Overview of Production Lines

Global Automotive Seating Company

Line ID
- Select all
- 1
- 2
- 3

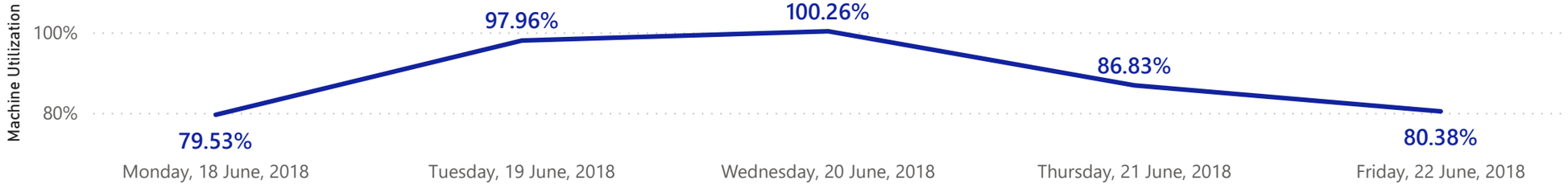
Team ID
- Select all
- 1
- 2
- 3

Date
18/6/2018 – 22/6/2018

Machine Utilization

90.57%

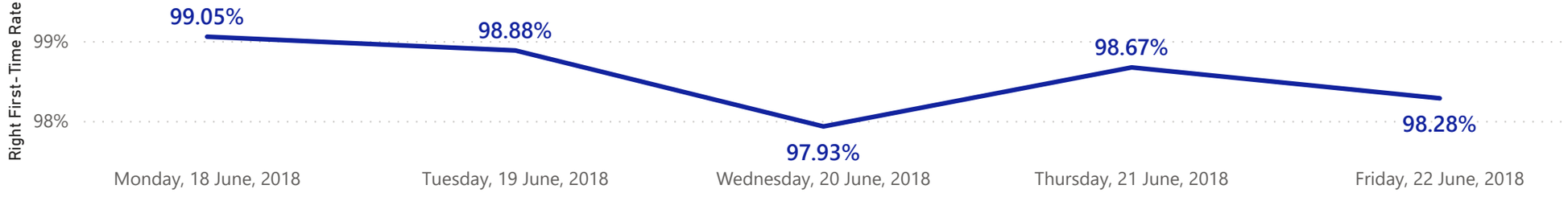
Machine Utilization Rate by Day



Right First-Time Rate

98.79%

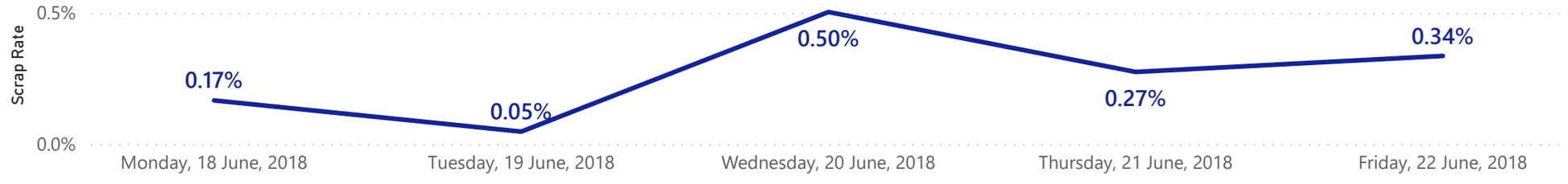
Right First-Time Rate by Day



Scrap Rate

0.22%

Scrap Rate by Day



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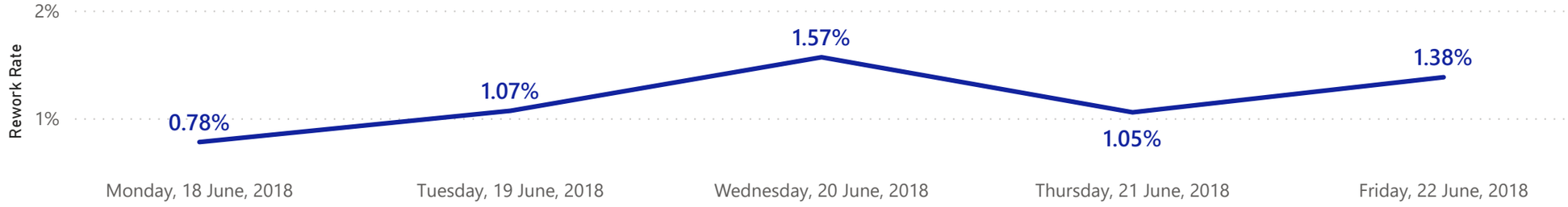
18/6/2018 – 22/6/2018

Rework Rate

0.99%

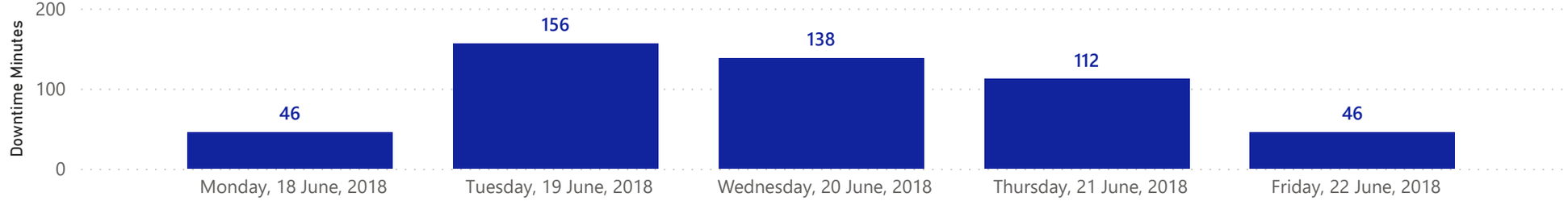
Rework Rate by Day



Downtime Minutes

498

Downtime Minutes by Day



Production Pieces

170265

Production Pieces by Day

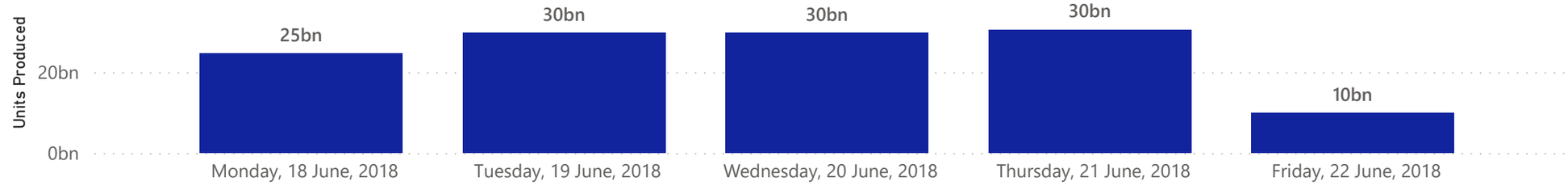


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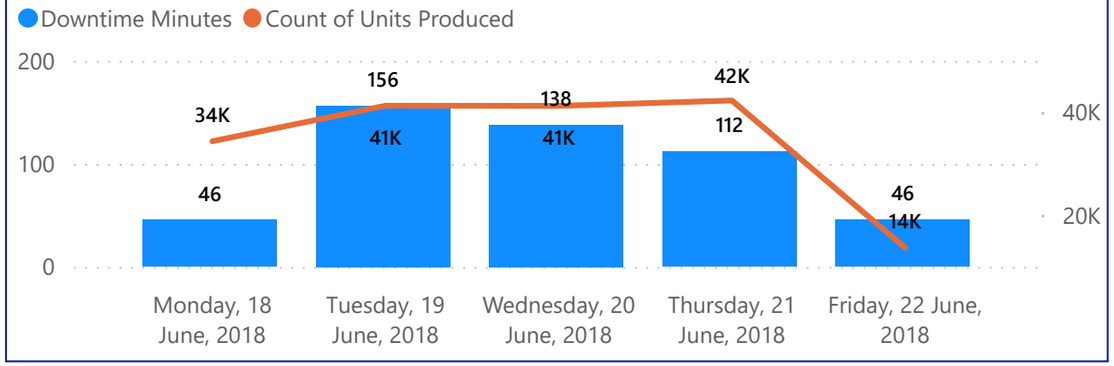
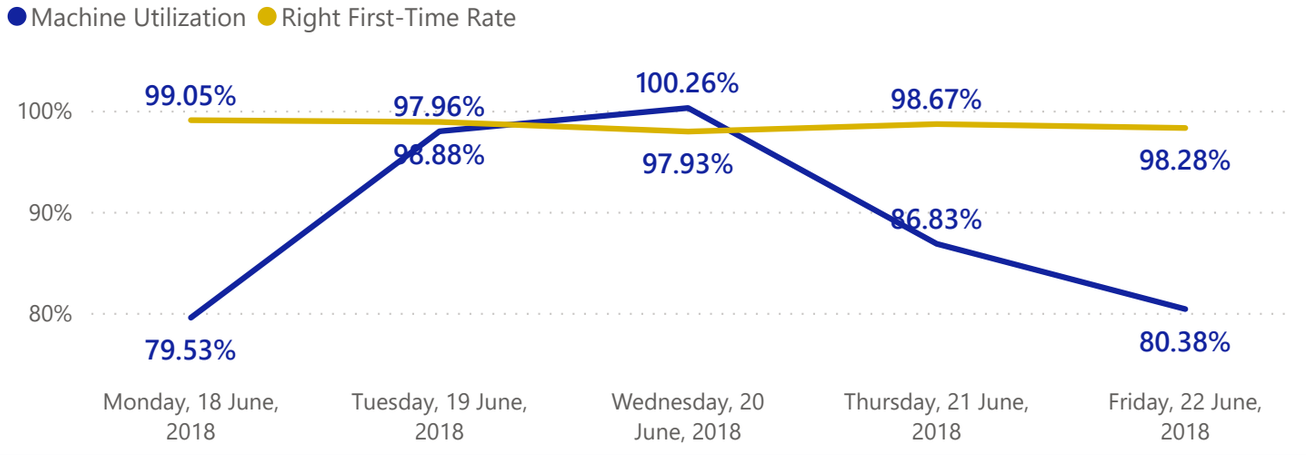
Chart 1: Downtime Minutes and Units Produced by Day



Production Pieces
170265

Chart 2: Machine Utilization and Right First-Time Rate by Day



Insights:

Chart 1: Production Line 1 is the most efficient.
Line 1 produced the most pieces at 63,312 out of 170,265 pieces (37.2%) and has the lowest rework (0.87%) and scrap (0.20%) rates. It has the highest downtime of 217minutes (43.6% of total downtime). This suggests that a possibility of a preventive maintenance contributes to healthy machines and efficient production.

Chart 1: Team 2 is the key performer in terms of overall contribution.
Team 2's machine ultilisation and the right first-time rate is the highest among other teams for all 3 production lines. There is a high possibility that Team 2 may have more trained staff at handling more complex products, hence other teams can do better with more support.

Chart 2: Inefficient usage of resources.
Chart 2 shows poor metrics at the start and end of week and over utilisation in the middle of the week. There may also be other potential elements at play such as delay in shipping time and under planning of raw materials, supplies, etc. Hence, we advised to reallocate resources to maximise and save on operating costs.

Conclusion:

A good preventive maintainance, cross-training by team 2 for other teams, and optimising resources by shutting down one of the production line during one of the days when machine ultilisation is low can help save operating costs.

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Chart 3: Total Production against Scrap pieces by Day

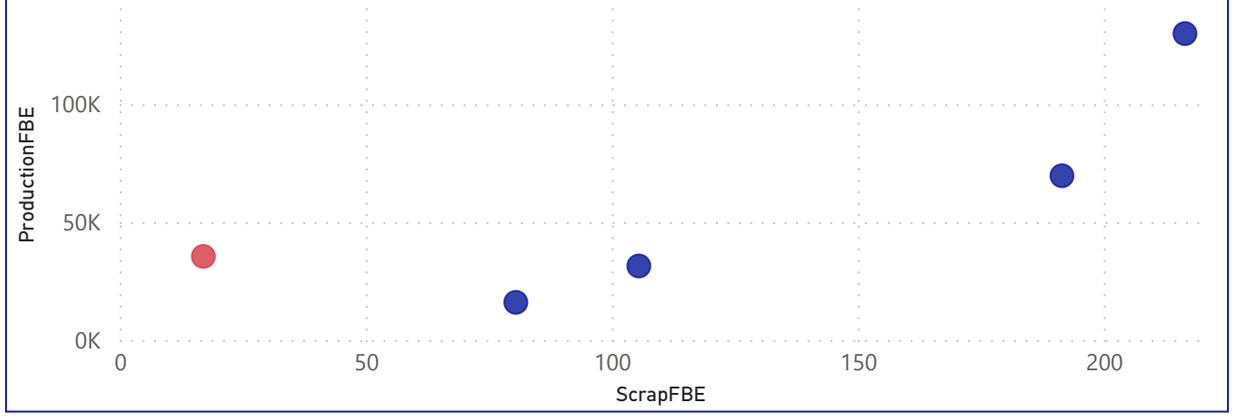
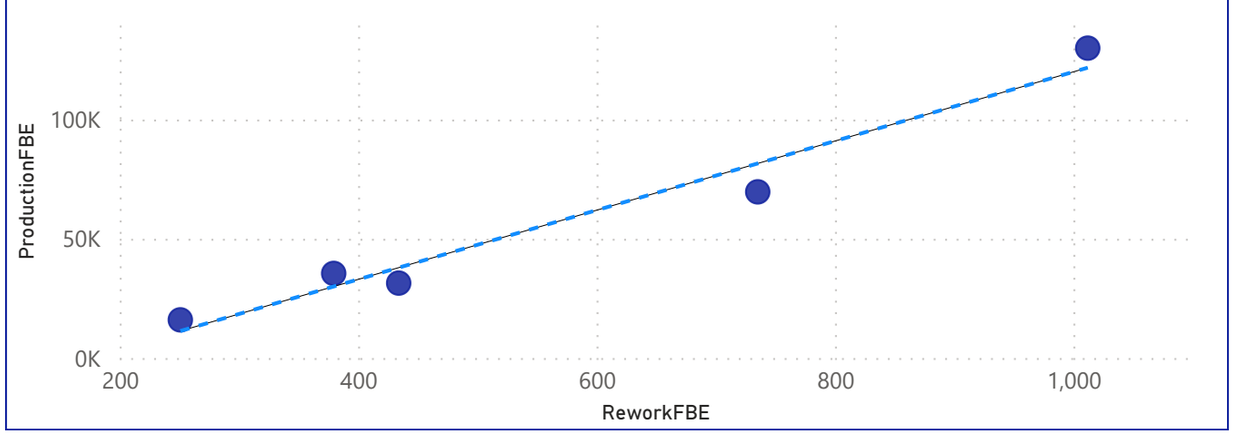


Chart 4: Total Production against Rework pieces by Day



4. Bonus Question: Is there a correlation between (i) total production and scrap pieces produced, (ii) total production and rework pieces? What is the magnitude of correlation?

(i) Based on Chart 3, we are unable to ascertain correlation between total production and scrap pieces produced as there is an outlier as shown by the red dot.

(ii) Based on Chart 4, the total production and rework pieces have a correlation coefficient of 0.98, meaning that the number of rework pieces tends to increase almost exactly proportionately with total production.

Correlation Coefficient for Total Production against Rework pieces

0.98

Appendix:

- The scrap rate is derived from the DB Right First Time database. There are 2 values for ScrapFBE and ProductionFBE from 2 different tables, DBRightFirstTime or the DBMachineUtilization table as understood from trainer that we are free to use either of the numbers for the visualization.
- Working hours is not taken into consideration, hence date is converted to day level.
- Assume that the downtime type is the same as information is not provided.
- Assume all Production Lines produced the same items as item information is not provided.
- Assume that for every item is one unit produced.