



HR-Analytics Employee Performance Analytics

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Agenda

- Motivation & Problem Statement
- Dataset
- EDA Overview
- Data Cleaning
- Analytics
- Summary of Findings
- Limitations
- Conclusion

Motivation & Problem Statement

- HR related dataset
- A relevant point for strategy development and competition
- How performance indicators are affected by predictors
- Focusing mostly on a department level





Dataset Overview

Shape of Data Set:

- (17417, 13)
- 8 numeric columns and 5 object columns

Overall Department

- Unevenly distributed

Main Indicators

- KPI, Awards

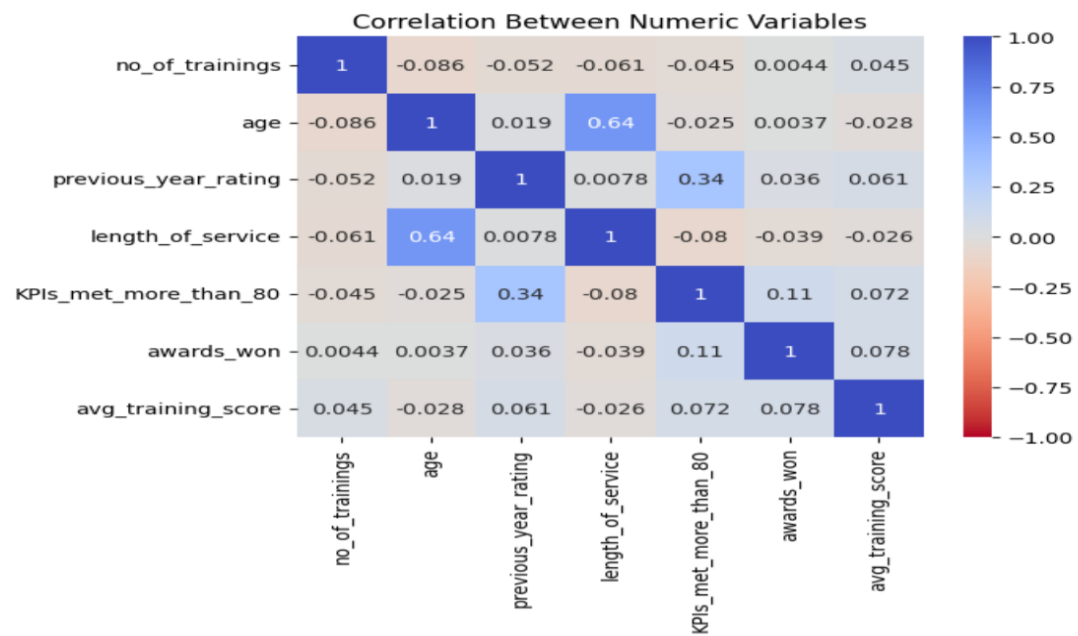
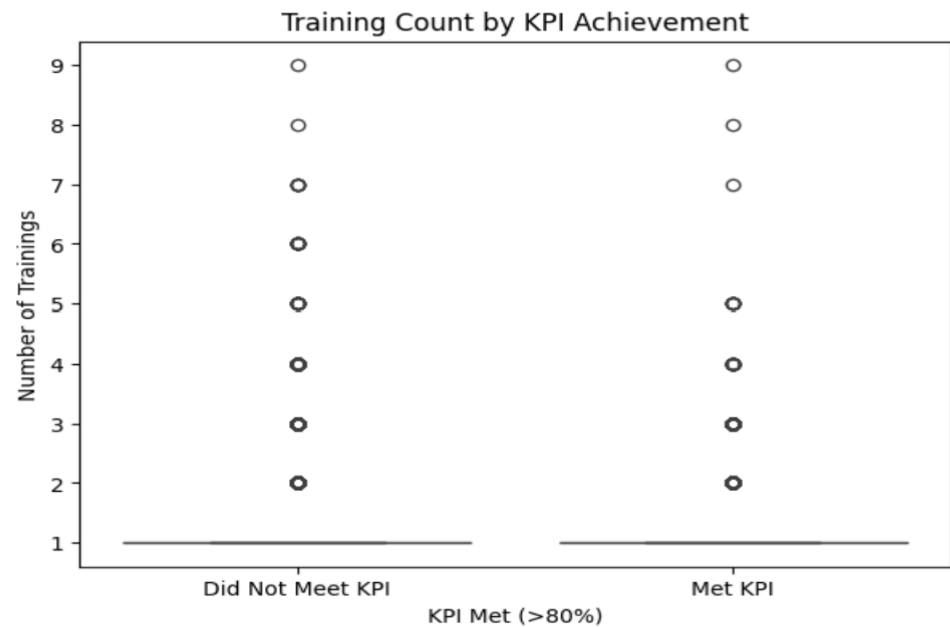
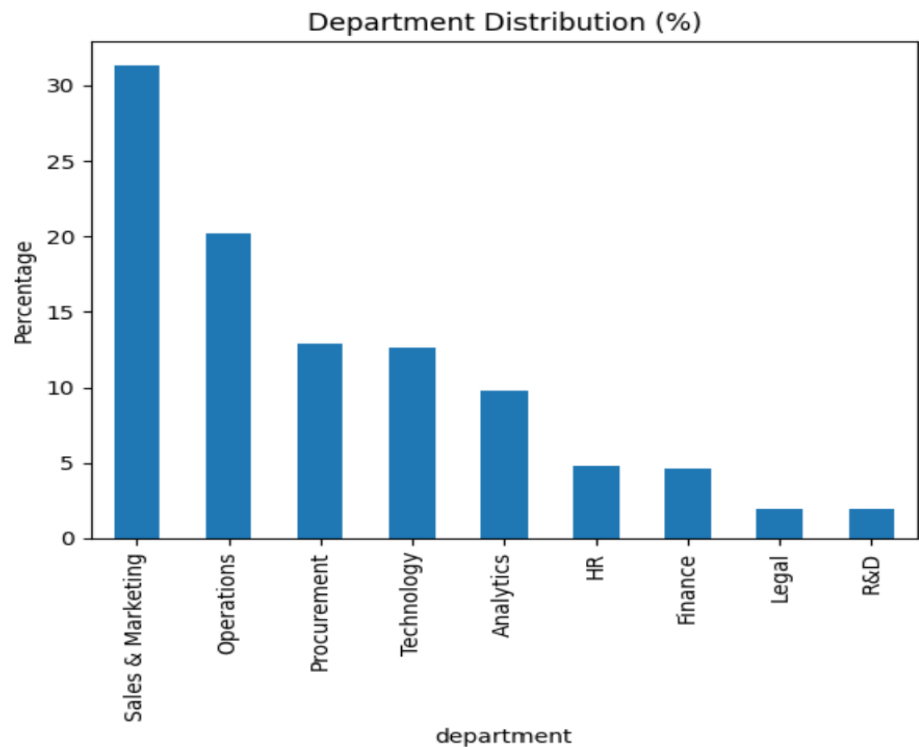
Main Predictors

- Length of service, number of trainings, scores

[See link here](#)

EDA Overview





The following areas are interesting possible to have a look into, where performance evaluation is concerned:

Hypothesis 1: Employees who attend more trainings have higher average training scores.

Hypothesis 2: Employees who met KPIs (> 80%) in the past year had more training sessions.

Hypothesis 3: New hires have lower KPI achievement rates than tenured employees.

Hypothesis 4: Employees in larger departments have a higher number of trainings.



Dataset Cleaning

Missing values:

- Filled in 2 columns using appropriate imputation.

Duplicates:

- 2 rows dropped with unresolved issues

Outliers:

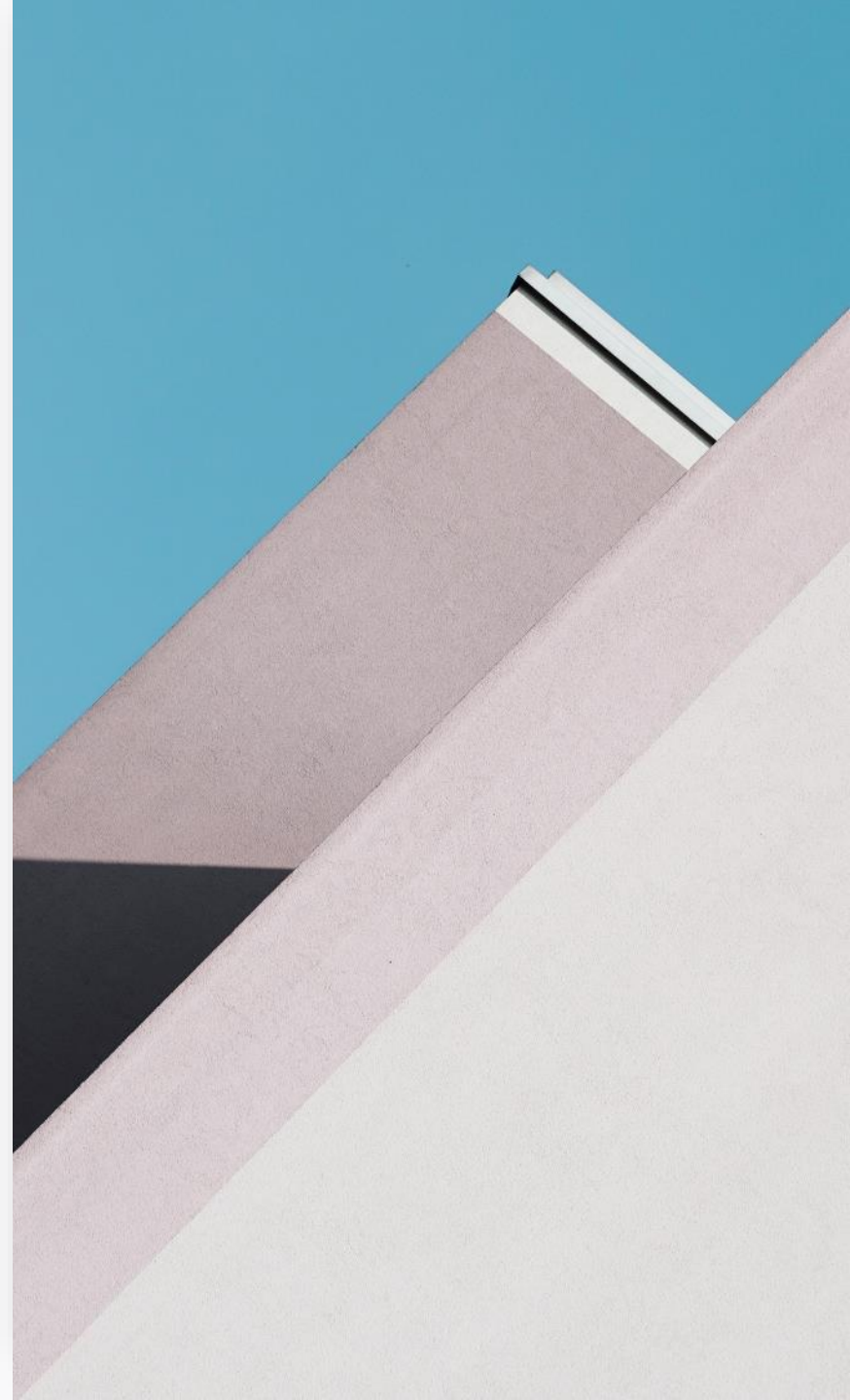
- Capped extreme values, which led to the creation of 2 new columns reflecting these transformations.

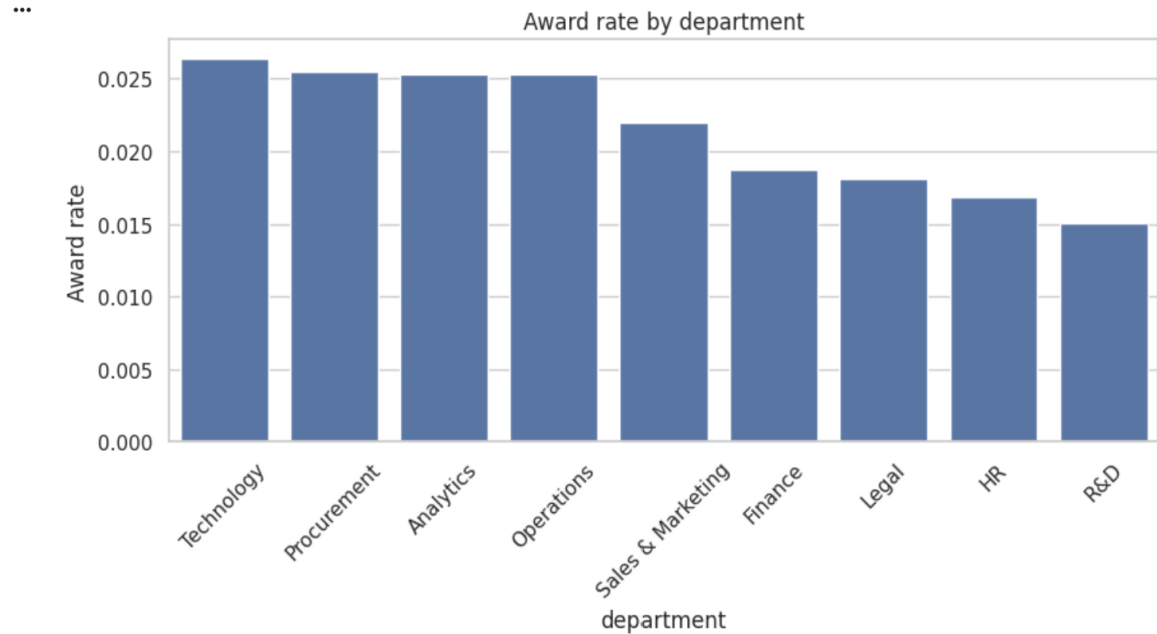
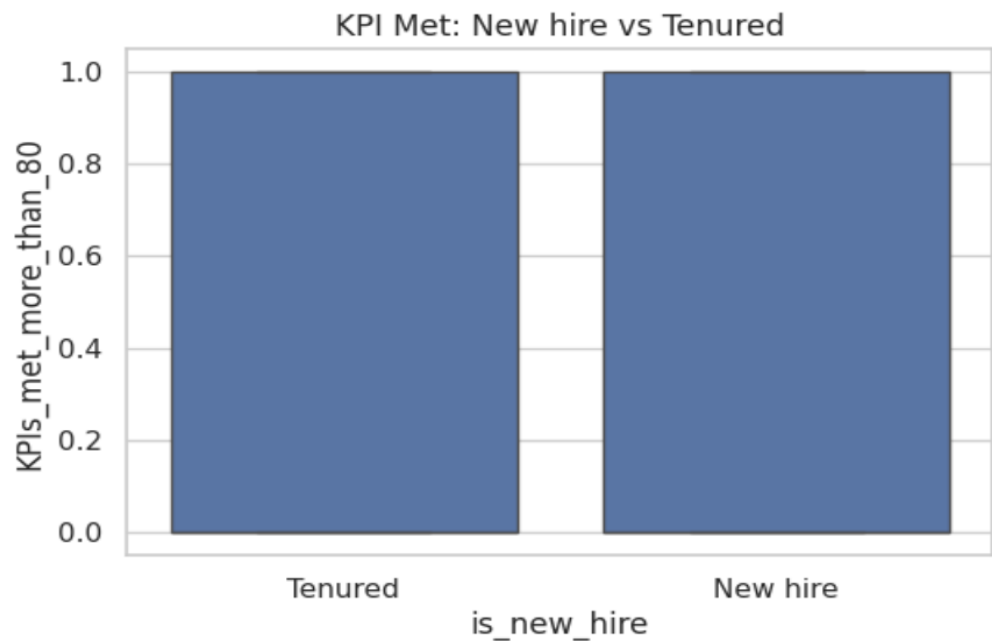
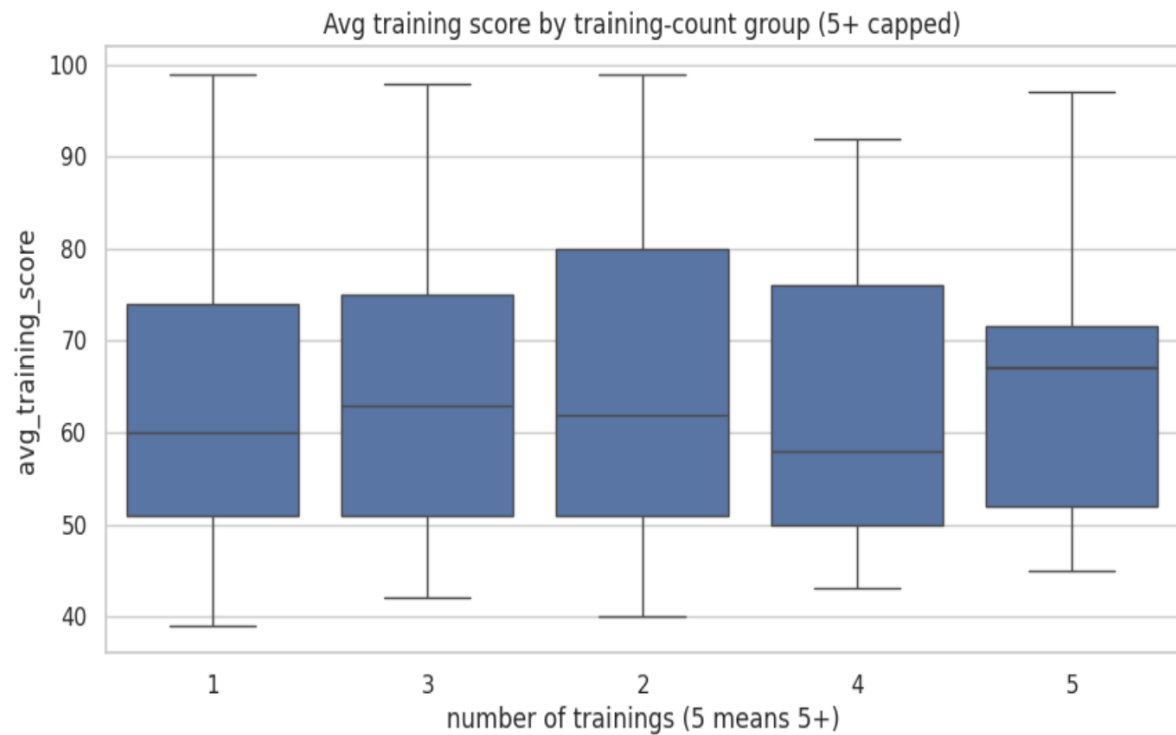
Resulting features:

- The dataset now includes the original columns plus 2 additional columns generated from data filling and capping, ready for analysis.

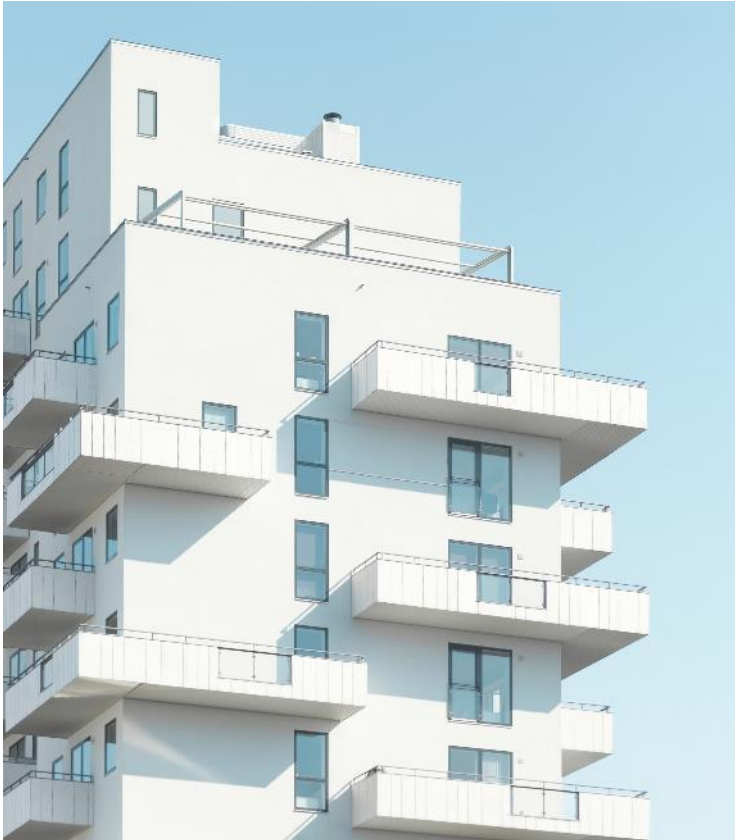
Data Analytics

- Mostly used correlation
- Where necessary, regression was used to account for distribution bias





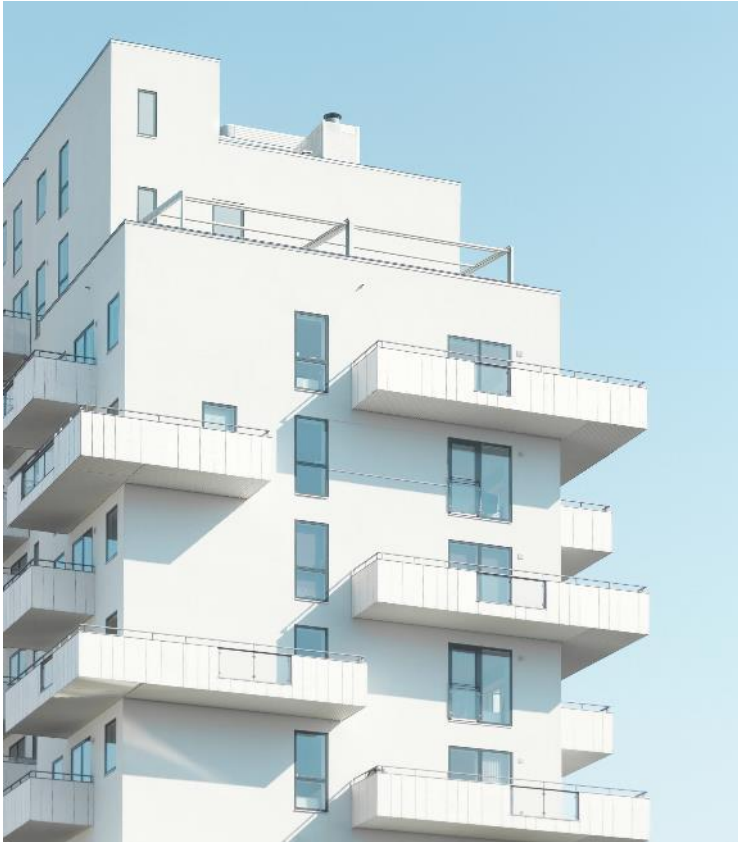
Summary of Findings



- H1: The number of training sessions do not guarantee higher scores, this varies from person to person. Correlation here is very weak.
- H2: Surprisingly, more trainings correlate with slightly lower odds of meeting KPIs > 80
- H3: There is no significant difference between the tenured employees and new hires when it comes to KPI goals being met, and average scores.
- H4: There is a weak but positive indication that the larger the department, the higher the number of trainings. Meeting One's KPIs is not really influenced by department size. However, the number of awards is influenced by department size.

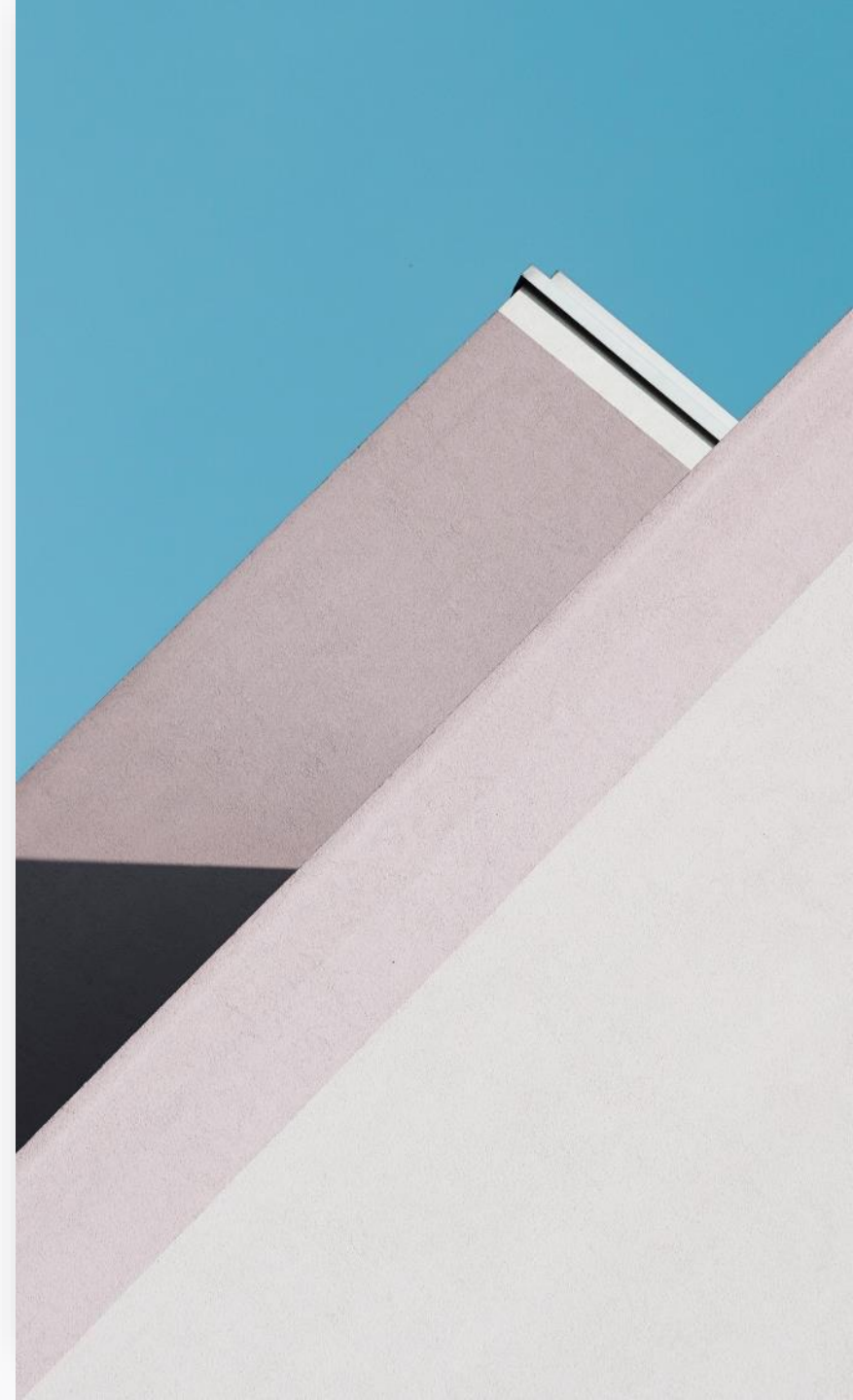
Limitations

- Time limitation does not allow to fully explore other aspects
- The predictors and indicators of performance are not the most updated
- With enough time, I would also look into other aspects that have uneven distributions.



Conclusion

- Training programs may need personalisation, focusing on employees' skill gaps rather than applying a “one-size-fits-all” approach.
- Onboarding programs for new hires seem effective enough to bring them up to speed with experienced employees.
- Resources might be better spent on continuous performance support rather than assuming tenured staff always outperform newer employees..
- KPI achievement not being directly linked to department size, suggests that team size alone doesn't improve productivity.
- Awards being higher in bigger departments could mean recognition programs are scale based, and merit based, looking into this to ensure fair assessment, would be prudent for future HR policies within the company, where fairness is concerned.



Thank You!

