

AIRLOOPS DATA ANALYSIS

MARTA | CHARLES | MERIEM | ANTONIO



PREPARE FOR DEPARTING

WHO & WHY

BUSSINESS & OBJECTIVES

HOW

DATA FRAME
OBSTACLES
DESCRIPTIVE ANALYSIS

WHAT

HYPOTHESIS TESTING
H1 | H2 | H3

CONCLUSIONS

KEY INSIGHTS



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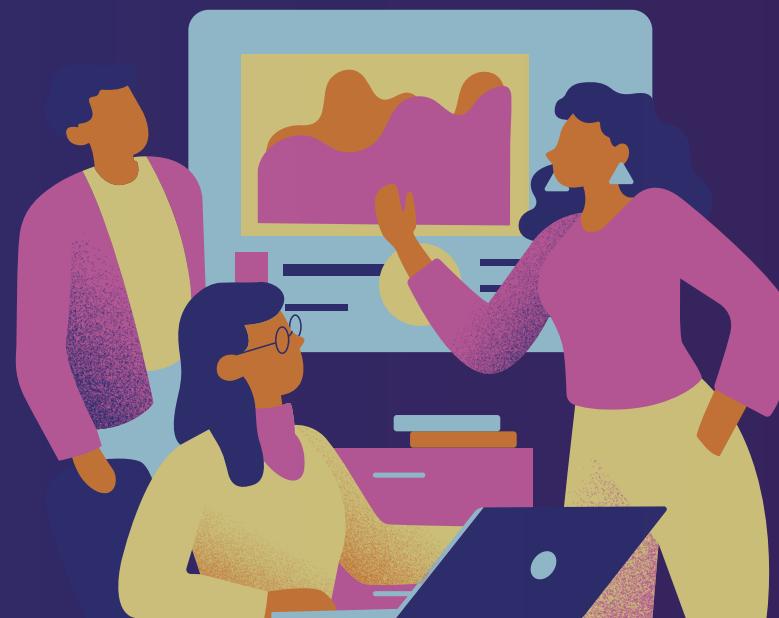
01

BUSSINESS & OBJECTIVES

OBJECTIVES



to improve our services and bussiness performance according to customer satisfaction



HYPOTHESES



Services like Wi-Fi and digital services matter more for passenger happiness than things like seats or meals.



Making Business Class better doesn't improve satisfaction as much as improving Economy.



Fixing the main inflight problems will reduce unhappy passengers who don't want to fly with us again.



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02

DATA FRAME

DATASET

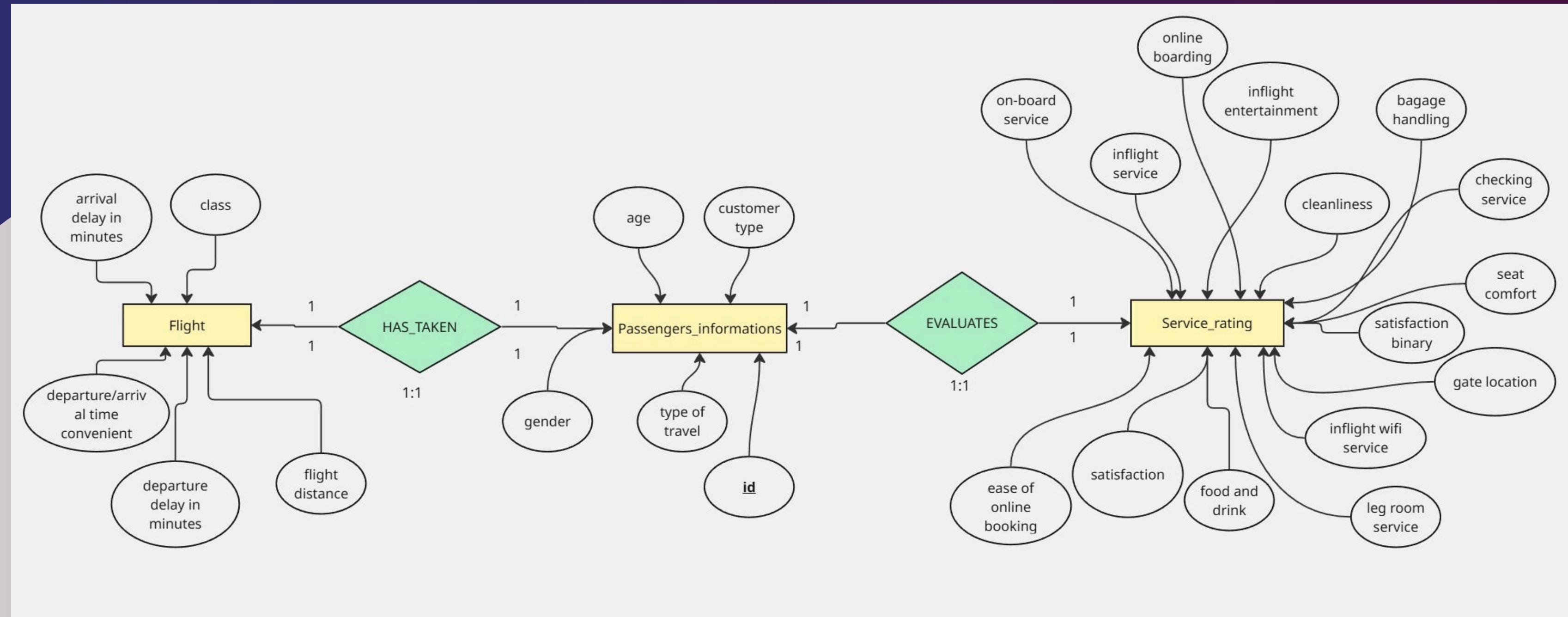
- Dataset
Airline Passenger Satisfaction
- Source
Kaggle public dataset (130,000+ passengers)
- ERM Diagram
 - Passengers
 - Flight
 - Service_rating
 - Relations: PK-FK across tables

DATA CLEANING

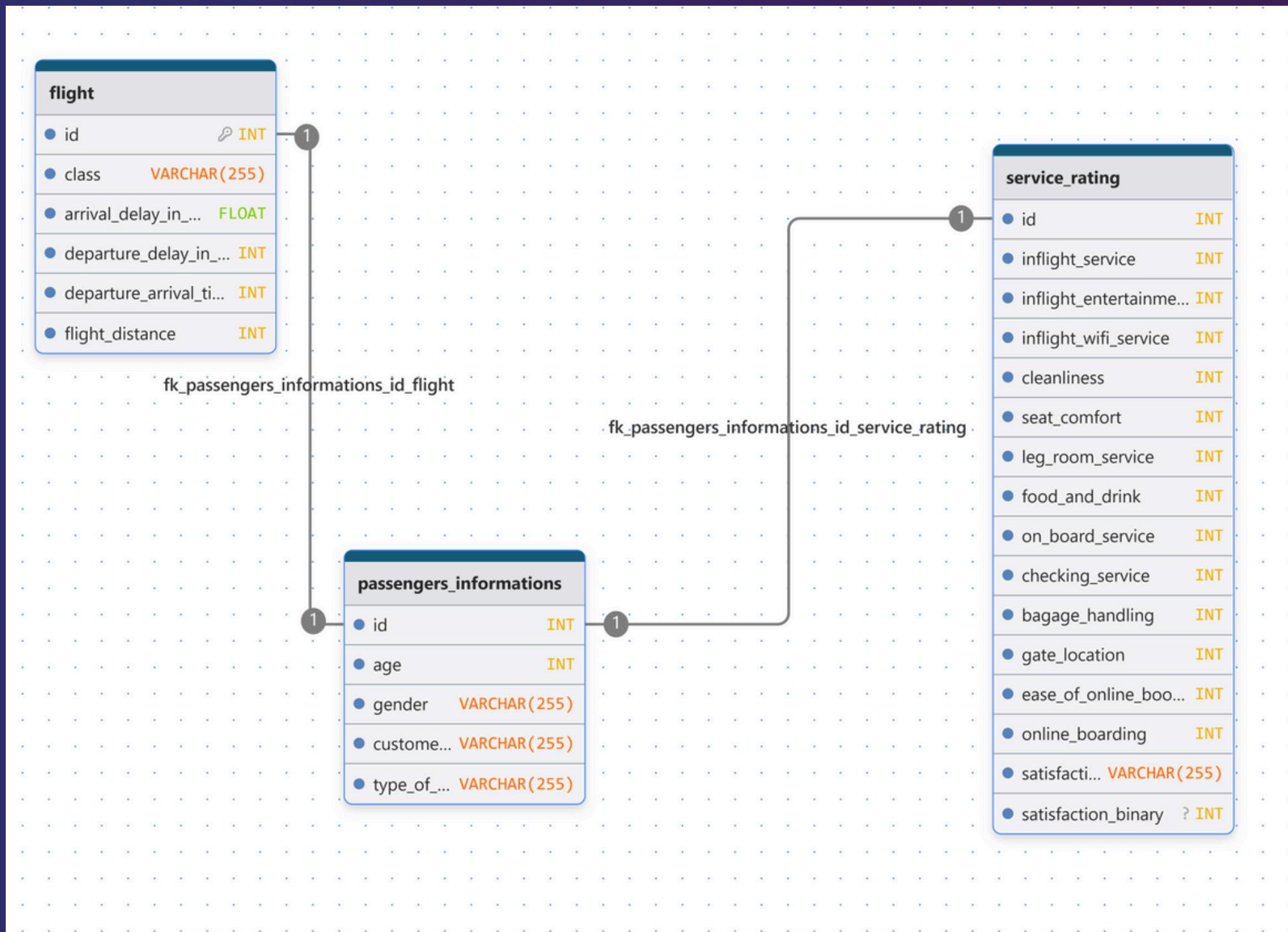
- modifying data types
binary of satisfied - dissatisfied customers
- data simplification by grouping
 - Passenger age by age groups
 - Flight duration by flight category



DATA FRAME



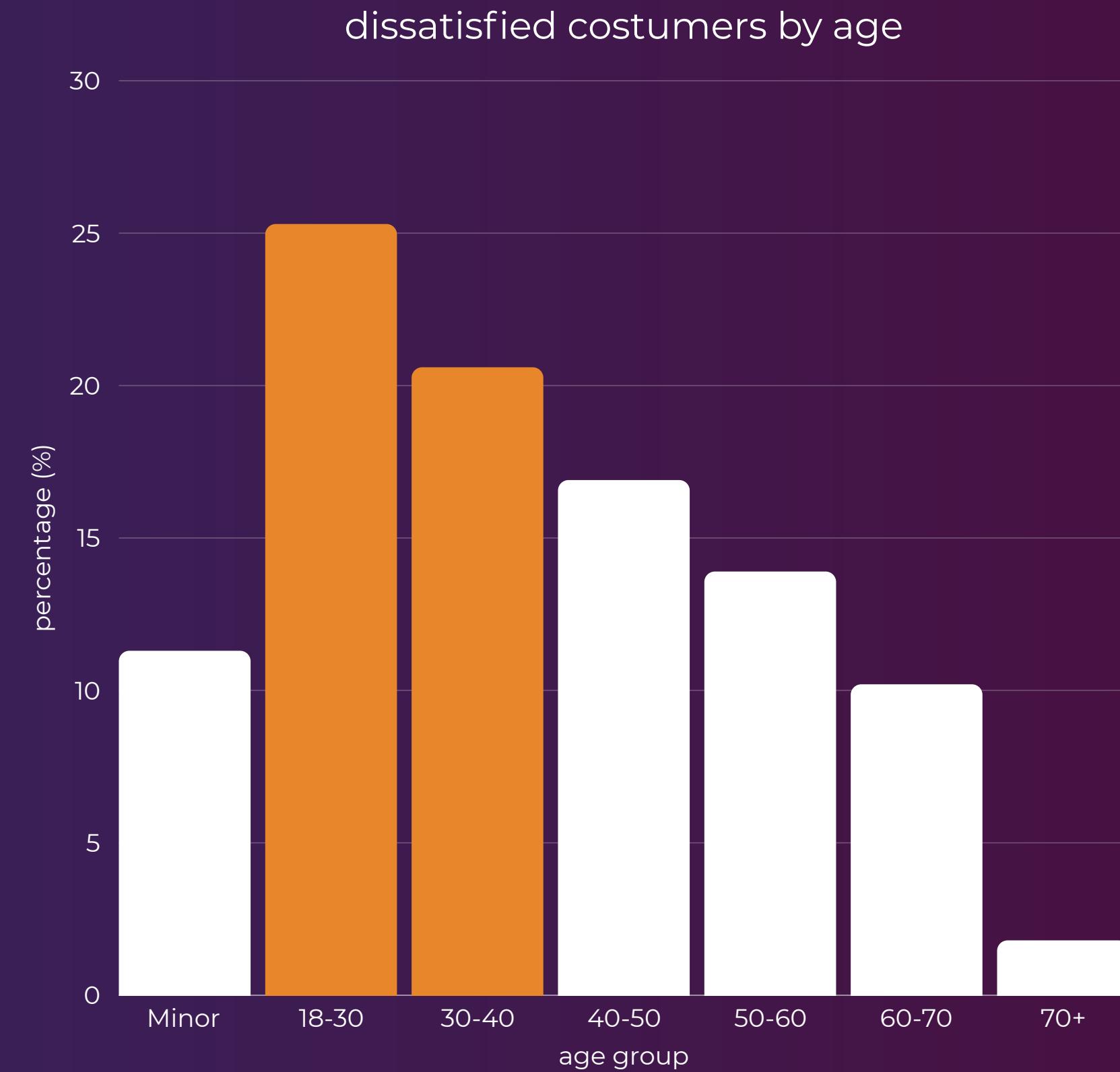
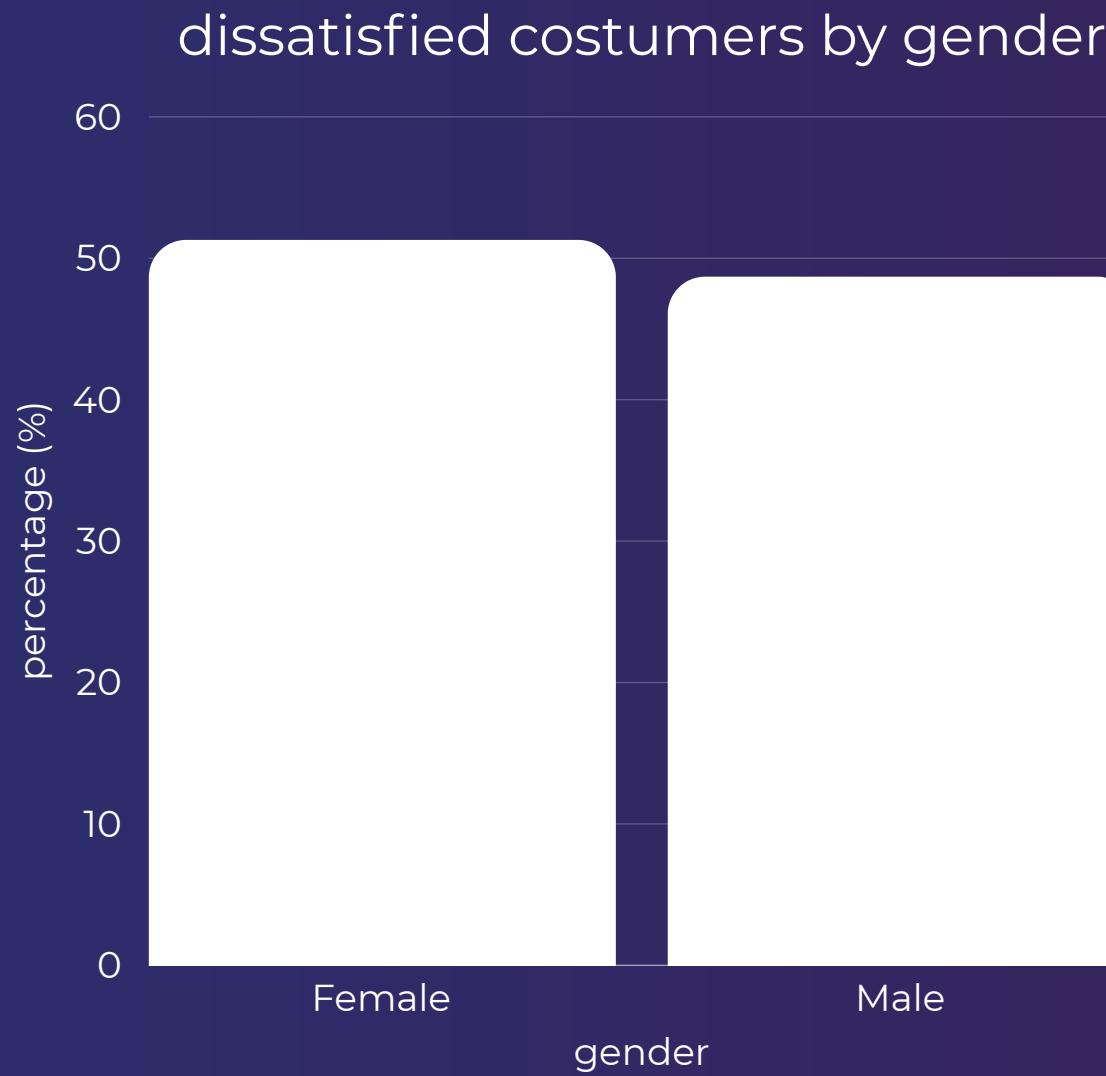
DATA FRAME



DESCRIPTIVE ANALYSIS

OUR FLIGHTS

ALMOST 50% BETWEEN 18-40 YEARS OLD



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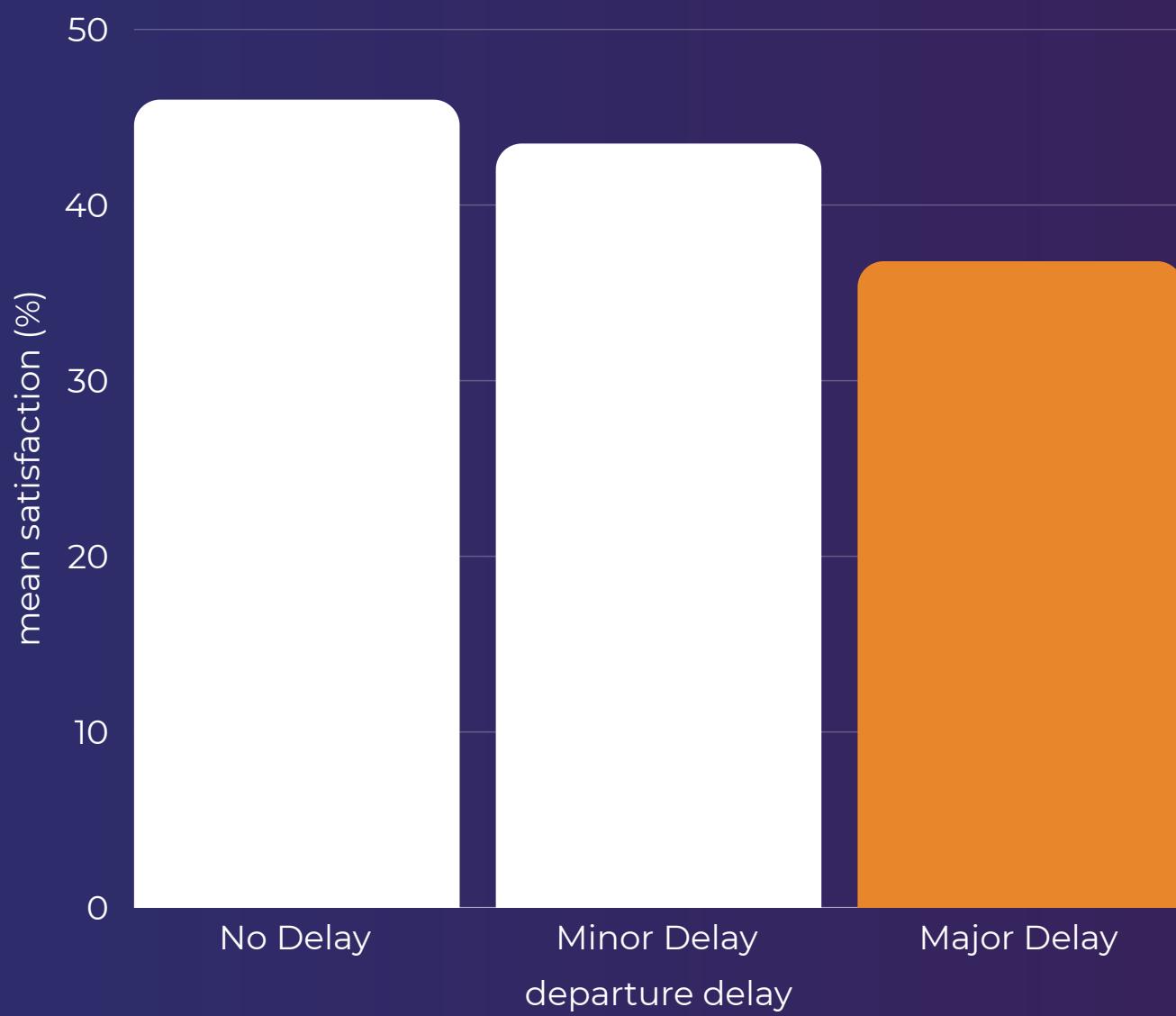
DESCRIPTIVE ANALYSIS

OUR FLIGHTS

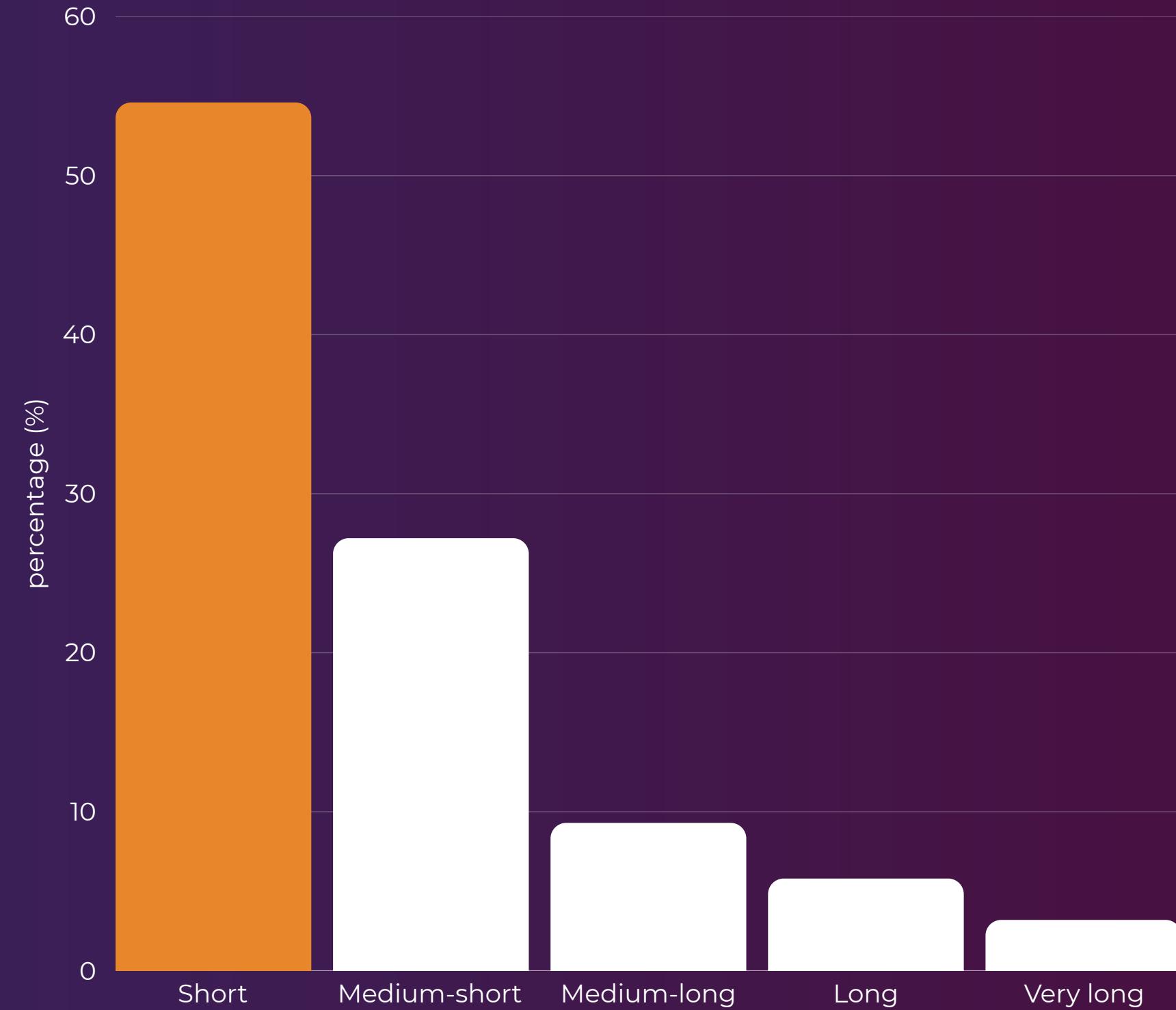
BIG IMPACT OF MAJOR DELAYS

55% OF DISSATISFACTION ON SHORT FLIGHTS

satisfaction % by departure delay



dissatisfied customers by flight distance



Left chart: no delay = on time | Minor < 15' | Major < 15'

Right chart: short , until 750 miles | Medium-short, until 1500 miles | Medium-long, until 2250 miles | long until 3000 miles |

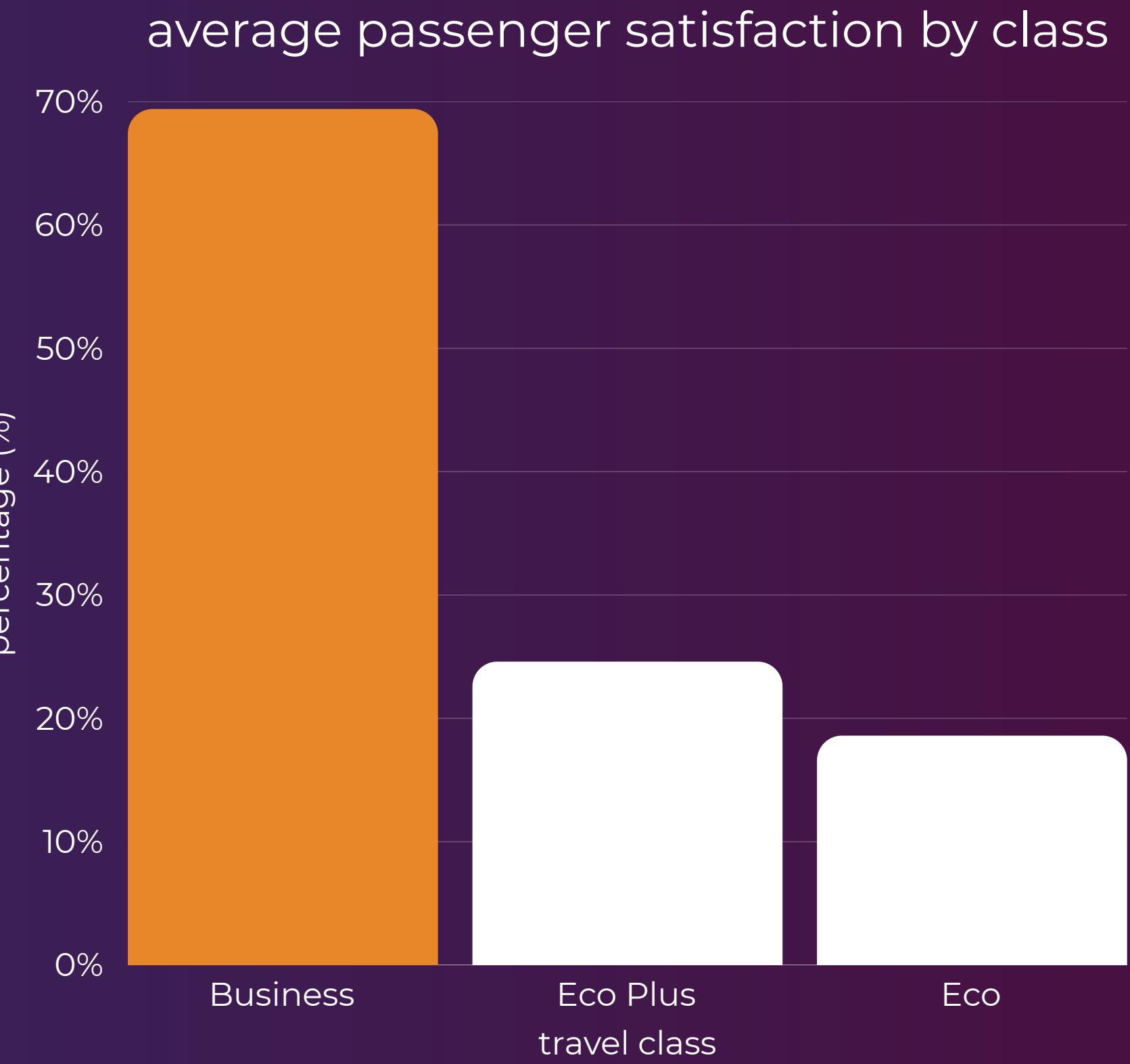


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DESCRIPTIVE ANALYSIS

CLASSES

LOW SATISFACTION IN BOTH ECO CLASSES



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H1 HYPOTHESIS TESTING

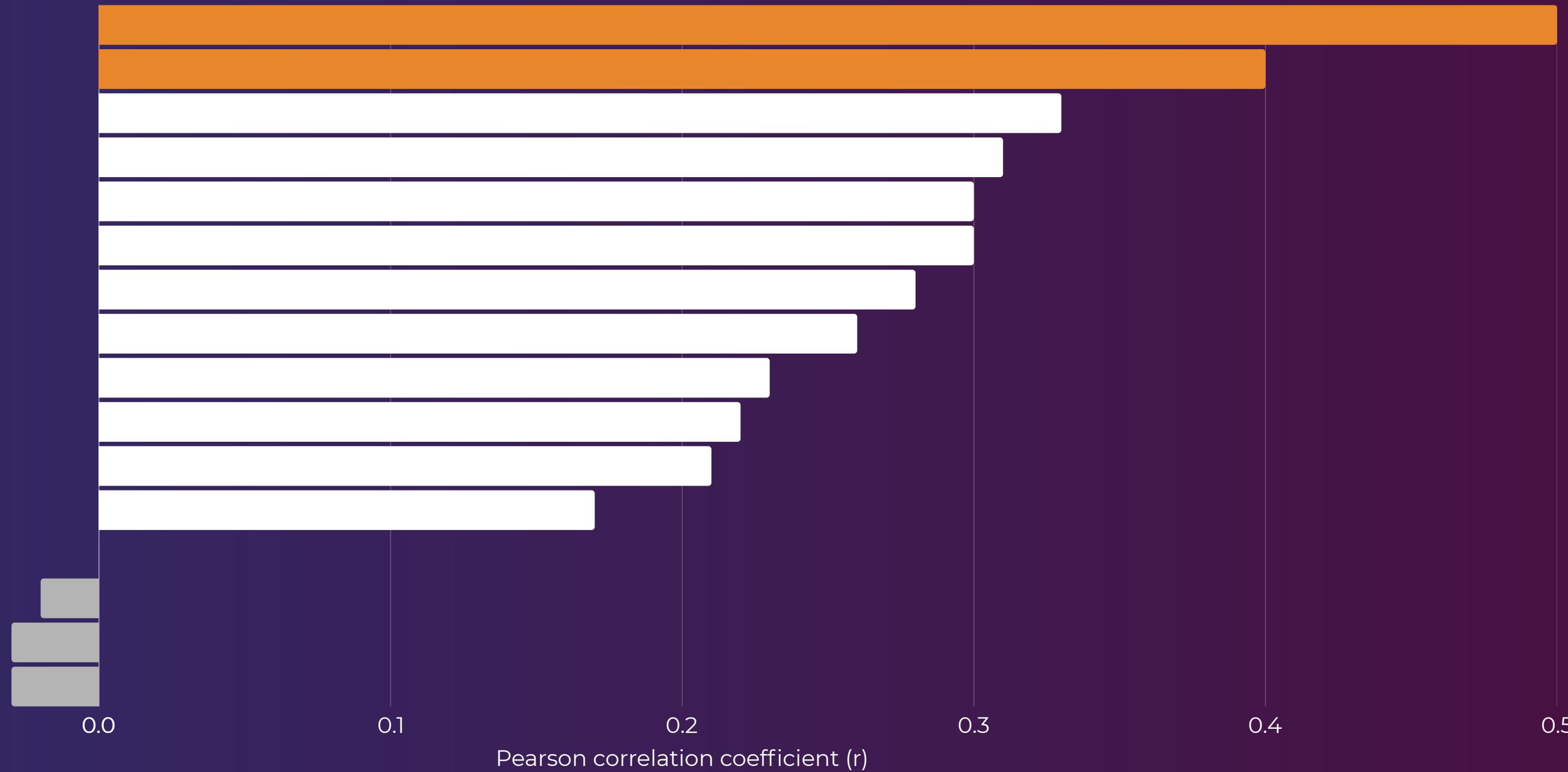
MAJOR CONTRIBUTORS FOR CUSTOMER SATISFACTION

online boarding
inflight entertainment
seat comfort
on-board service
leg room service
cleanliness
inflight wifi service
baggage handling
inflight service
checkin service
food and drink
ease of online booking
gate location
departure delay*
departure/arrival time
arrival delay*

-0.1

• in minutes

correlation (r) of services features with passenger satisfaction



Pearson correlation coefficient (r)



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H2HYPOTHESIS TESTING

PRIORITY: IMPROVE ECONOMY CLASS

WIFI-SERVICE, ONLINE-BOARDING, ONLINE BOOKING HAVE THE BIGGEST IMPACT IN ECONOMY CLASSES SATISFACTION

Investment strategy: General vs. Eco services (drivers)



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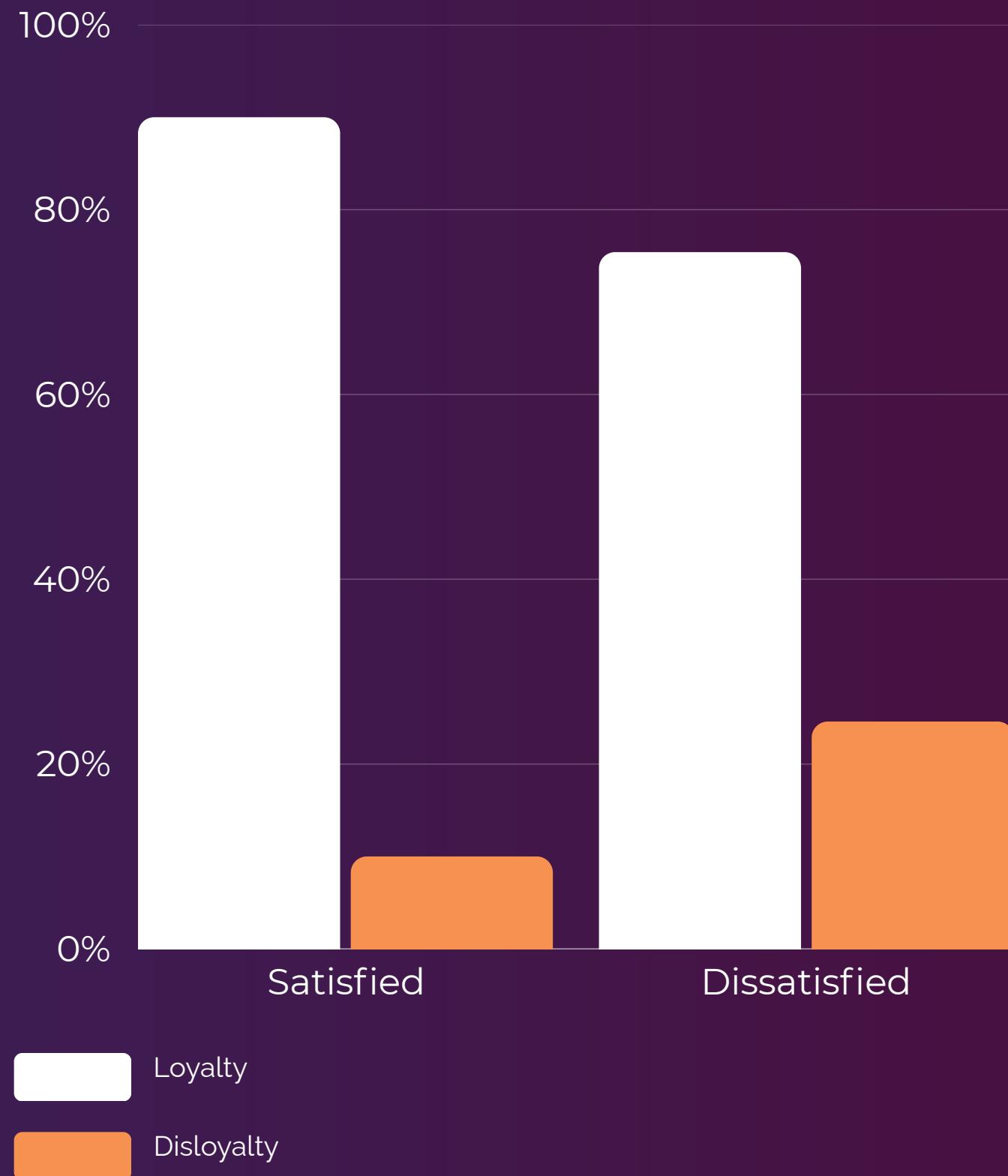
H3 HYPOTHESIS TESTING

CRITICAL TO BUSSINESS: LOYALTY ON CUSTOMERS

10% OF DISLOYALTY RATE ON SATISFIED CUSTOMERS IS PROBABLY NOT DUE TO SPECIAL CAUSE

25% OF DISLOYALTY RATE ON DISSATISFIED CUSTOMERS IS PROBABLY DUE TO SPECIAL CAUSE

loyalty distribution on satisfied and dissatisfied customers



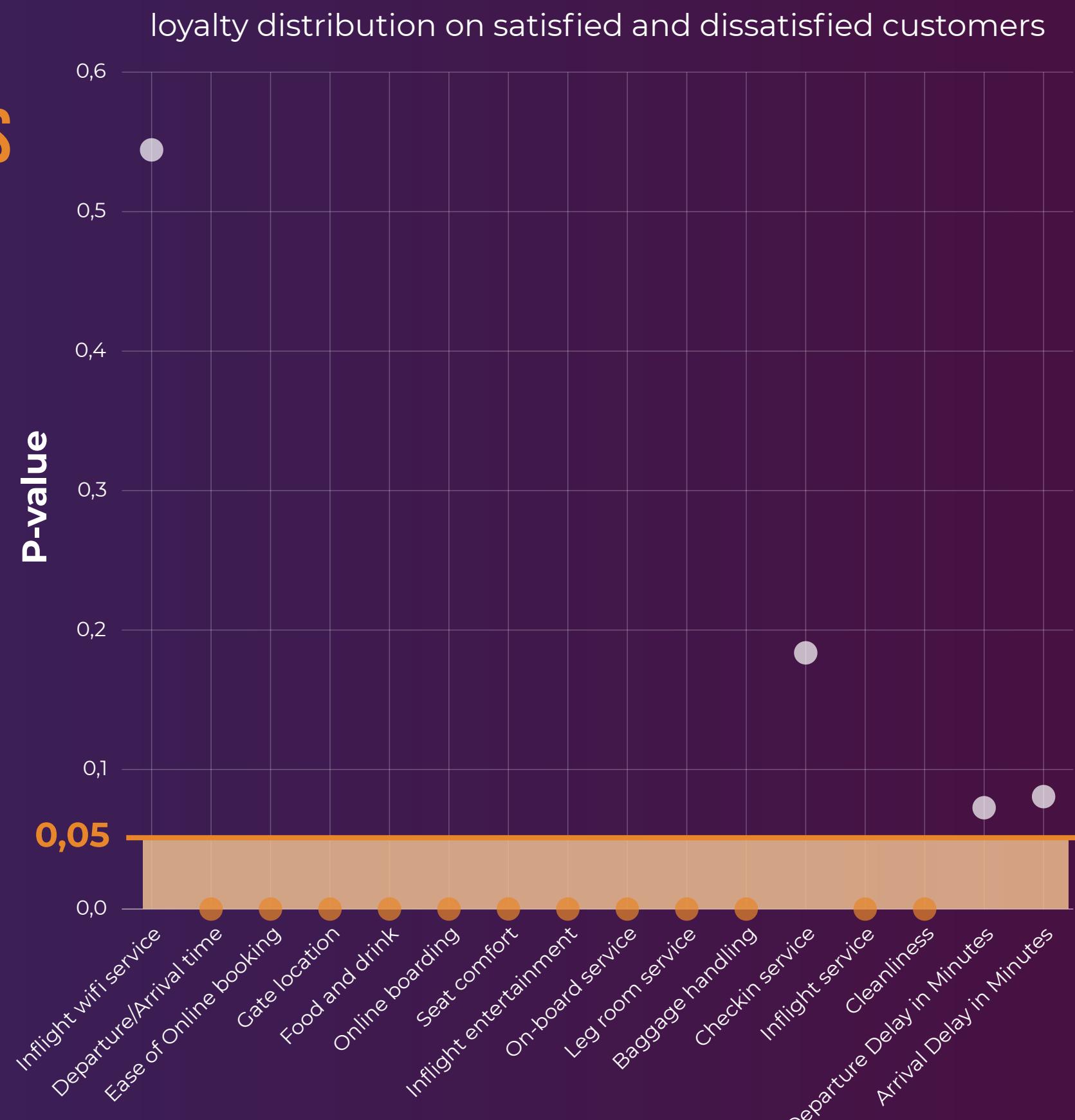
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H3 HYPOTHESIS TESTING

CRITICAL TO BUSSINESS: LOYALTY ON CUSTOMERS

LOYAL-DISSATISFIED VS DISLOYAL-DISSATISFIED CUSTOMERS

AN IMPROVEMENT IN THE OVERALL OFFERED SERVICES WOULD BE NECESSARY TO DECREASE DISLOYALTY.



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OBSTACLES

1. INCONSISTENT COLUMN NAMES AND SPACING
2. MISSING DATA IMPUTATION STRATEGY
3. DATA TYPE COERCION AND ERRORS
4. HANDLING ORDINAL VS. CATEGORICAL VARIABLES
5. OUTLIERS IN DELAY COLUMNS
6. LOST ONE DAY OF WORK DUE TO UNRELIABLE DATASET



KEY INSIGHTS

- **BUSINESS CLASS: SATISFACTION IS VERY HIGH → LIMITED IMPROVEMENT POTENTIAL. FOCUS ON ECONOMY.**
- **DRIVERS OF SATISFACTION: ONLY A FEW FEATURES MATTER → PRIORITIZE DIGITAL TOUCHPOINTS OVER TRADITIONAL COMFORT.**
- **ECONOMY FOCUS: INFLIGHT WI-FI IS THE TOP DRIVER → SHIFT INVESTMENT FROM SEATS/MEALS TO WI-FI & DIGITAL SERVICES.**
- **CUSTOMER LOYALTY: IMPROVE CORE INFLIGHT SERVICES TO RETAIN UNHAPPY, DISLOYAL PASSENGERS.**





**THANK YOU
FOR FLYING WITH US!**



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