PREDICTIVE EMPLOYEE TURNOVER

Ana André, Data Squad #21

2019.10.11

MOTIVATION

COMPANY SUCCESS IS BUILT ON PEOPLE

VERY COSTLY

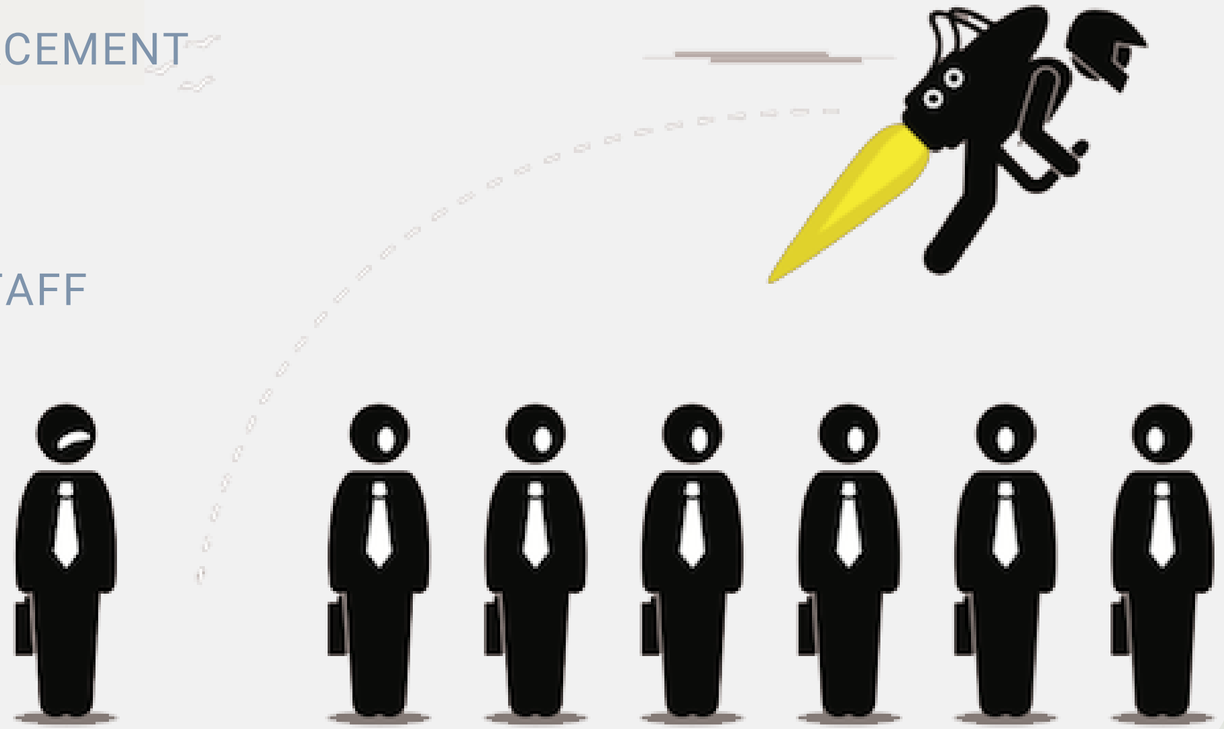
SEPARATION, RECRUITMENT, TRAINING AND REPLACEMENT

LOSS OF PRODUTIVITY

VOIDS IN THE WORKFORCE OVERLOAD CURRENT STAFF

LOSS OF BUSINESS

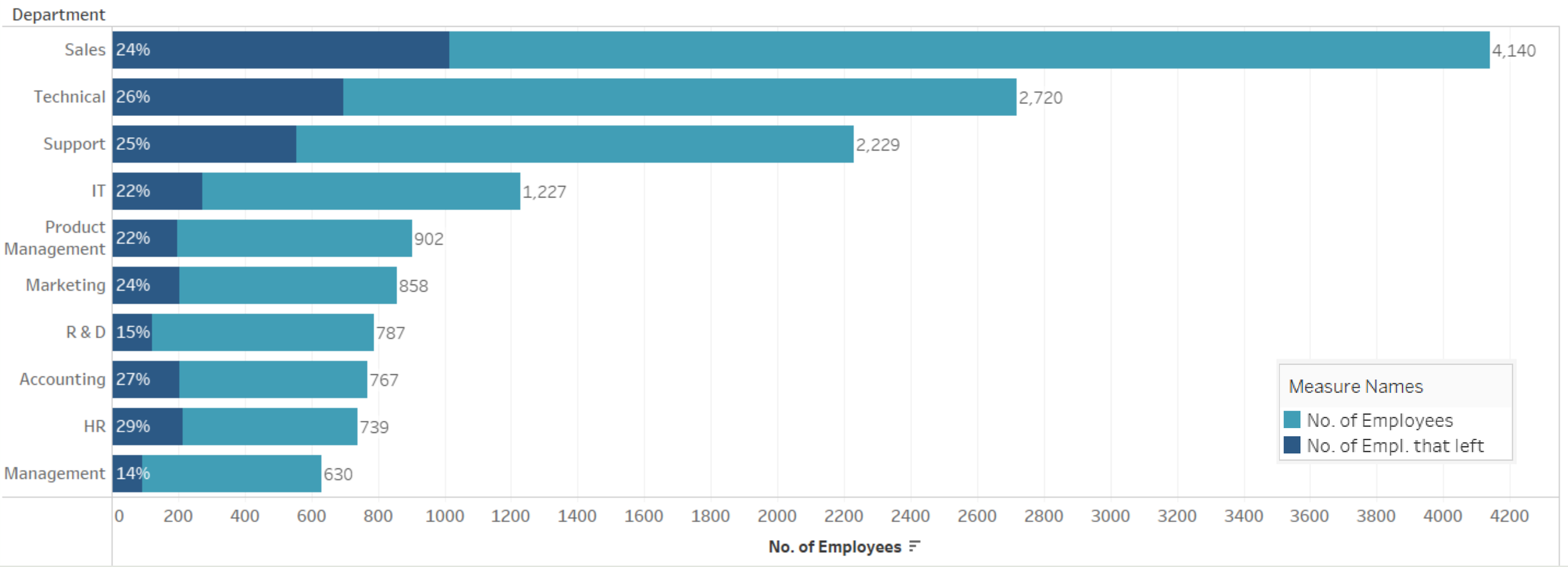
DETERIORATES THE CUSTOMER SATISFACTION



GENERAL OVERVIEW

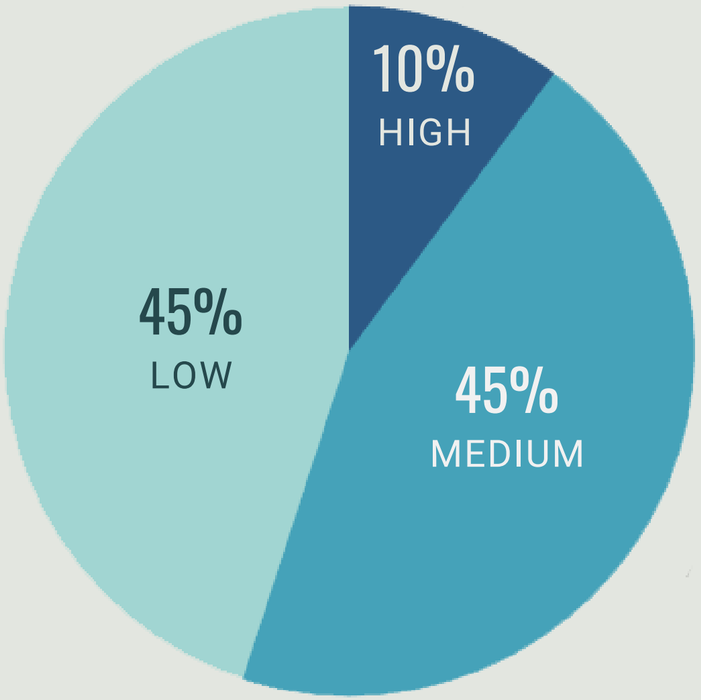
HOW MANY EMPLOYEES ARE LEAVING?

DEPARTMENT OVERVIEW

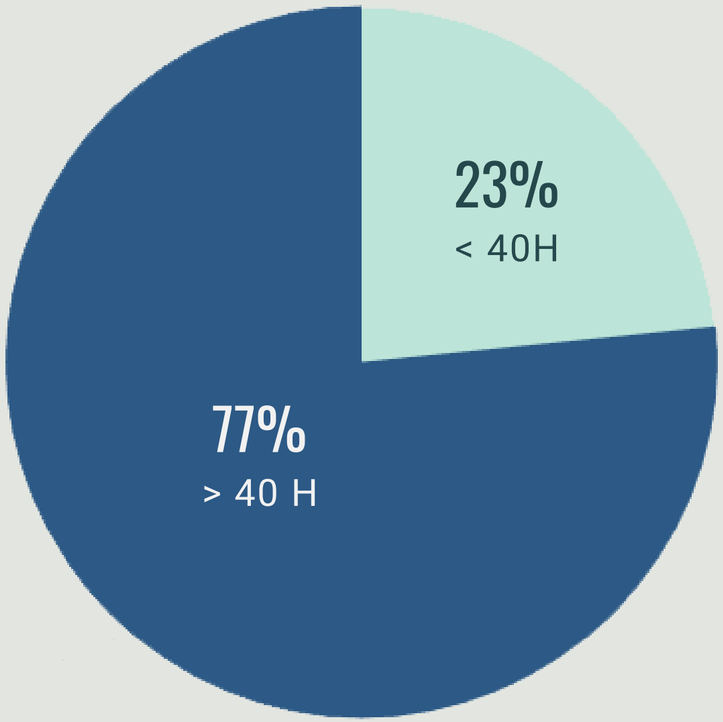


HOW MANY EMPLOYEES ARE LEAVING?

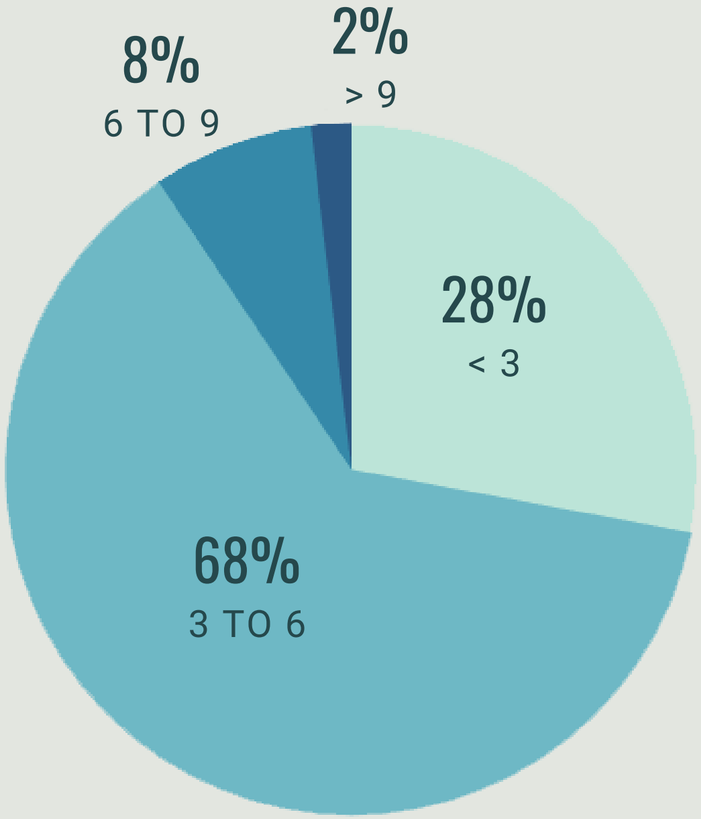
GENERAL OVERVIEW



SALARY



AVERAGE WEEKLY HOURS



YEARS IN THE COMPANY

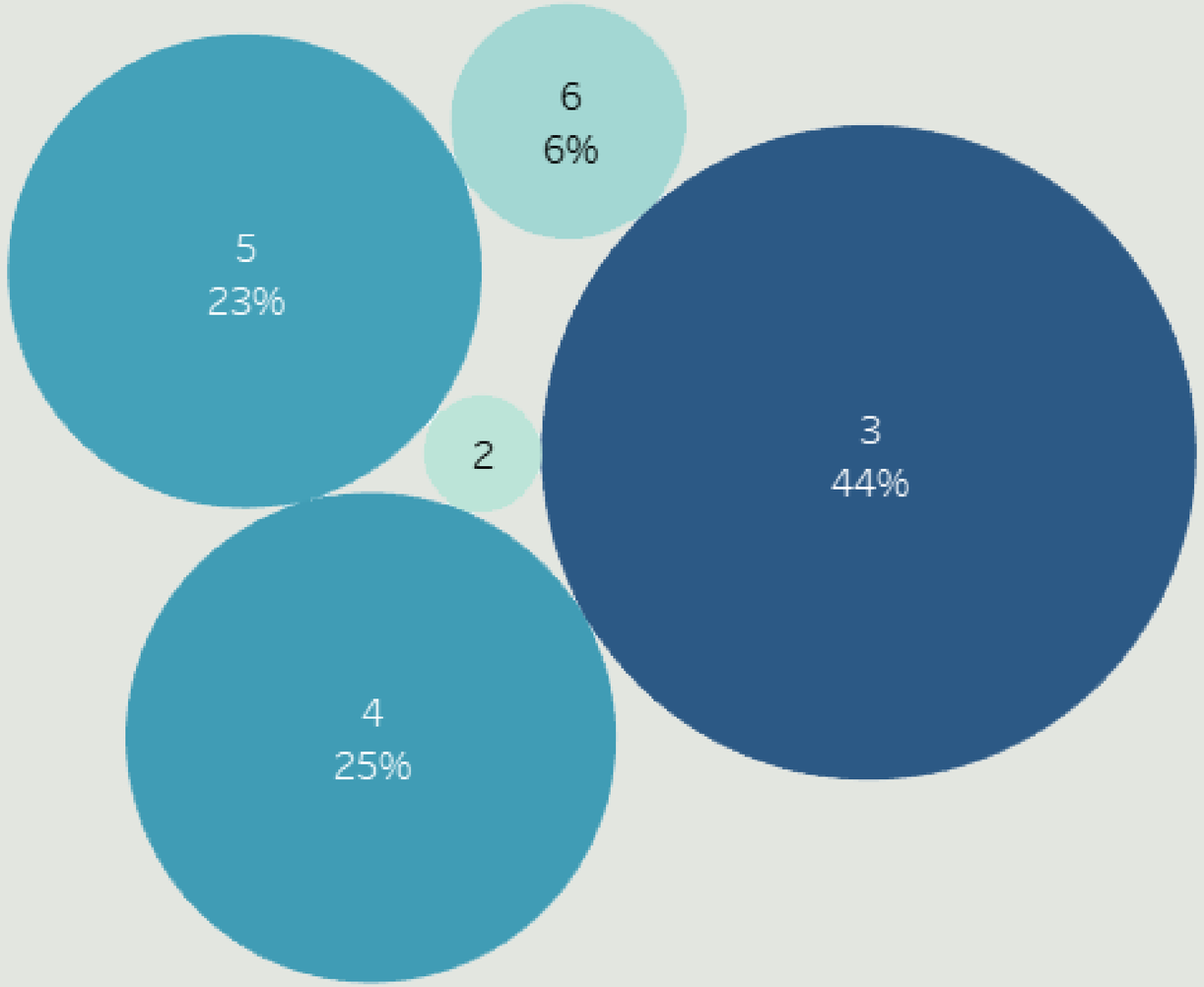
LET'S FOCUS ON THE EMPLOYEES WHO LEFT THE COMPANY

WHEN ARE EMPLOYEES LEAVING?

YEARS IN THE COMPANY

98%
LEFT AFTER THE 3RD YEAR

44%
LEFT IN THE 3RD YEAR

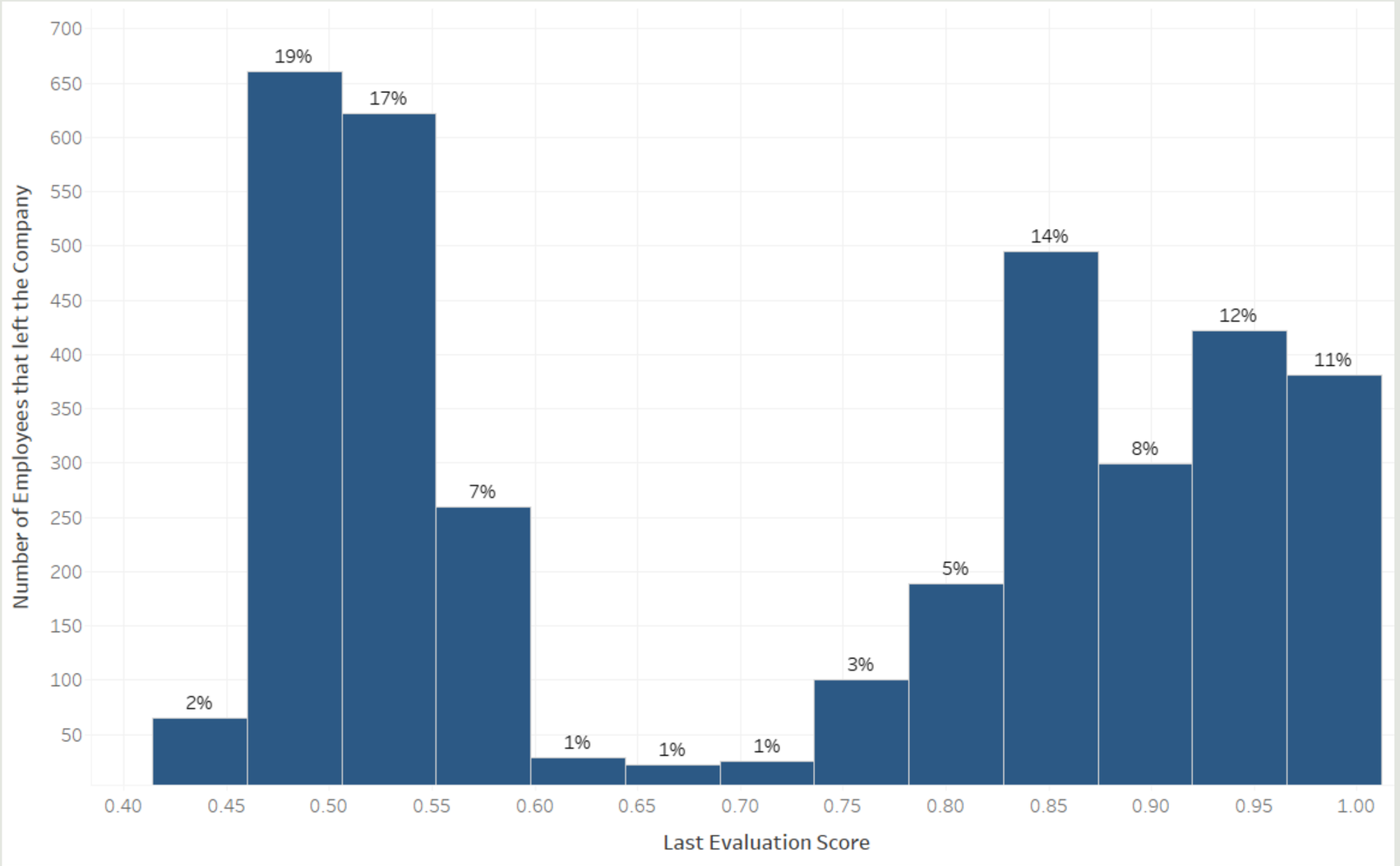


WHICH EMPLOYEES ARE LEAVING?

PERFORMANCE OF THE EMPLOYEES

21%
EVALUATION < 0.5

50%
EVALUATION > 0.8

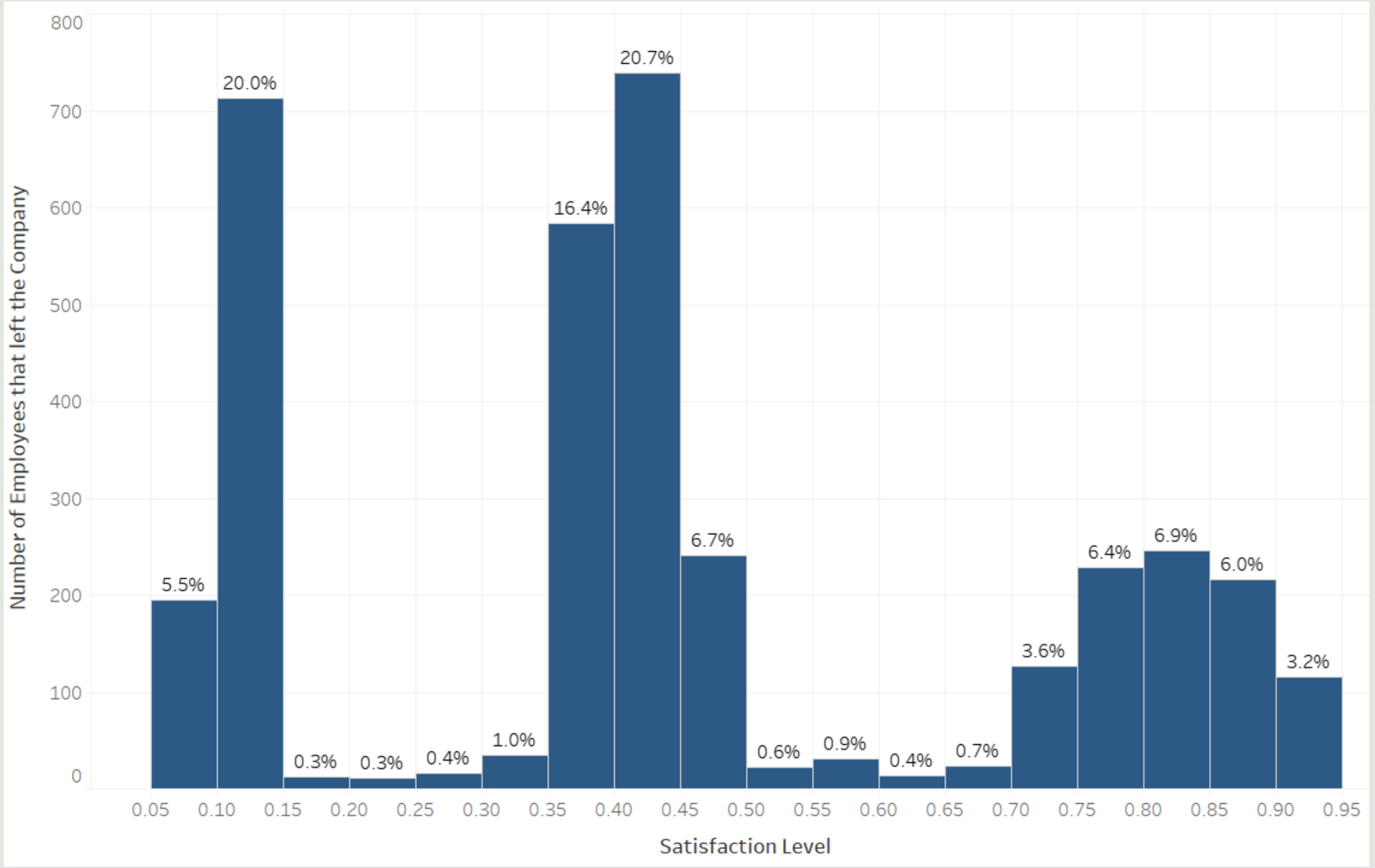


WHY ARE EMPLOYEES LEAVING?

SATISFACTION LEVELS

71%
SL < 0.5

15%
SL > 0.8

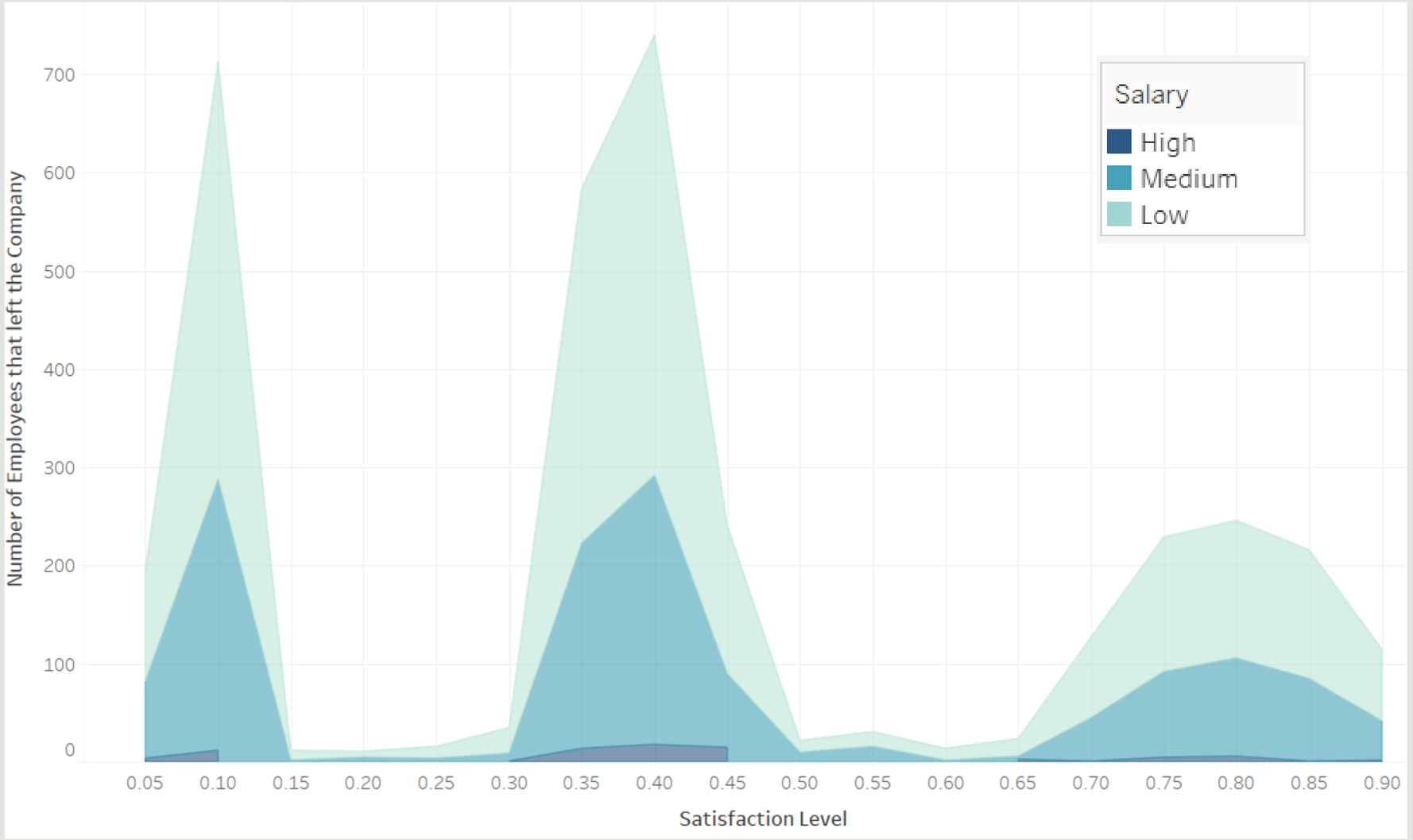


WHY ARE THEY UNHAPPY?

SALARY LEVEL

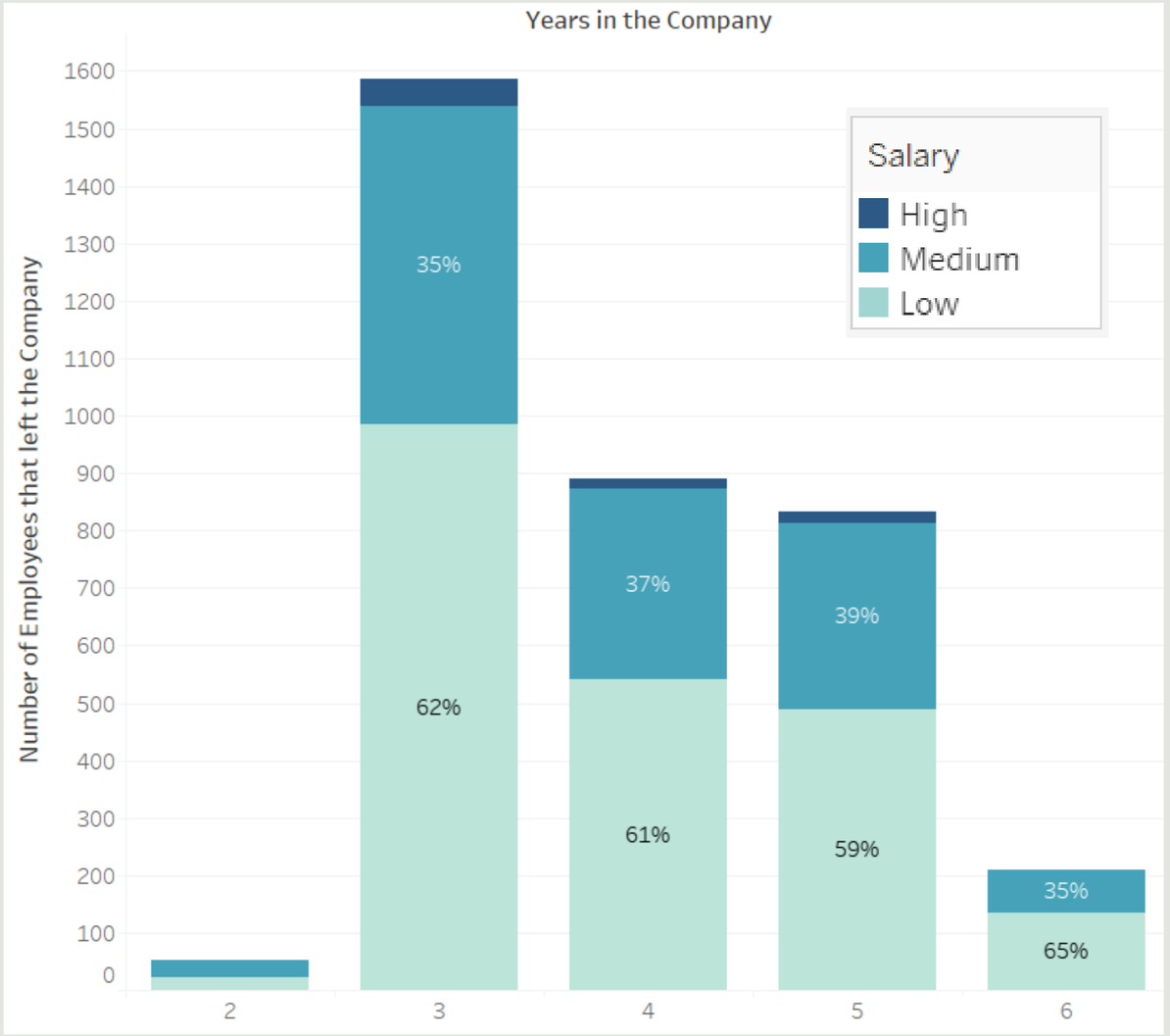
98%
MEDIUM OR LOW

2%
HIGH



WHY ARE THEY UNHAPPY?

YEARS IN THE COMPANY



WHY ARE THEY UNHAPPY?

AVERAGE WEEKLY WORKING HOURS

WHO TO FLAG ?

PREDICTING LIKELIHOOD

WHO'S MORE LIKELY TO LEAVE THE COMPANY

LOGISTIC REGRESSION	77%
DECISION TREE	96%
SUPPORT VECTOR MACHINE	93%
K-NEIGHBOUR	94%

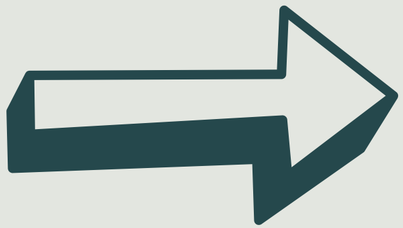
DECISION TREE CLASSIFIER

ACCURACY 96%	PRECISION 88%
RECALL 97%	F1 SCORE 92%

PREDICTING LIKELIHOOD

FEATURES

- YEARS IN THE COMPANY
- SALARY LEVEL
- SATISFACTION LEVEL
- DEPARTMENT
- LAST EVALUATION SCORE
- AVERAGE WORKING HOURS

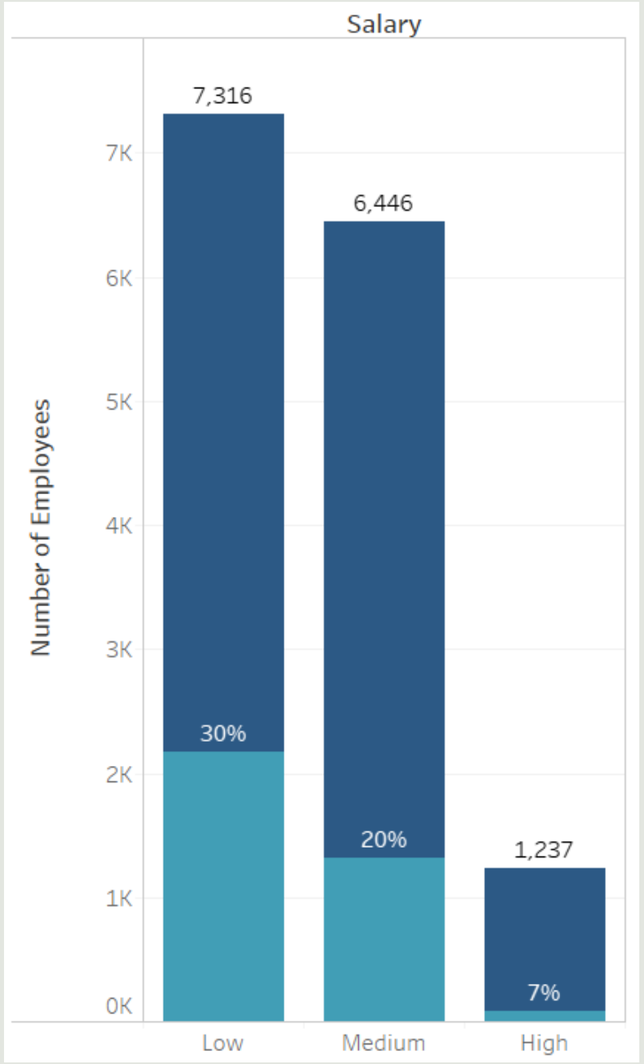


CLASSIFIER TO FLAG **CURRENT** AND **FUTURE** EMPLOYEES

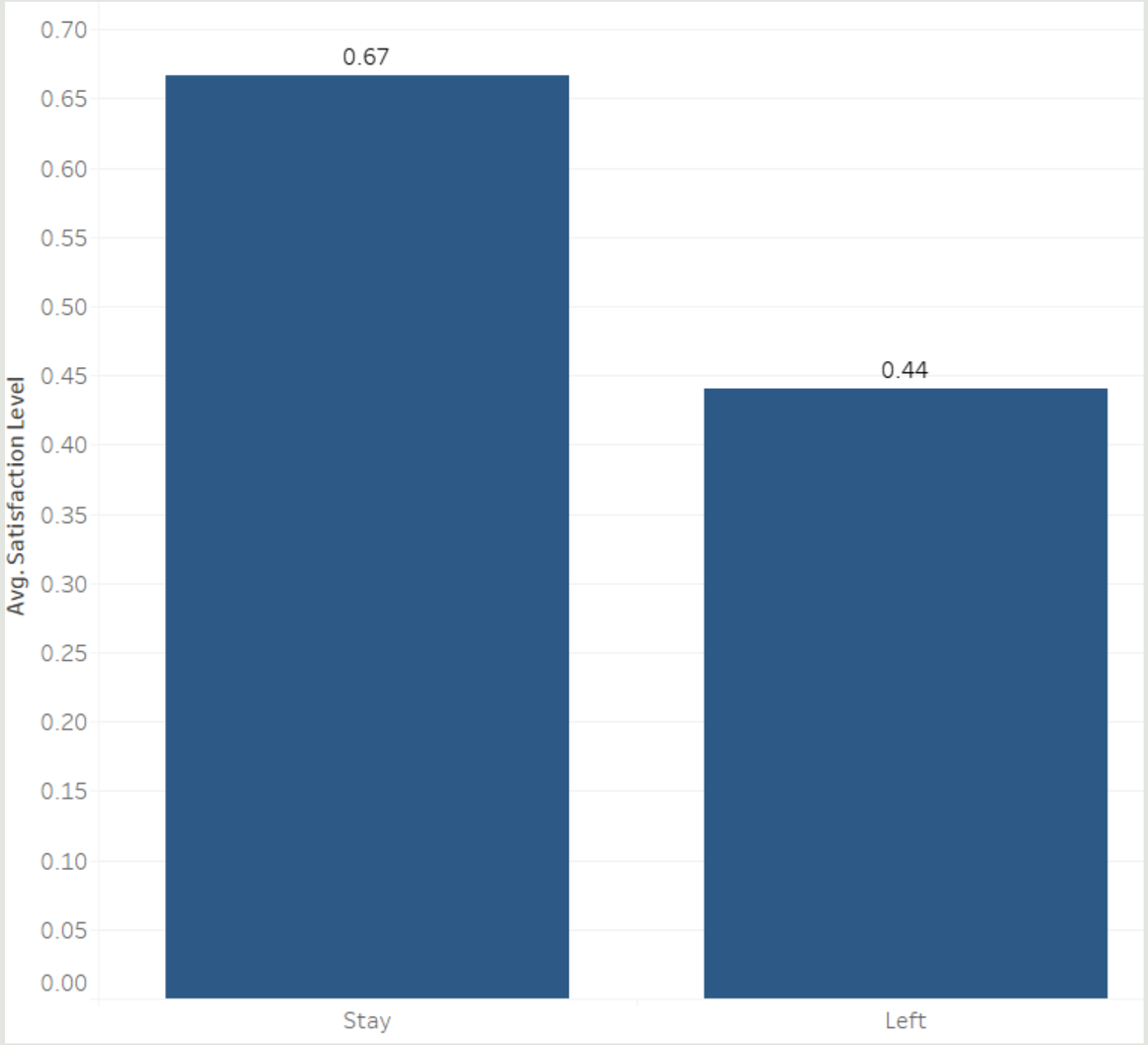
THANK YOU

ANY QUESTIONS?

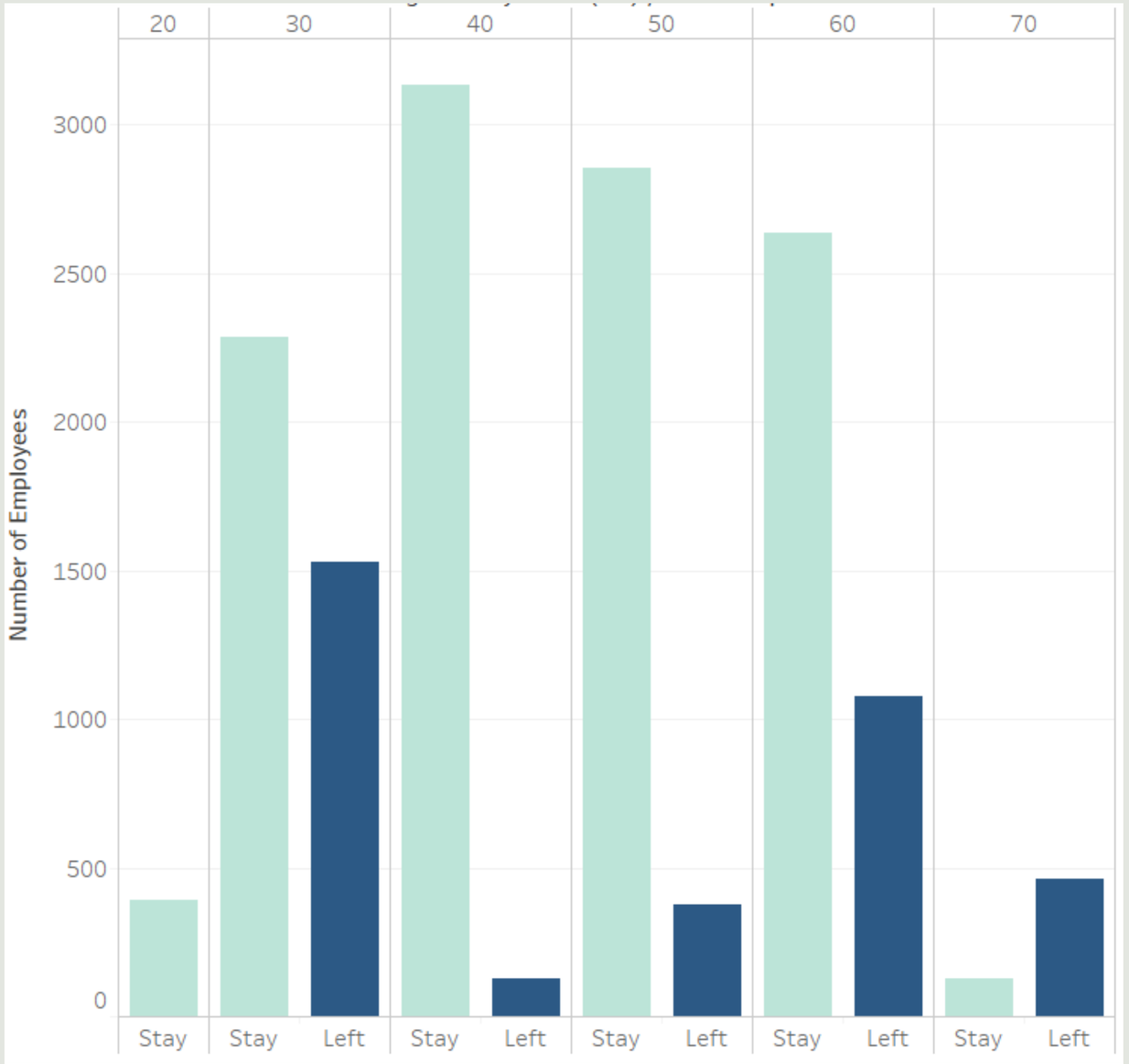
SALARY LEVELS



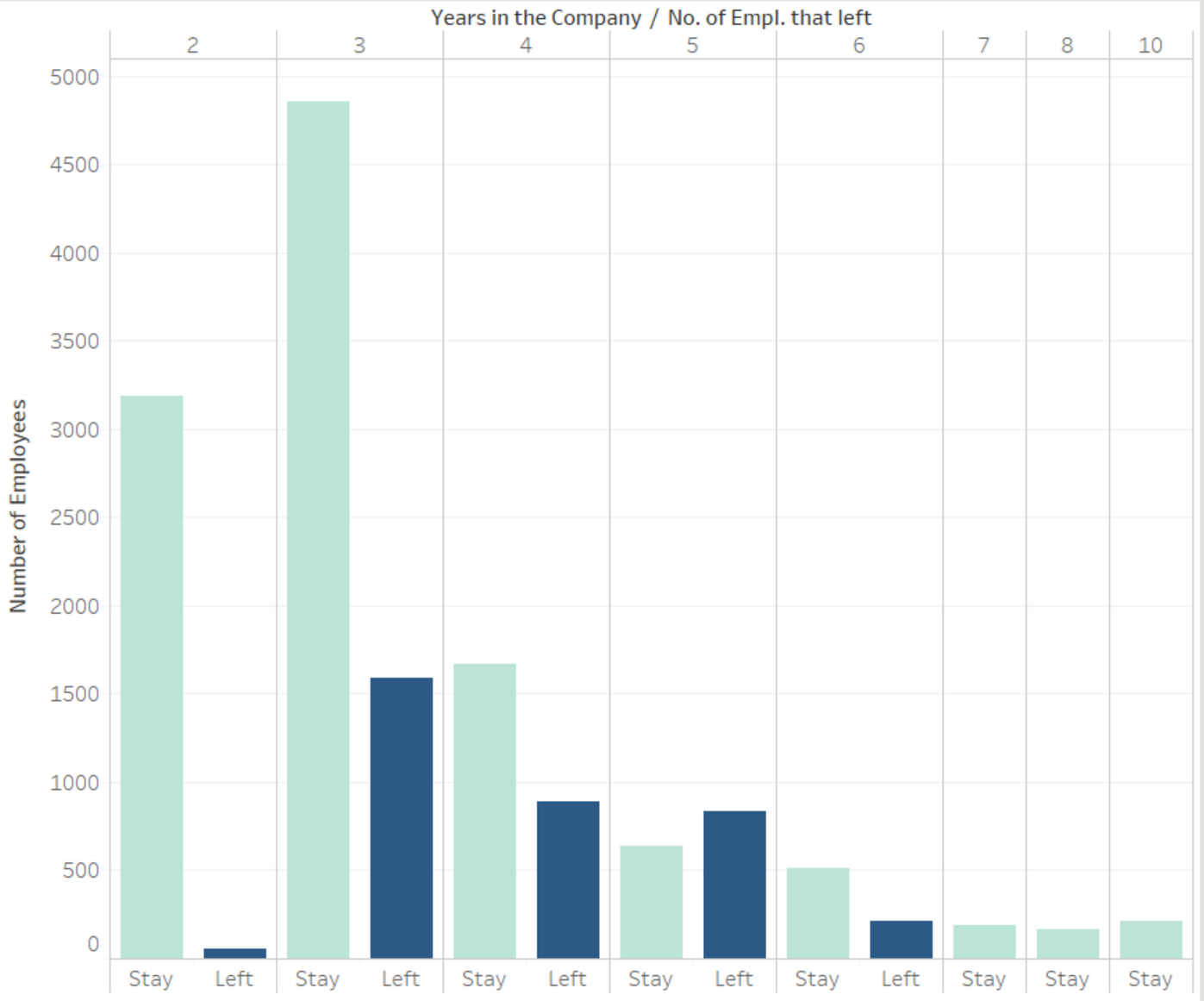
SATISFACTION LEVELS



AVERAGE WEEKLY WORKING HOURS



YEARS IN THE COMPANY



CONFUSION MATRIX

WHO'S MORE LIKELY TO LEAVE THE COMPANY

CONFUSION MATRIX	
TN 2228	FP 88
FN 22	TP 662

TN: Emp that stay and are really stayed

FP: Emp that stayed and were flagged as left

FN: Emp that left and were flagged as stay

TN: Emp that left and really left