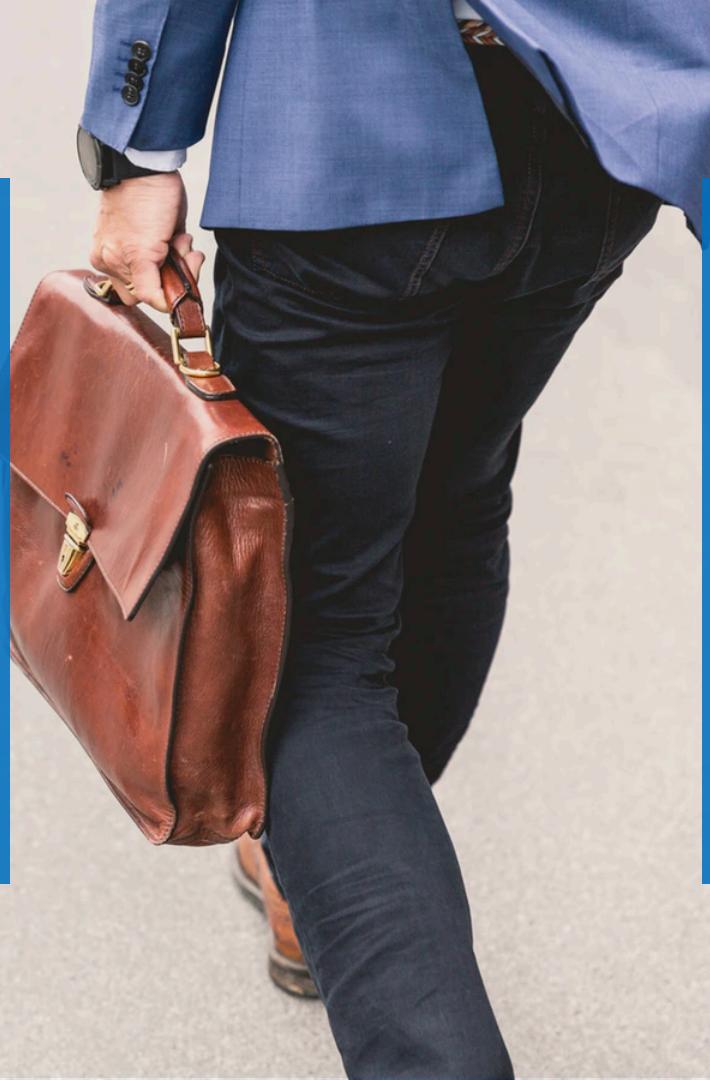


# Employee Turnover

George Thoraninh



# THIS PRESENTATION WILL BE SUCCESSFUL IF...

- We can understand which characteristics of an employee drive them to turnover
- We can understand opportunities to address employee turnover

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# PROJECT OVERVIEW

TO

# EMPLOYEE TURNOVER



HIGH COST



TIME



EXECUTIVE

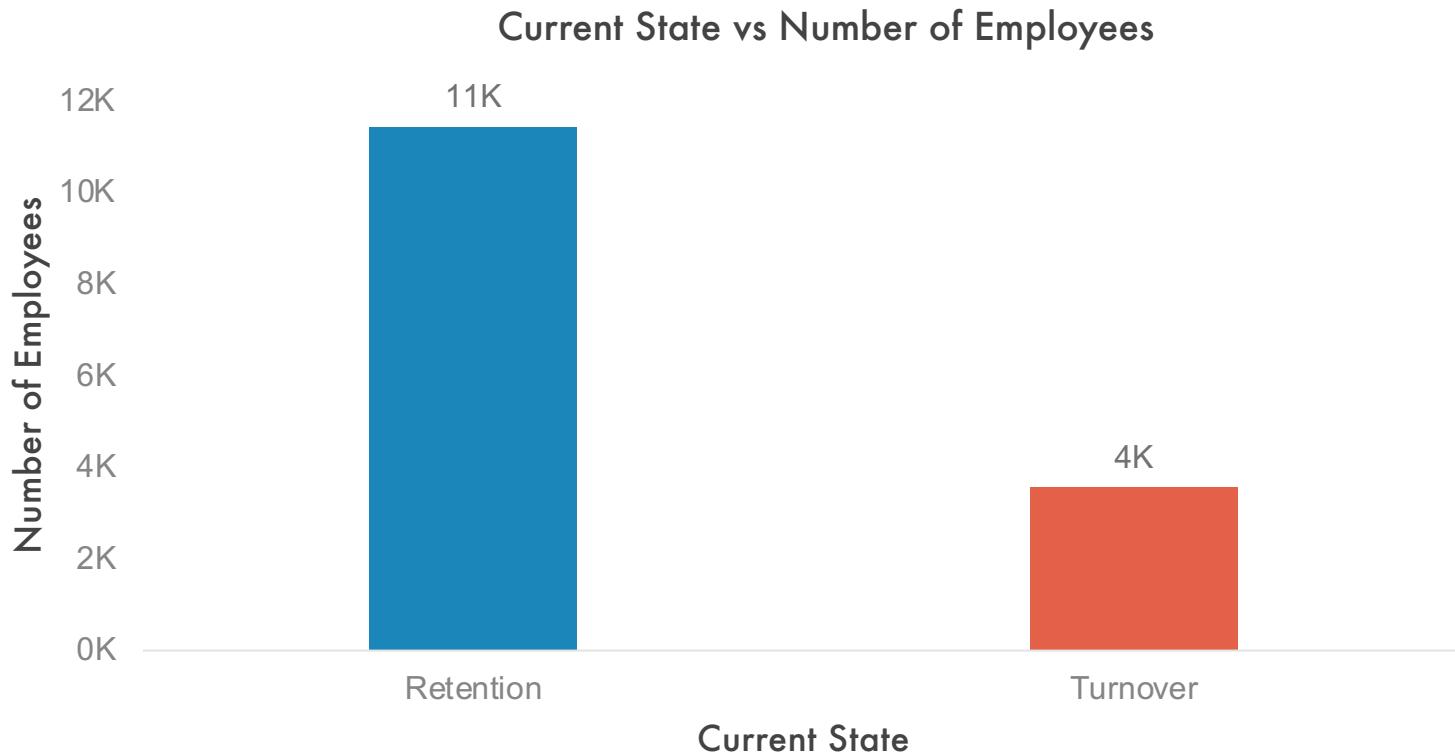
# METHODOLOGY

- 14999 employees
- Data exploration
- Classification Model
  - CatBoost

Additional:

- No duplicate/missing values
- Grouped features

# 24% of Employees Have Left the Company



# RESEARCH QUESTION

What characteristics of an employee help to determine whether they  
will turnover or not?



# DATA MODELLING

30

# PREDICTING TURNOVER WILL BE SUCCESSFUL IF...

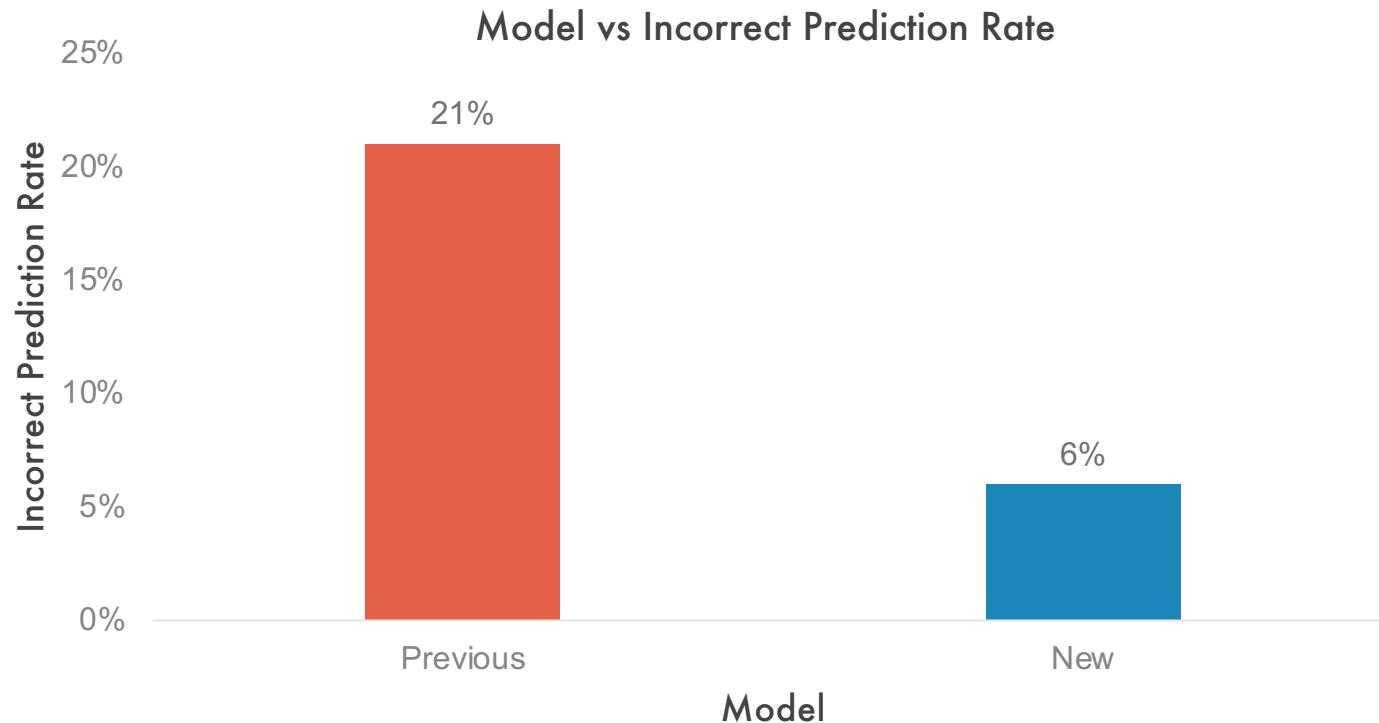
## What do we want to reduce?

- Rate of incorrectly predicting an employee is not at risk when in fact they are looking to leave

## Why?

- Cost
- Employee is not included in any retention efforts, thus the company loses a valued employee

# HOW SUCCESSFUL WERE WE?



# HOW SUCCESSFUL WERE WE?

6%

Employees incorrectly predicted to stay with the company, when in fact they are at **risk of leaving**

04



KEY FINDINGS

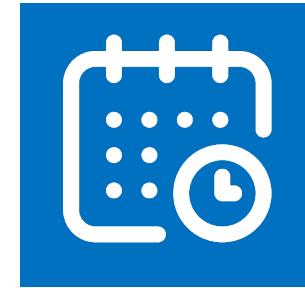
# CHARACTERISTICS DERIVED FROM MODEL: HIGH TURNOVER



LOW  
SATISFACTION

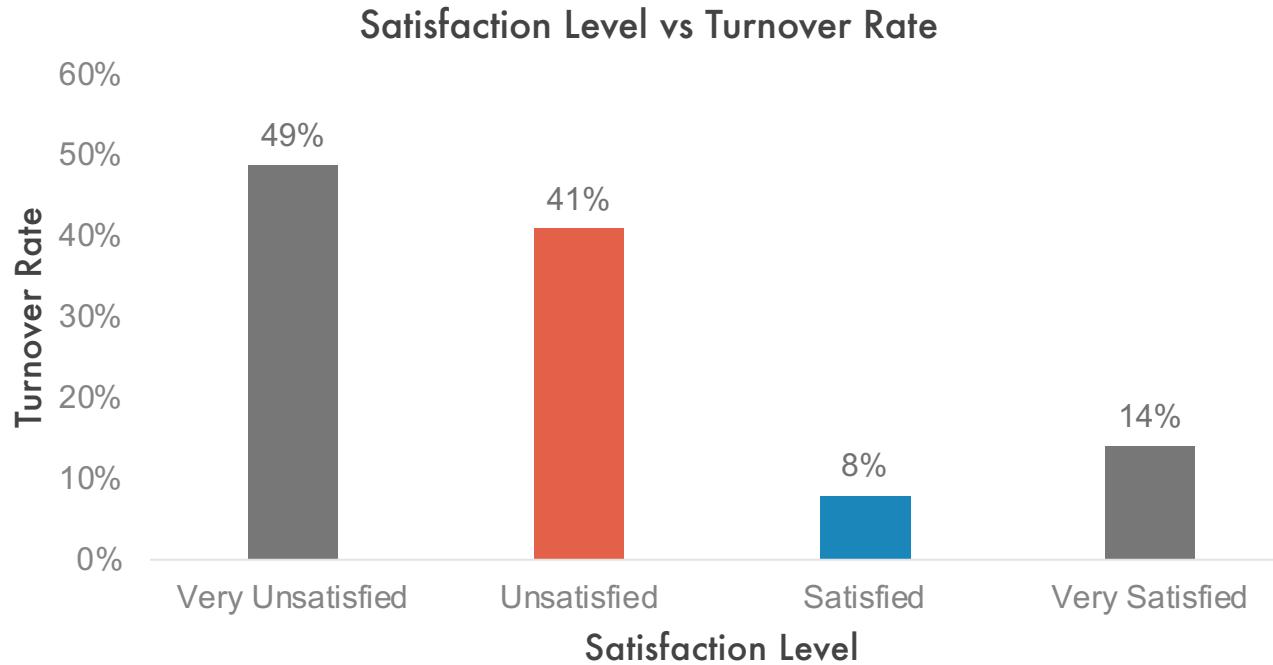


LOW  
PERFORMANCE

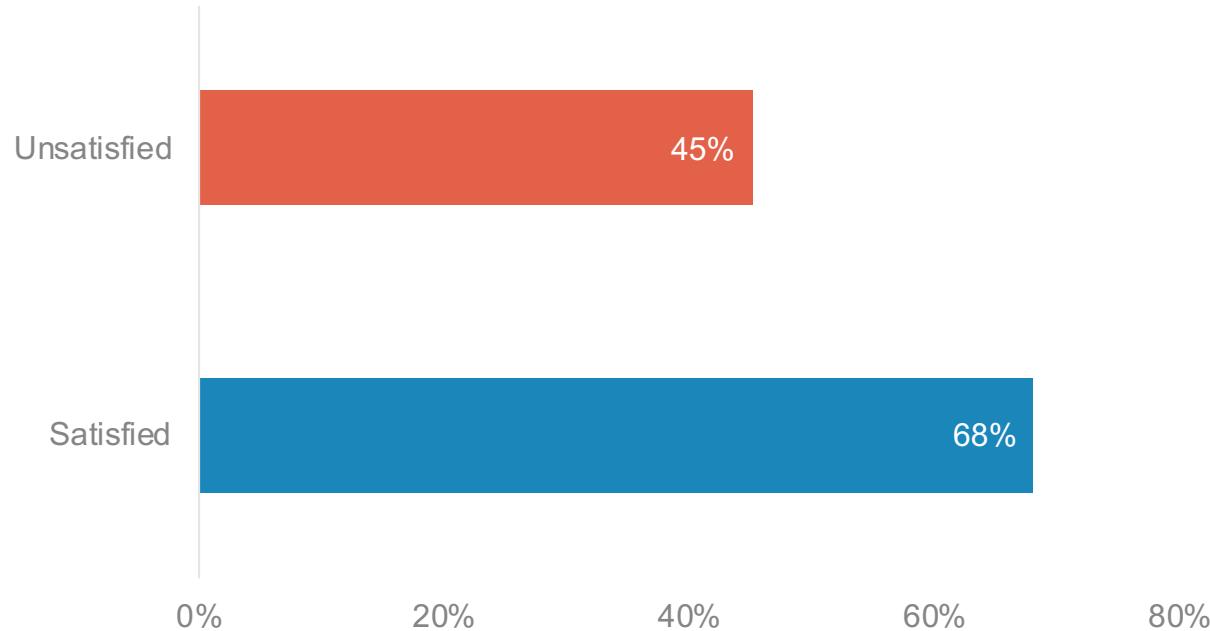


LOW/HIGH  
MONTHLY HOURS

# Unsatisfied Employees have a Higher Turnover Rate than Satisfied Employees (33%)

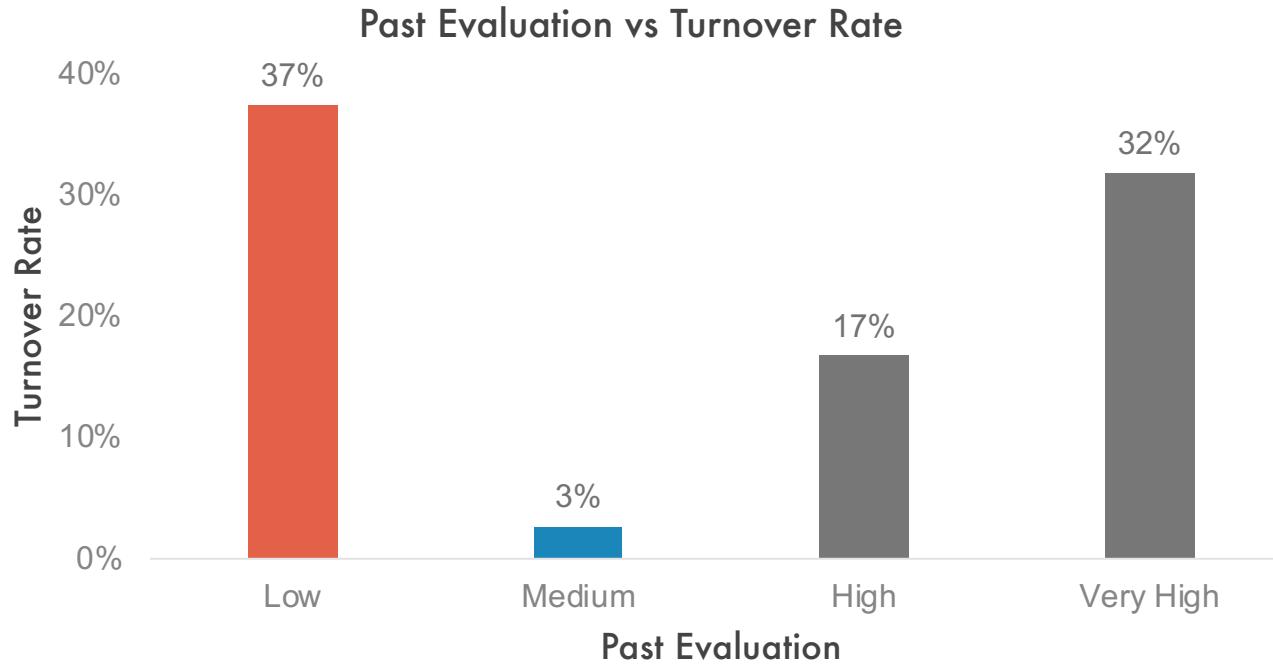


# Improve **Unsatisfied** Satisfaction Level by **23%** to Reach **Satisfied** Level



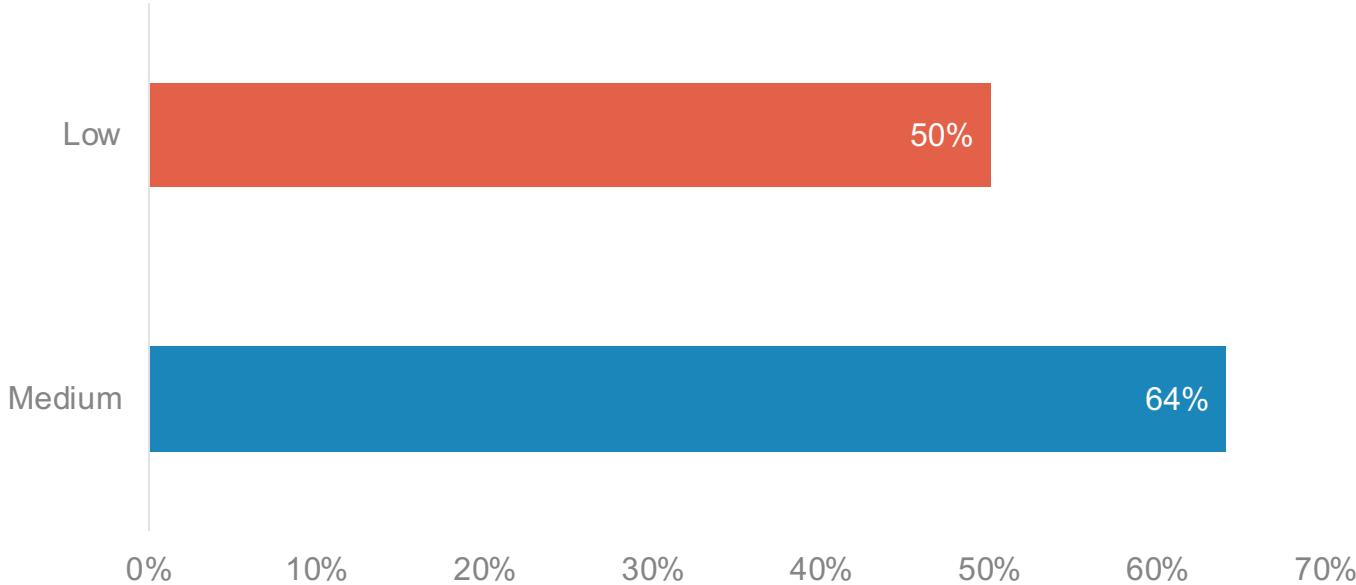
Recommendation: Assess expectations of employees with low satisfaction levels

# Low Performers have a Higher Turnover Rate than Medium Performers (%34)



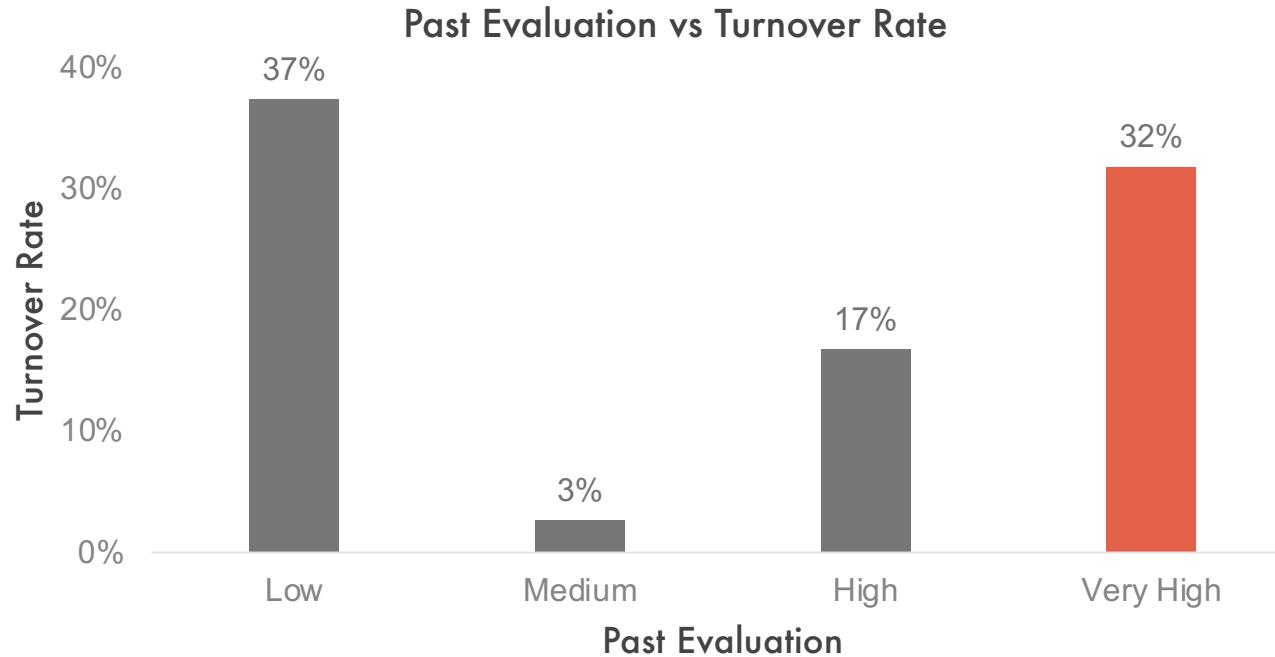
Consideration: Very high performers have a 32% turnover rate

# Improve **Low** Evaluation Score by **14%** to Reach **Medium** Level

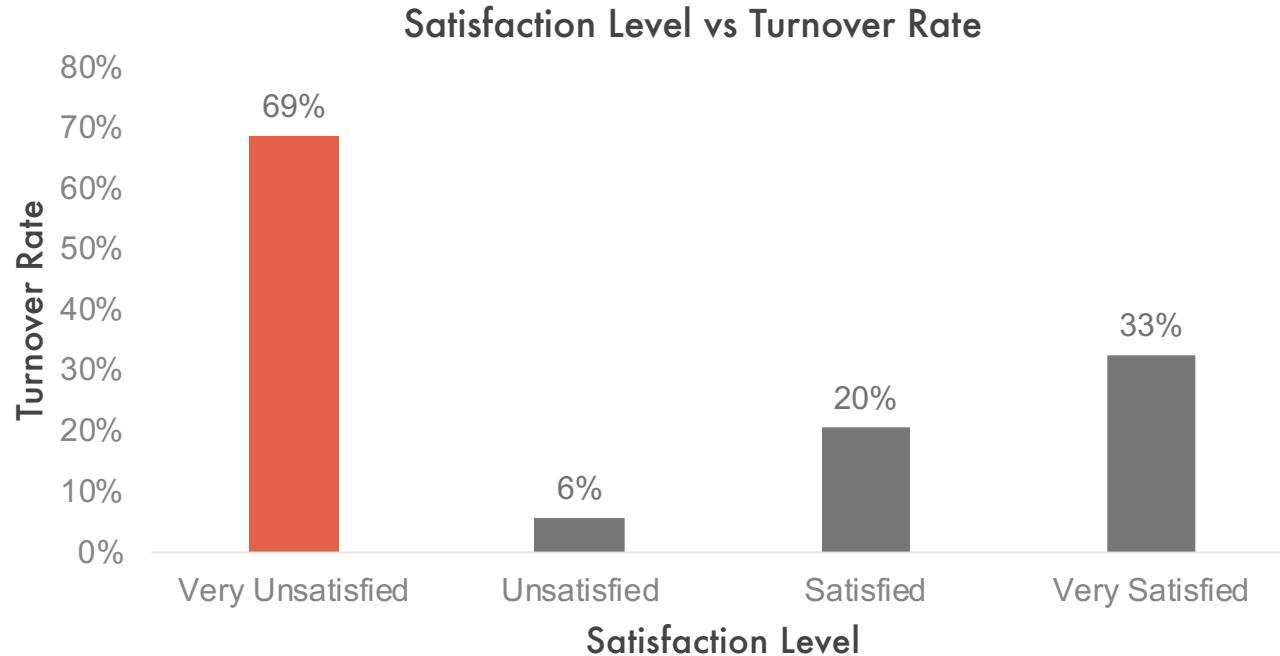


Recommendation: Engage more employees with low evaluation scores

# Very High Performers have a 32% Turnover Rate

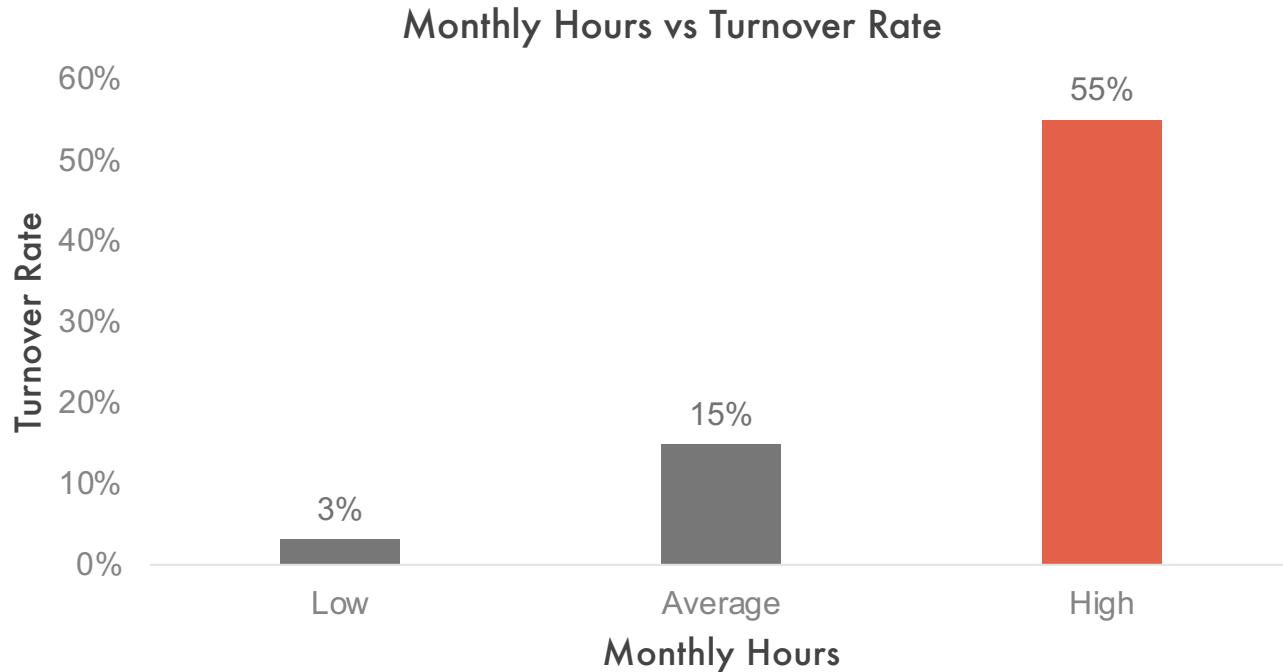


# Very High Performers who are **Very Unsatisfied** have a High Turnover Rate (69%)



750 employees are very unsatisfied

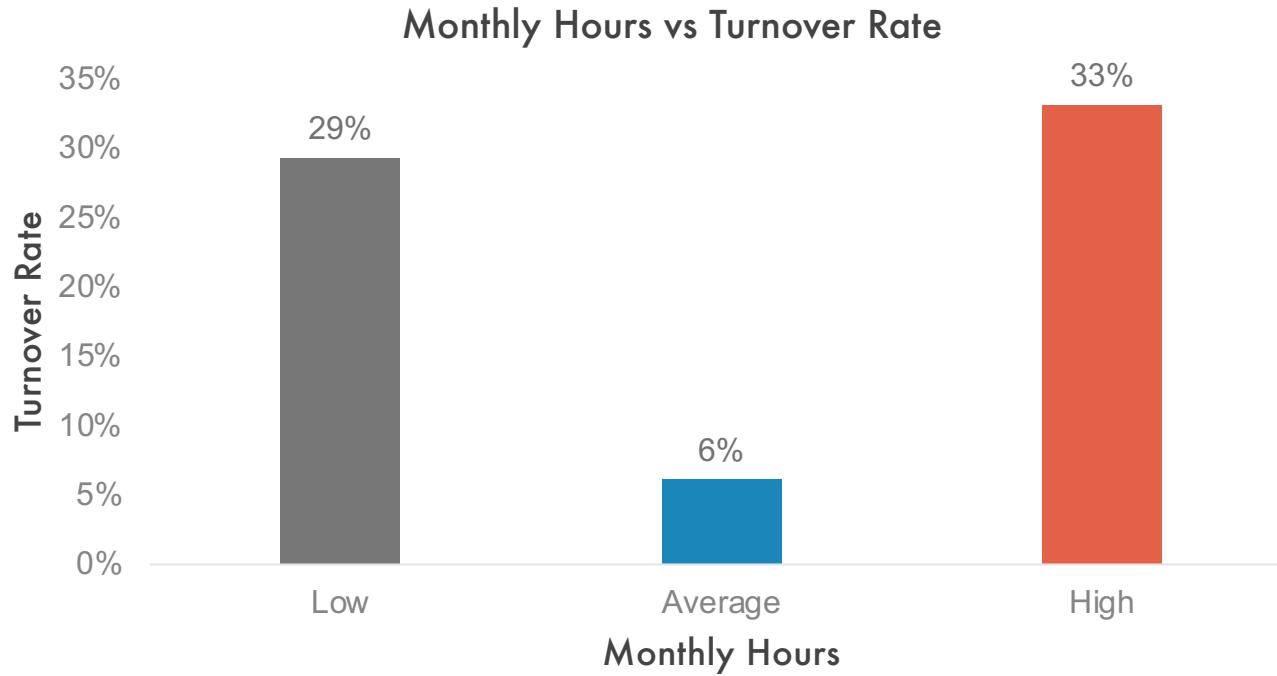
# Very High Performers who Work **High Hours** have a High Turnover Rate (**55%**)



1,994 employees work long hours

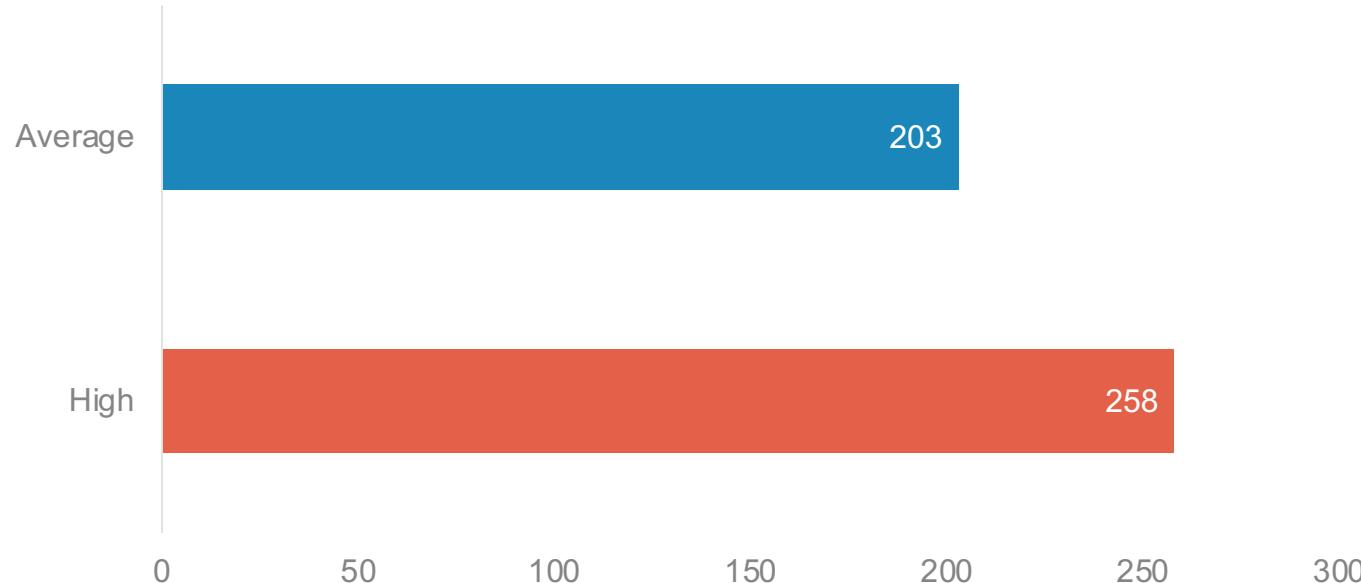


# High Hours have a Higher Turnover Rate than Average Hours (%27)



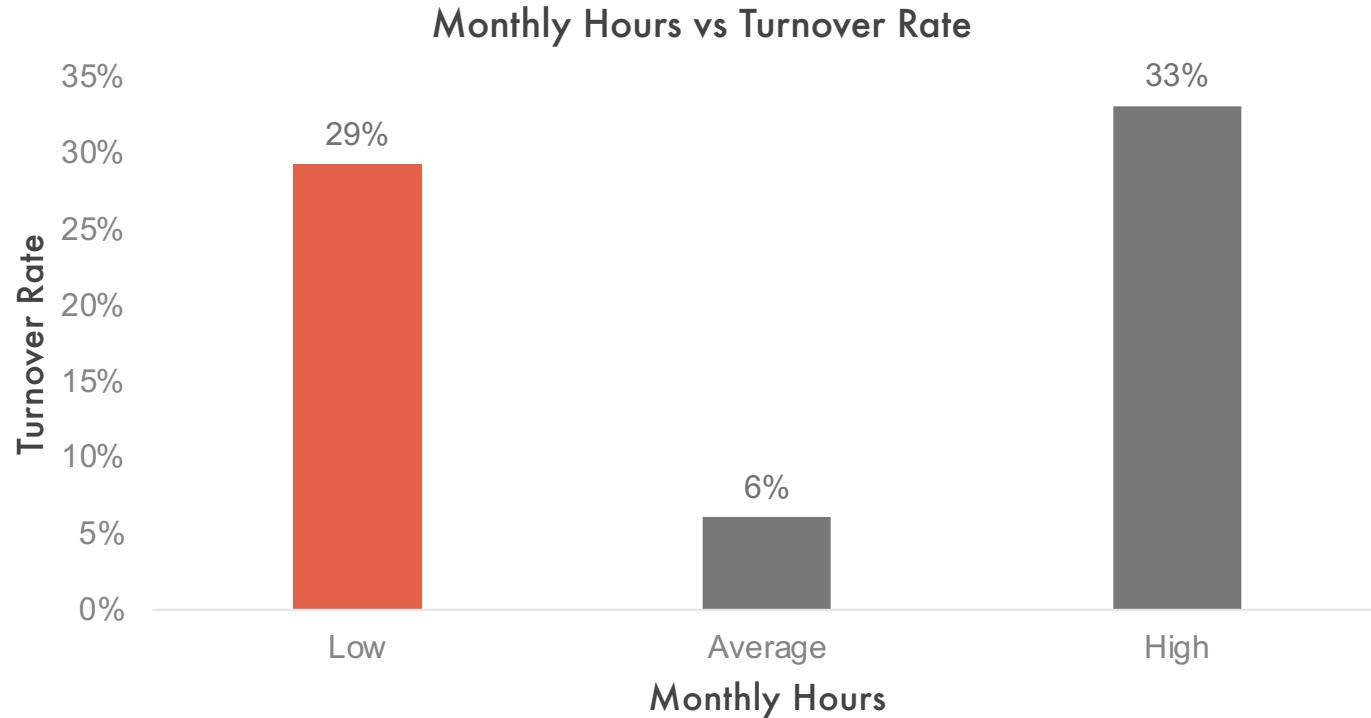
Consideration: Low working hours have a 29% turnover rate

# Reduce **High** Working Hours by **56** Hours to Reach **Average**

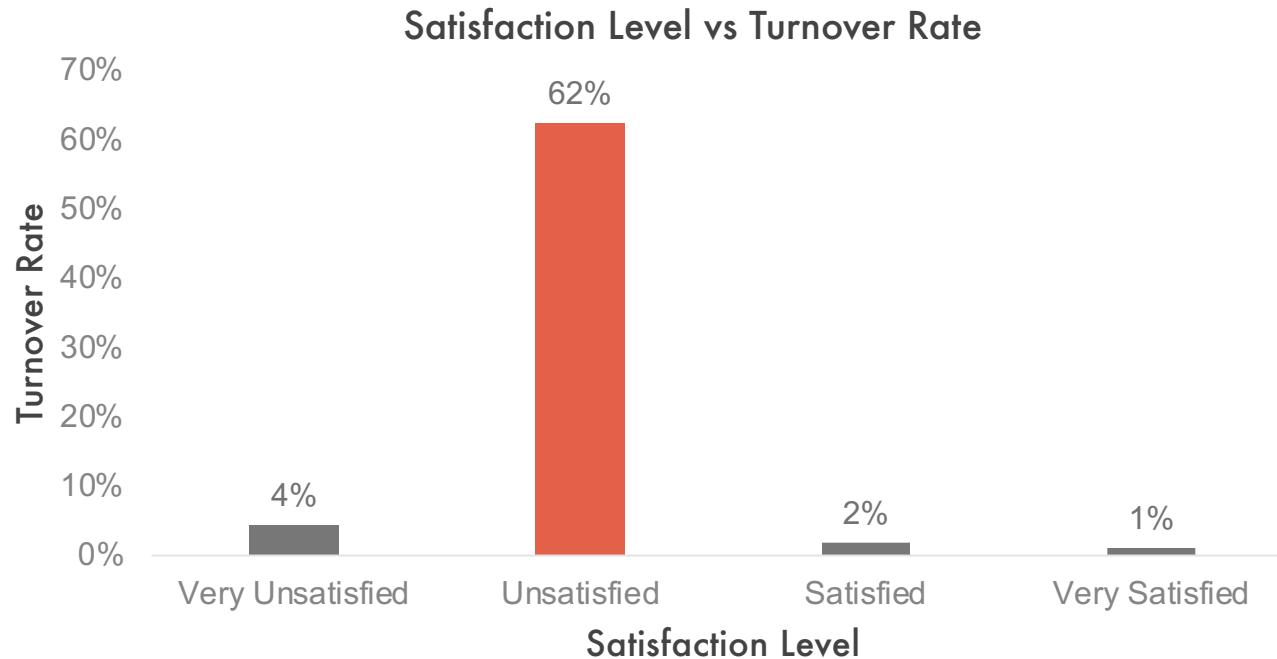


Recommendation: Reduce high working hours for optimal retention

# Low Hours have a High Turnover Rate (29%)

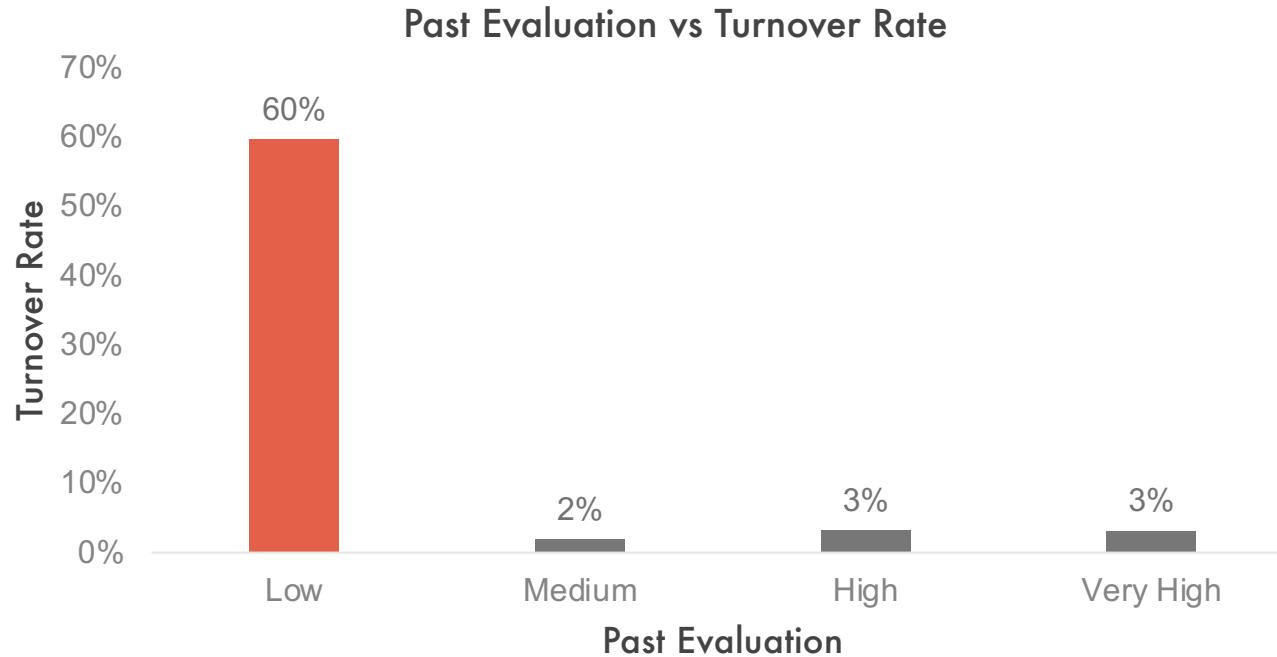


# Low Hours who are **Unsatisfied** have a **62%** Turnover Rate



2,497 employees are unsatisfied

# Low Hours with **Low** Performance have a **60%** Turnover Rate



2,571 employees have low performance

A close-up photograph of a person's hands signing a document with a black pen. The person is wearing a light-colored shirt. The document has some printed text and a red signature at the bottom. The background is blurred.

## OPPORTUNITIES & RECOMMENDATIONS

50

# SUMMARY OF OPPORTUNITIES

- Improve unsatisfied satisfaction level by 23% to reach satisfied level
- Improve low evaluation score by 14% to reach medium score level
- Reduce high working hours by 56 hours to reach average monthly hours

# SUMMARY OF RECOMMENDATIONS

- Assess expectations of employees with low satisfaction levels
- Engage more employees with low evaluation scores
- Reduce high working hours for optimal retention

# 06



# FUTURE WORKS

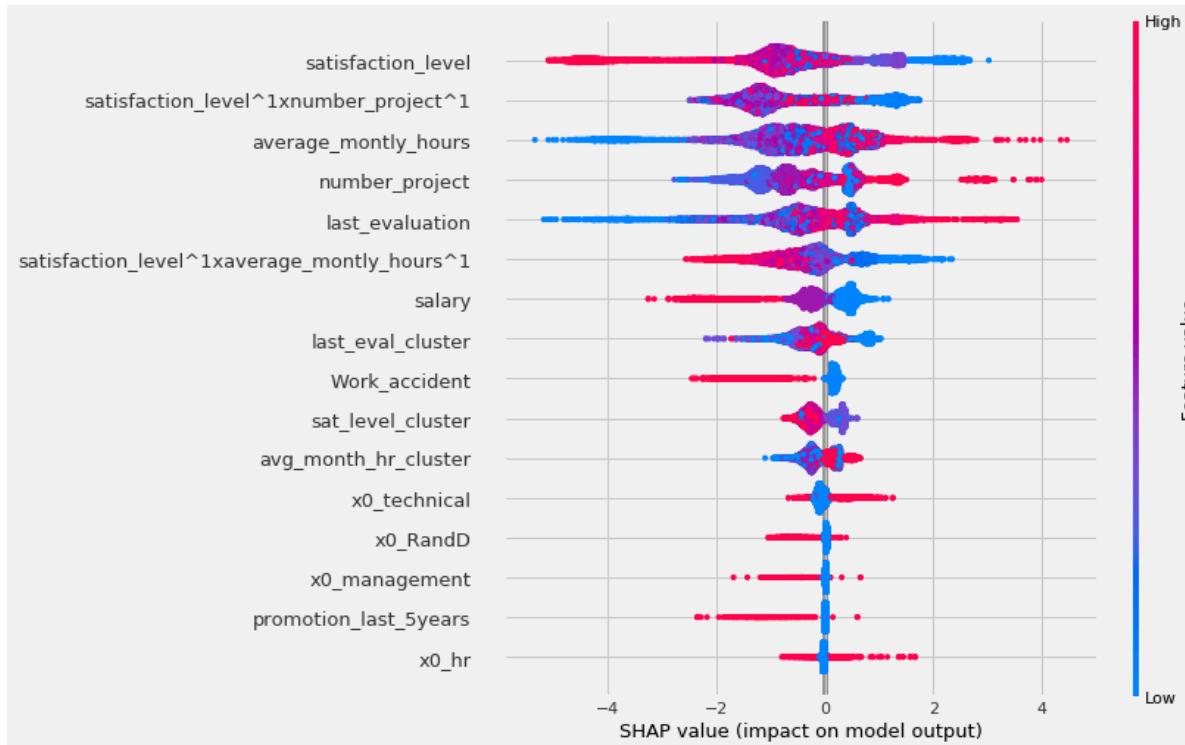
- Identify key drivers
  - Satisfaction level
  - Evaluation score
- Further exploration with employee information
- Implement feature engineering in model pipeline

# THANKS

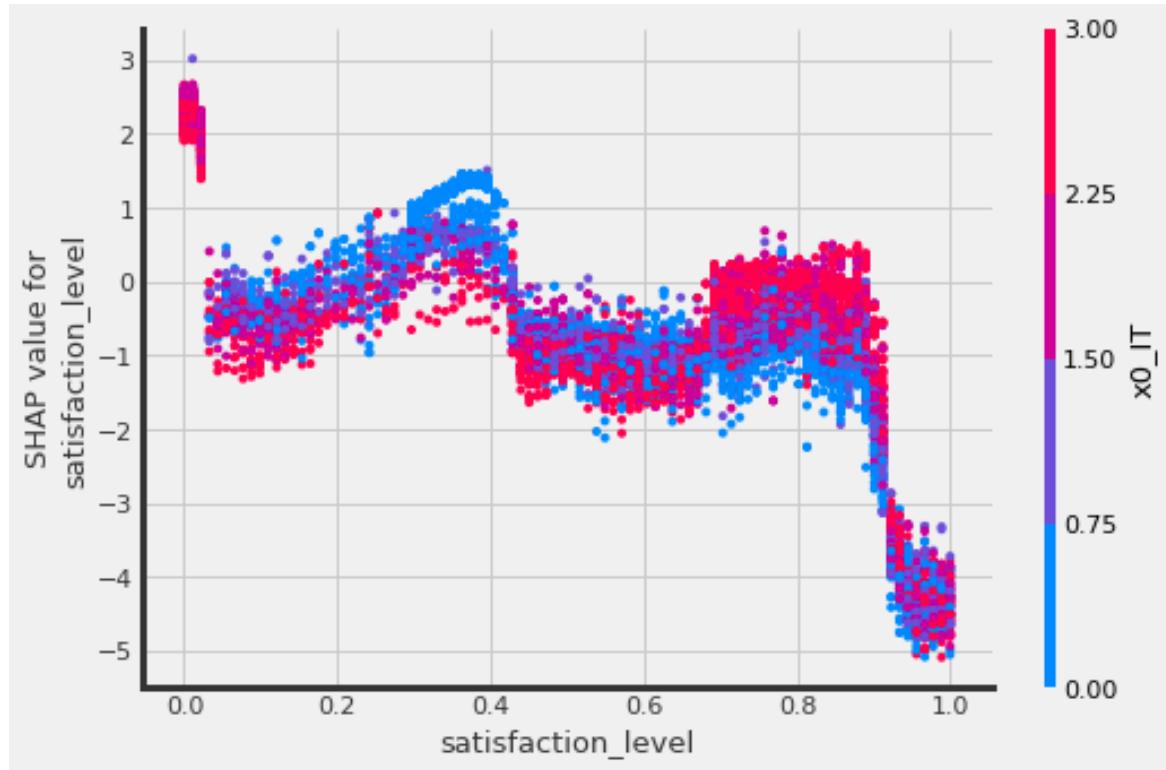


# APPENDIX

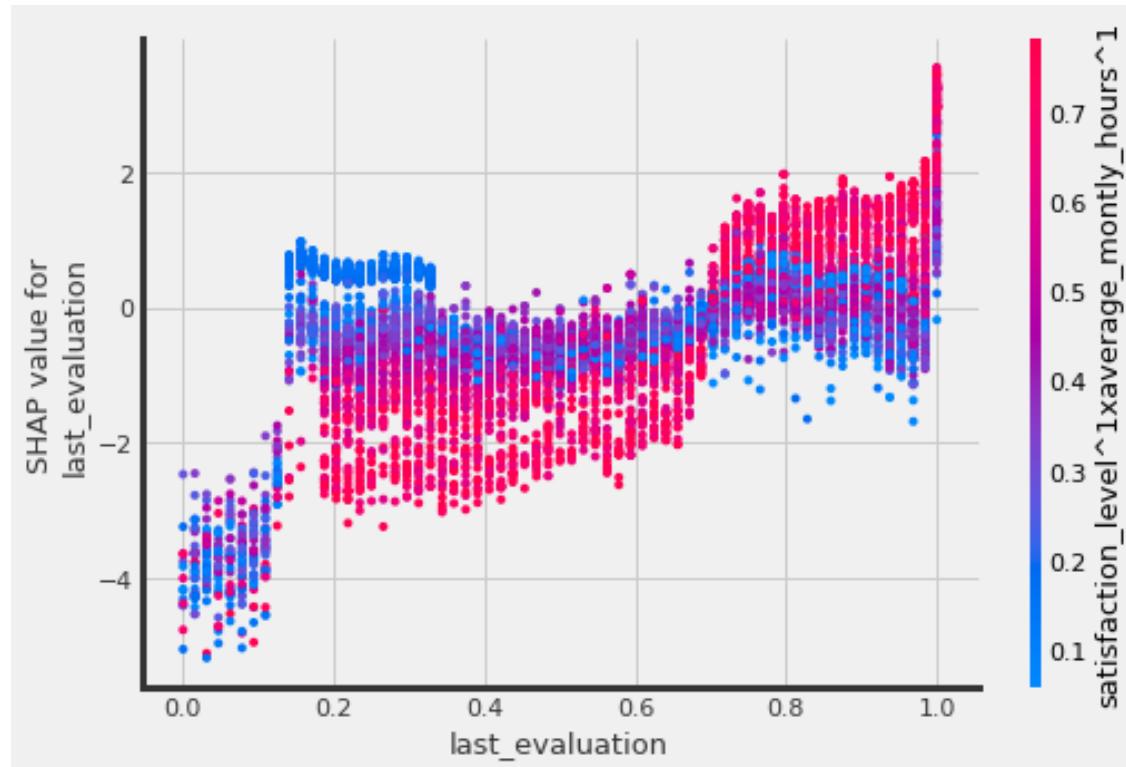
# SHAP SUMMARY PLOT



# SATISFACTION LEVEL DEPENDENCY PLOT



# LAST EVALUATION DEPENDENCY PLOT



# MONTHLY HOURS DEPENDENCY PLOT

