Data Analysis Report

For Deloitte Australia Virtual Experience Projects

INTRODUCTION

This project is based on the Deloitte Australia Virtual Job Simulation conducted via Forage. It involves two separate data analysis tasks: one focused on identifying patterns in machine breakdowns across locations using Tableau, and the other on gender pay equality analysis using Excel. The goal was to simulate real-world consulting tasks by uncovering insights from raw data and presenting them visually and analytically.

DATA EXPLORATION

How The Data Was Collected

The datasets were provided as part of Deloitte's simulation modules. The first dataset contained records of machine breakdowns as a JSON file and their associated locations, while the second focused on salary equality scores across job roles in various Daikibo Industrial factories. The machine breakdown data was used to create a Tableau dashboard, and the gender pay data was explored using Microsoft Excel.

Features Identified for Analysis

For Machine Breakdown (Tableau):

- **Location** – Where the machines are placed
- **Machine Type** – The specific machine that broke down
- **Break Count or Frequency** – Used to analyze volume of breakdowns

For Gender Equality (Excel):

- **Factory Name** – Daikibo factory locations
- **Job Role** – Different employment levels (e.g., VP, Manager)
- **Equality Score** – Quantitative value representing gender pay fairness
- **Equality Class** – Categorization of the score into descriptive classes (e.g., Fair, Unfair)

These features were selected to evaluate operational risks in the manufacturing environment and to assess fairness in corporate compensation practices.

PROCEDURE FOLLOWED

Machine Breakdown Analysis

1. Loaded raw data into Tableau.
2. Created visualizations to answer:
    - Which locations experienced the most machine breakdowns?
    - Which machines were most problematic in those locations?
3. Used filters and visual mapping (bar charts) to highlight concentration of breakdowns.

Gender Pay Equality Analysis

1. Loaded the dataset into Microsoft Excel for structured analysis.
2. Used Excel functions such as `ABS()` to handle score values and `IF()` to classify each job role into categories like *Fair*, *Unfair*, and *Highly Discriminative* based on the equality score.
3. Analyzed the classified data to identify patterns indicating systemic pay inequality, particularly at senior-level positions.

FINDINGS

- **Machine Breakdown (Tableau)**:
    - Certain factory locations consistently reported higher breakdown incidents, particularly in **Seiko Daibiko factory.**
    - Machines such as **Laser Welder** were flagged as high-risk due to repetitive failures.
    - These insights suggest a need for preventive maintenance or supplier reassessment at those sites.
- **Gender Pay Equality (Excel)**:
    - Factories like **Daikibo Meiyo** showed high inequality at senior levels such as **C-Level** and **VP**, marked as "Highly Discriminative."
    - Lower-level roles tended to have fairer pay structures in comparison.
    - The data highlights systemic bias at the top of the corporate ladder, with actionable implications for HR and leadership reviews.

CONCLUSION

Both tasks reflected the importance of data in business decision-making:

- The **machine breakdown analysis** can drive targeted maintenance programs and reduce downtime.
- The **gender equality audit** offers transparency into compensation practices and suggests critical areas for policy intervention.