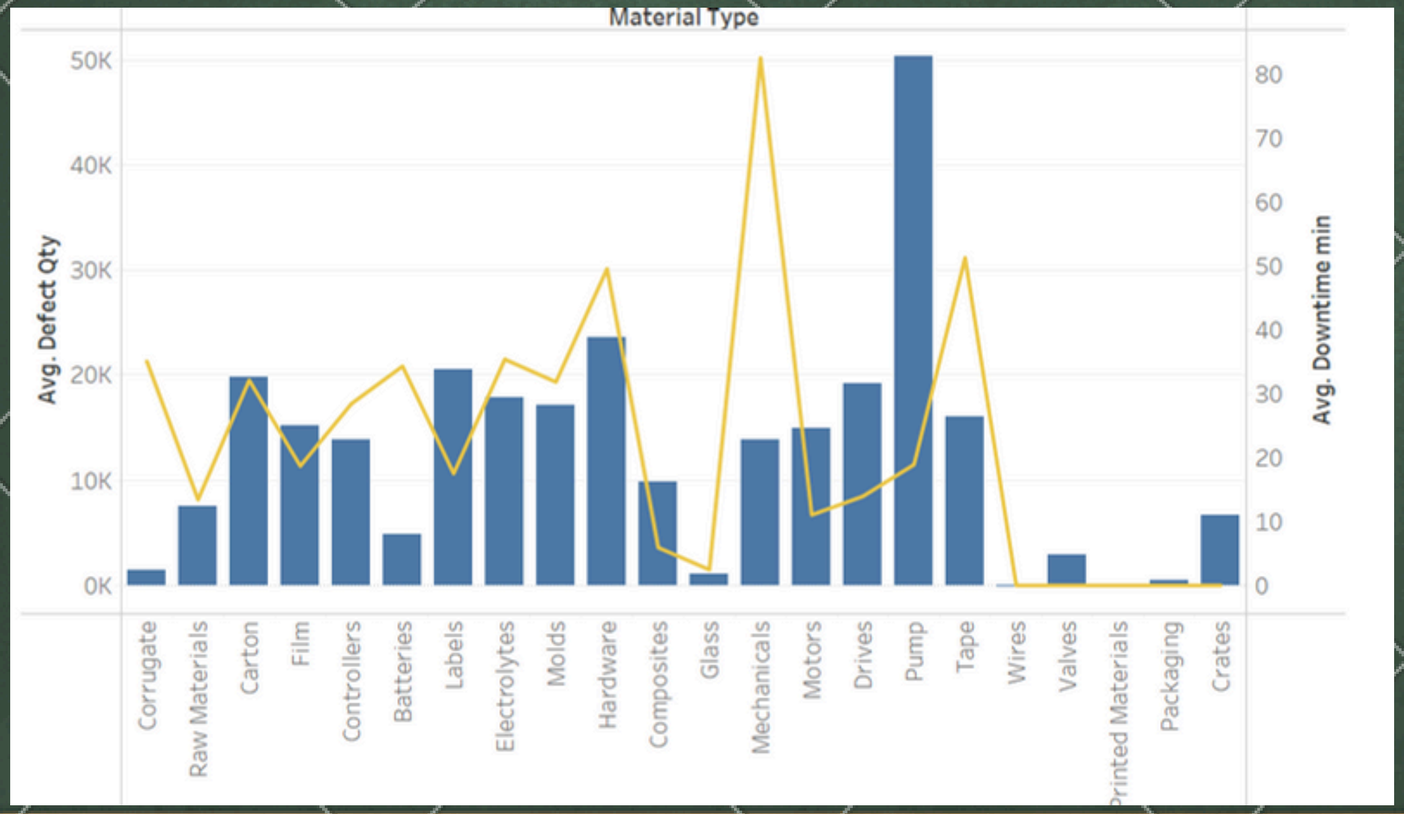


From this Viz, we can conduct that we have problem in the second quarter since the Rejected and Impact defect type are high





As Shown in the viz, its clear that Pump material type has the largest Avg defect quantity while on the other hand Mechanicals Material type has the largest Avg downtime min



Dashboard

Supplier Quality Analysis

Average Downtime
23.24

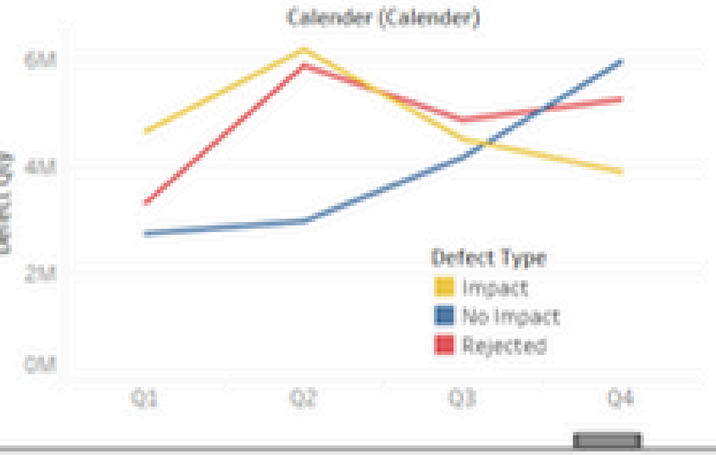
Avg Defect Qty
9,163

Top N: 5

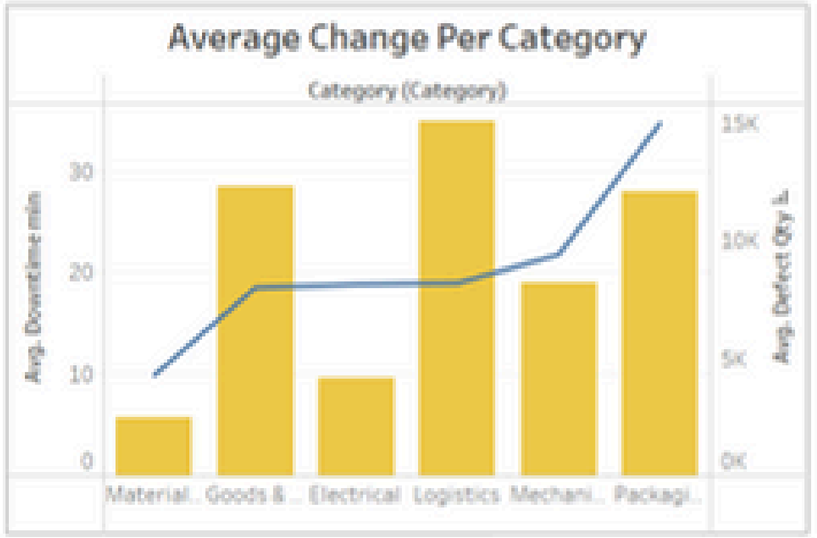
Target Downtime Min: 8,000

Target Defect Qty: 3,000,000

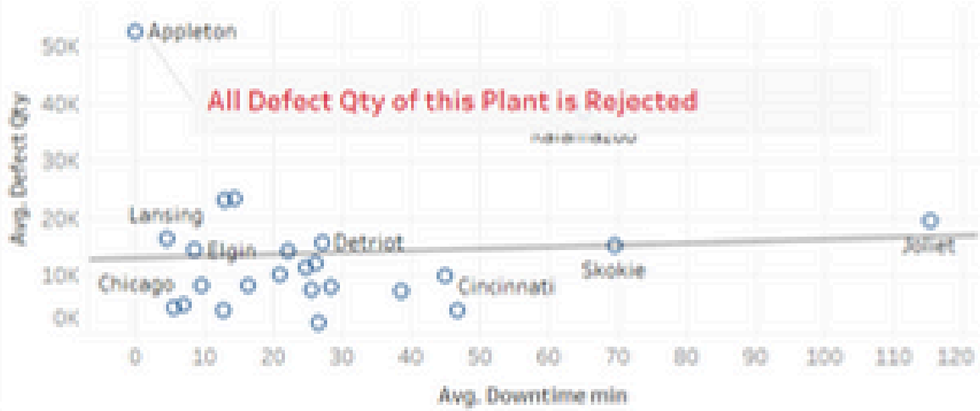
Pattern of Defects Over Time



Average Change Per Category



Downtime Minutes vs. Defect Quantities



Average Defect Quantities Per Vendors

Business Matrics

For Further Details

Python Notebook:
https://colab.research.google.com/drive/1ED_LC1pF-tp2Xm9zfDbzYgq4vk9KIG49?usp=sharing

Tableau Viz :
https://public.tableau.com/app/profile/youssef.dawoud/viz/Final2_17287266976870/Dashboard1?publish=yes

Thanks