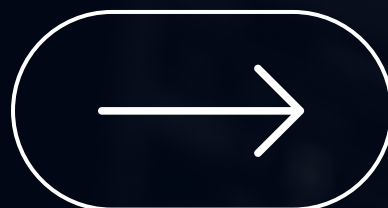


Vanguard.

A/B EXPERIMENT

IronHack Project 2 – Élio Vieira



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2. DATA SET OVERVIEW
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4. PERFORMANCE METRICS
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Vanguard.

- **Vanguard: A Leading Investment Management Company**

- Established in 1975.
- One of the largest investment companies globally, with over \$7 trillion in assets under management.
- Committed to providing low-cost investment options and exceptional client service.

- **The Digital Challenge**

- Vanguard's Response to Evolving Client Needs
- Experiment: Implementing a more intuitive User Interface (UI) with in-context prompts.
- Objective: Determine the impact of these changes on client completion rates.

Data Set.

OVERVIEW

- **client_id:** Every client's unique ID.
- **variation:** Indicates if a client was part of the experiment.
- **visitor_id:** A unique ID for each client-device combination.
- **visit_id:** A unique ID for each web visit/session.
- **process_step:** Marks each step in the digital process.
- **date_time:** Timestamp of each web activity.
- **clnt_tenure_yr:** Represents how long the client has been with Vanguard, measured in years.
- **clnt_tenure_mnth:** Further breaks down the client's tenure with Vanguard in months.
- **clnt_age:** Indicates the age of the client.
- **gendr:** Specifies the client's gender.
- **num_accts:** Denotes the number of accounts the client holds with Vanguard.
- **bal:** Gives the total balance spread across all accounts for a particular client.
- **calls_6_mnth:** Records the number of times the client reached out over a call in the past six months.



Client Profiles

- client_id
- clnt_tenure_yr
- clnt_tenure_mnth
- clnt_age
- gendr
- num_accts
- bal
- calls_6_mnth
- logons_6_mnth



Experiment Roster

- client_id
- Variation



Digital Footprints

- client_id
- visitor_id
- visit_id process_step
- date_time

Did the new UI lead to higher completion rates?

Exploratory Data Analysis.

Find out if the key demographics and behaviors of the customers between the test and control variations are well distributed so as not to influence the results of the analysis between the two interfaces.

Client Tenure Years

12.09

Client Tenure Years

11.98

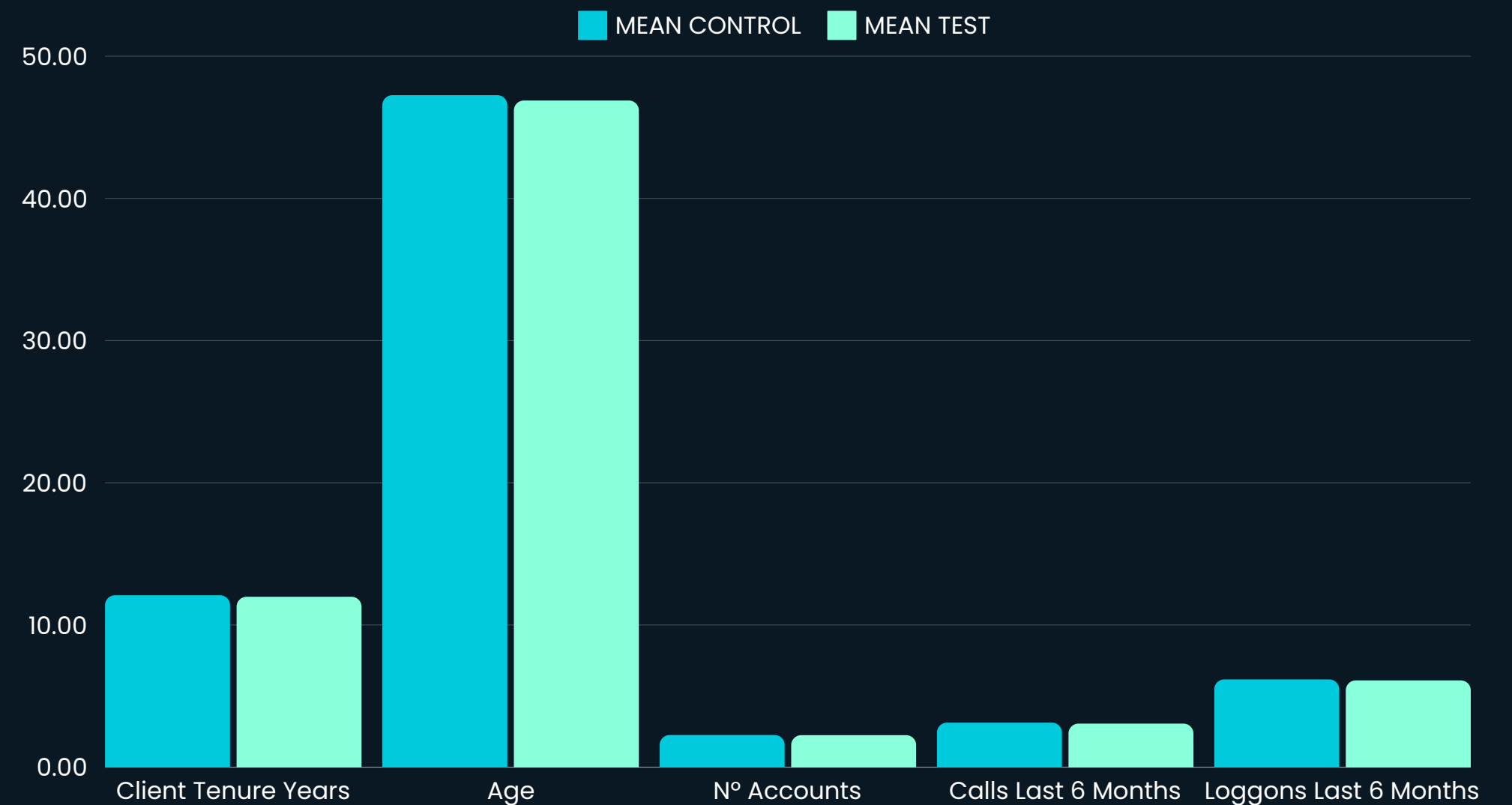
Age

47.26

Age

46.88

Control VS Test Stats



Exploratory Data Analysis.

Control VS Test step count.

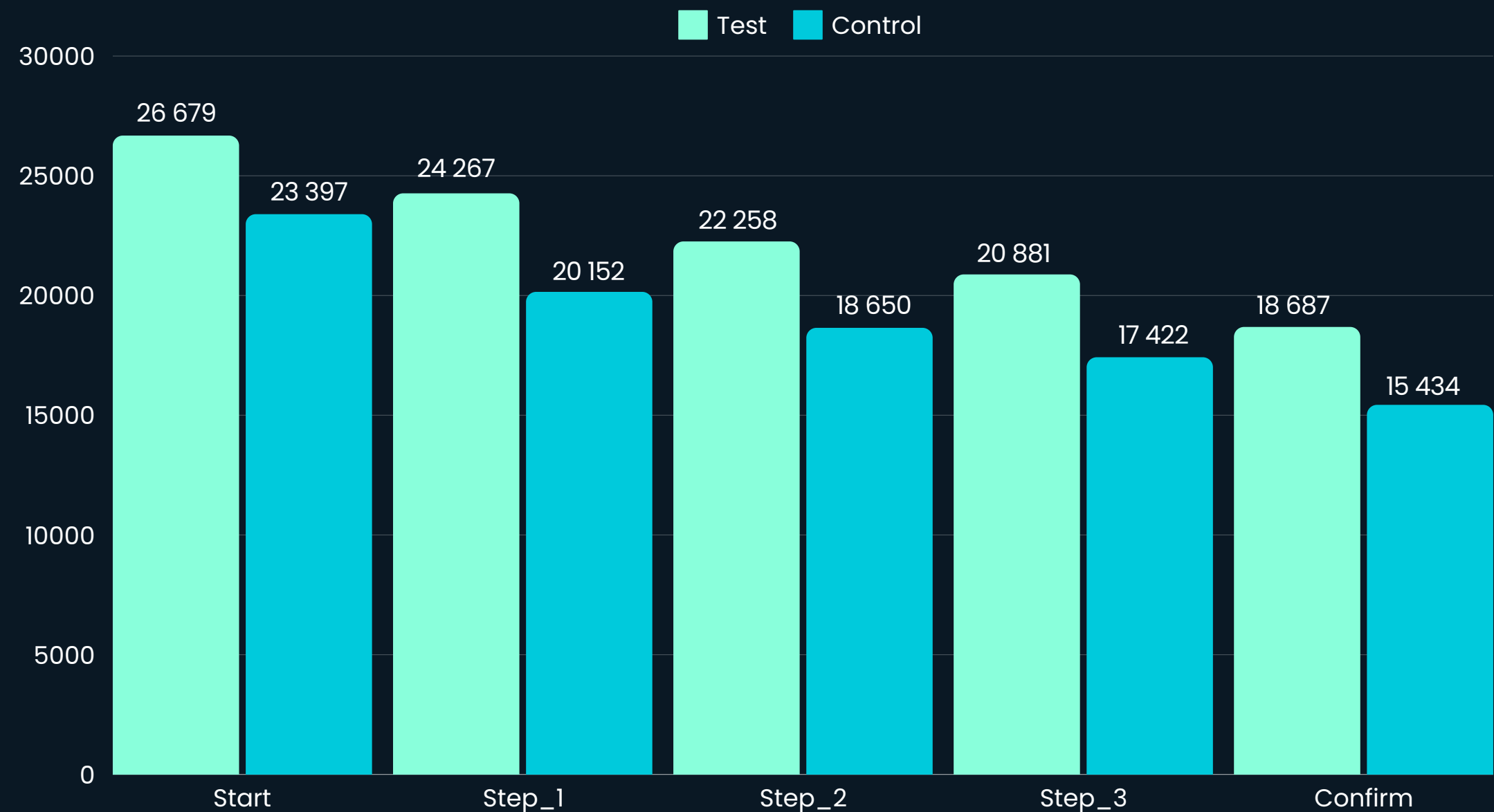
Test



Control



Control VS Test Stats



Performance Metrics.

TEST

COMPLETION
RATE

45.5%

CLIENTS WHO STARTED

56 452

CLIENTS WHO
CONFIRMED

25 716

DROP RATE

54.5%



CONTROL

COMPLETION
RATE

36.8%

CLIENTS WHO STARTED

47 589

CLIENTS WHO
CONFIRMED

17 498

DROP RATE

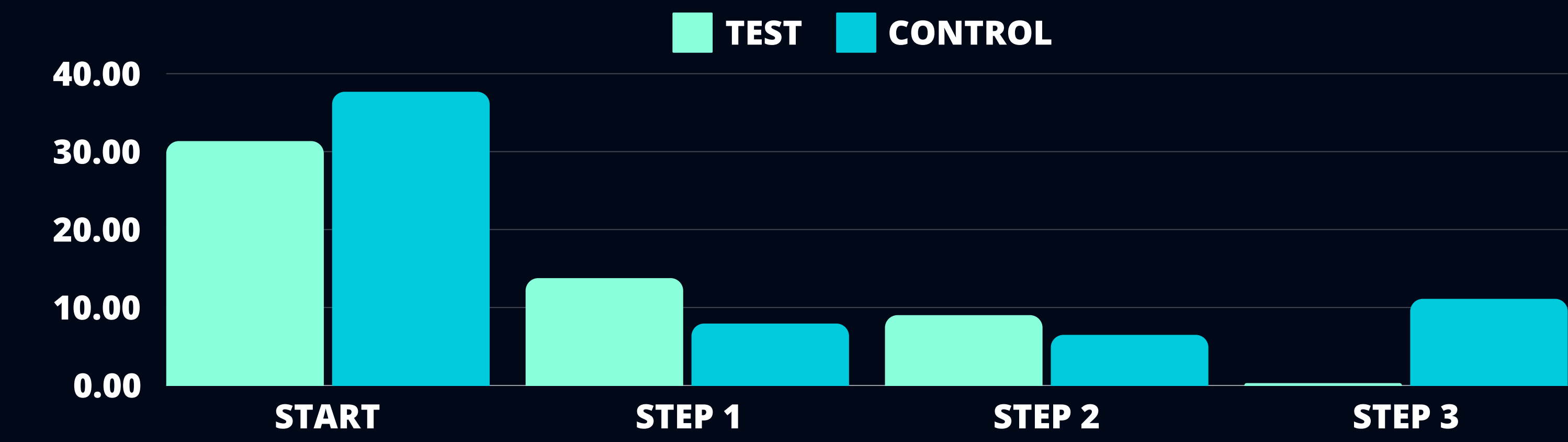
63.2%



Performance Metrics.

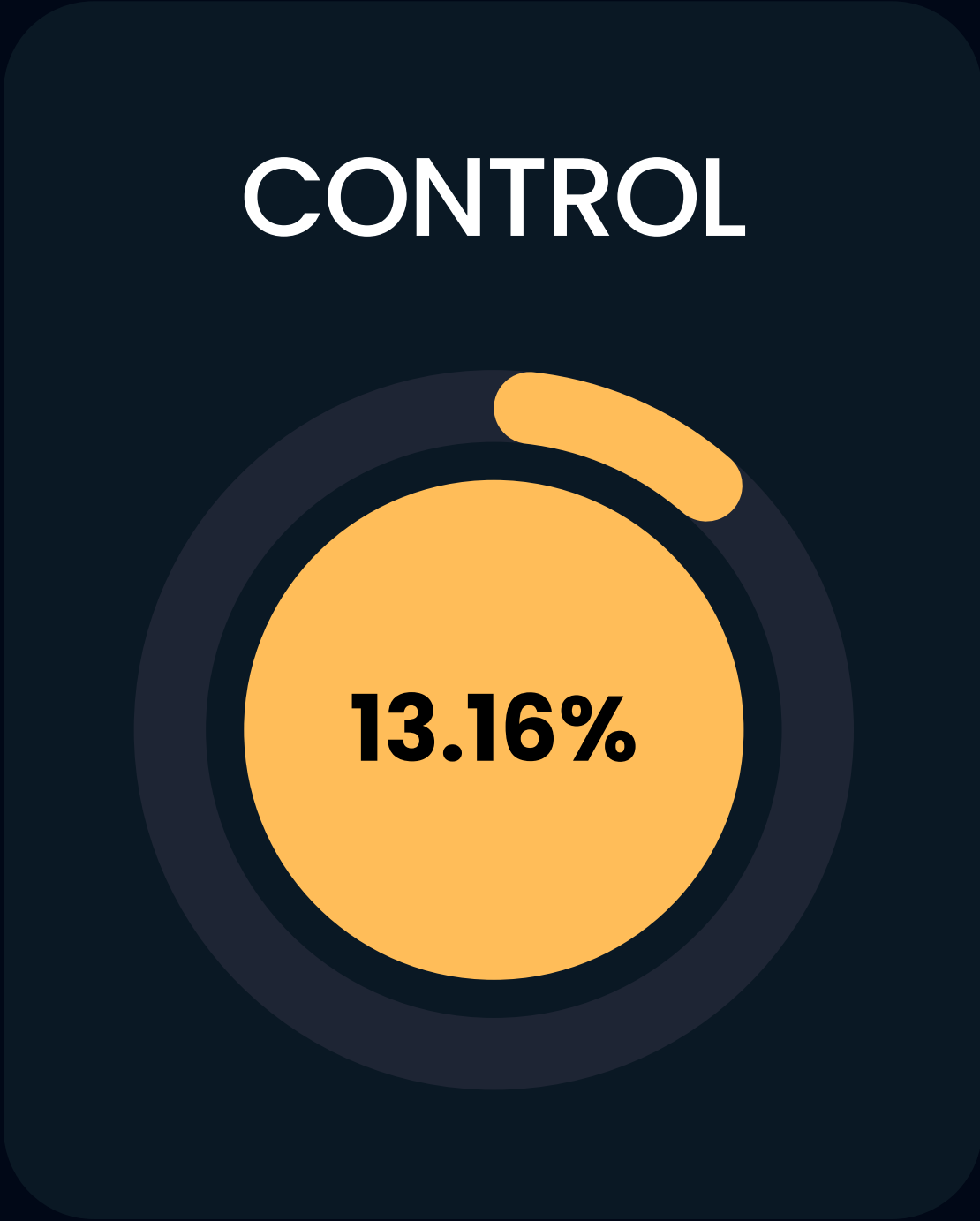
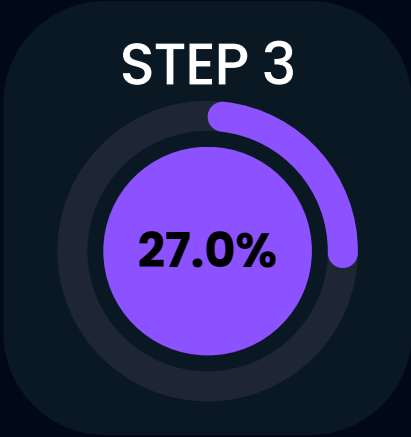
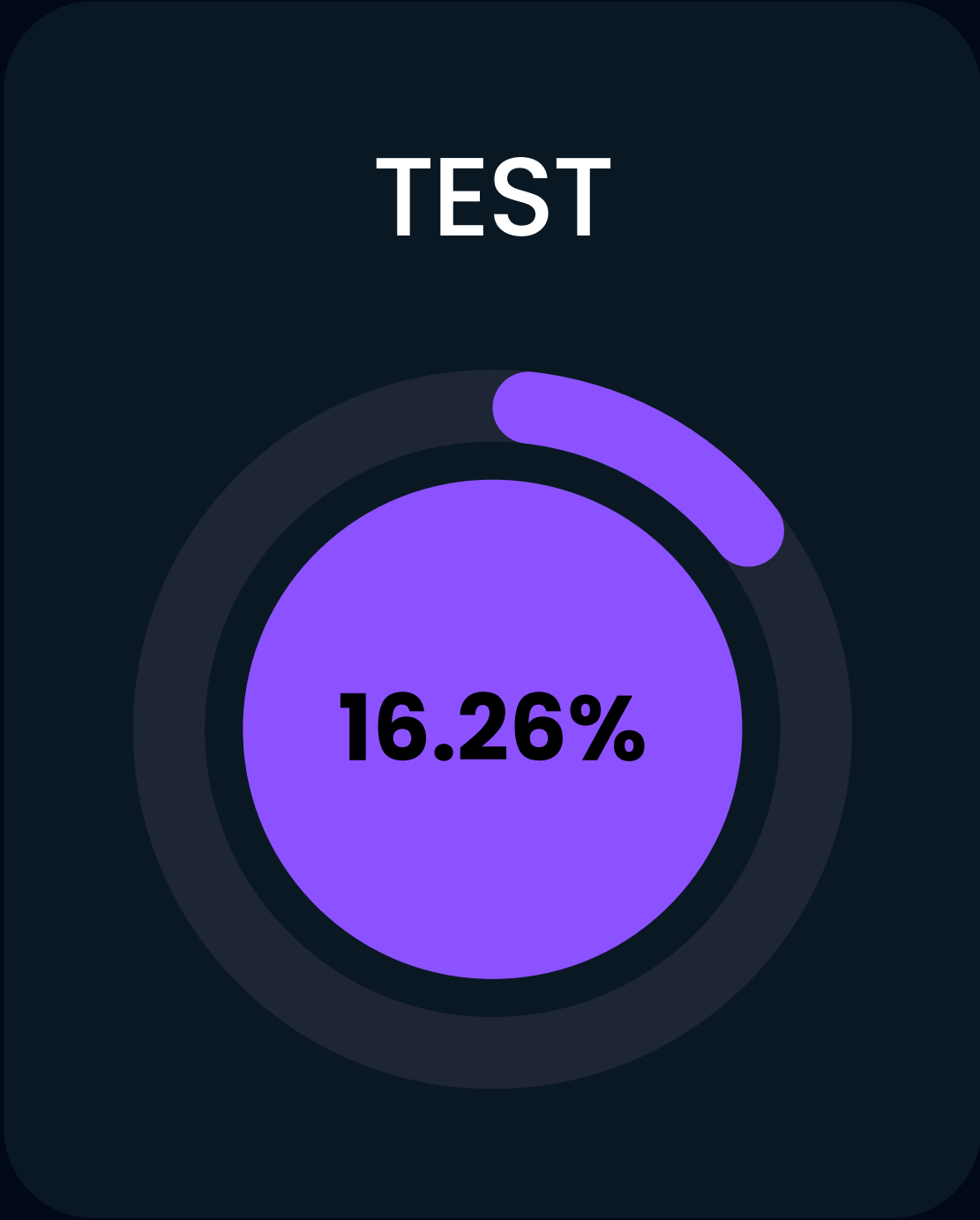
TEST VS CONTROL

DROP RATE			START	STEP 1	STEP 2	STEP 3
TEST	54.5%	<div></div>	31.35%	13.77%	9.02%	0.30%
CONTROL	63.2%	<div></div>	37.68%	7.94%	6.49%	11.11%

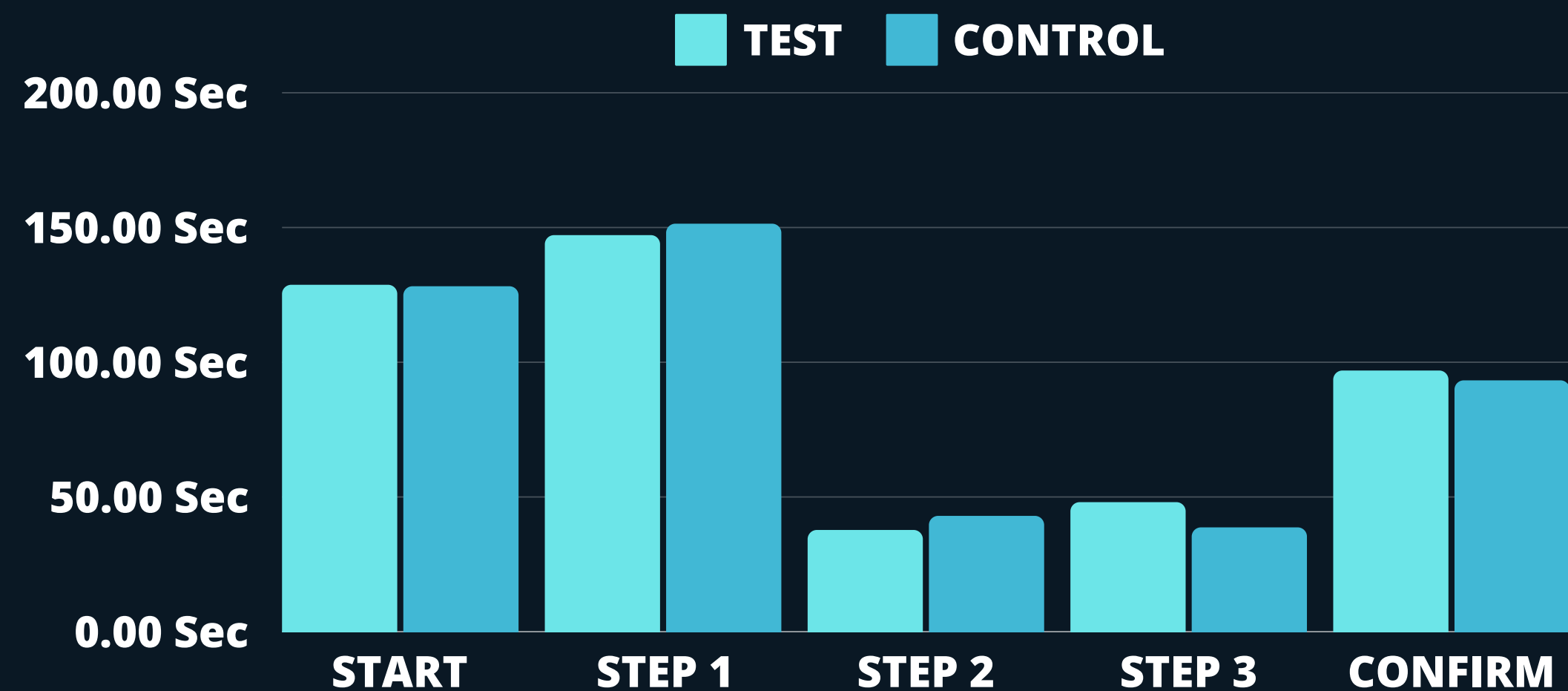


Performance Metrics.

ERROR RATE

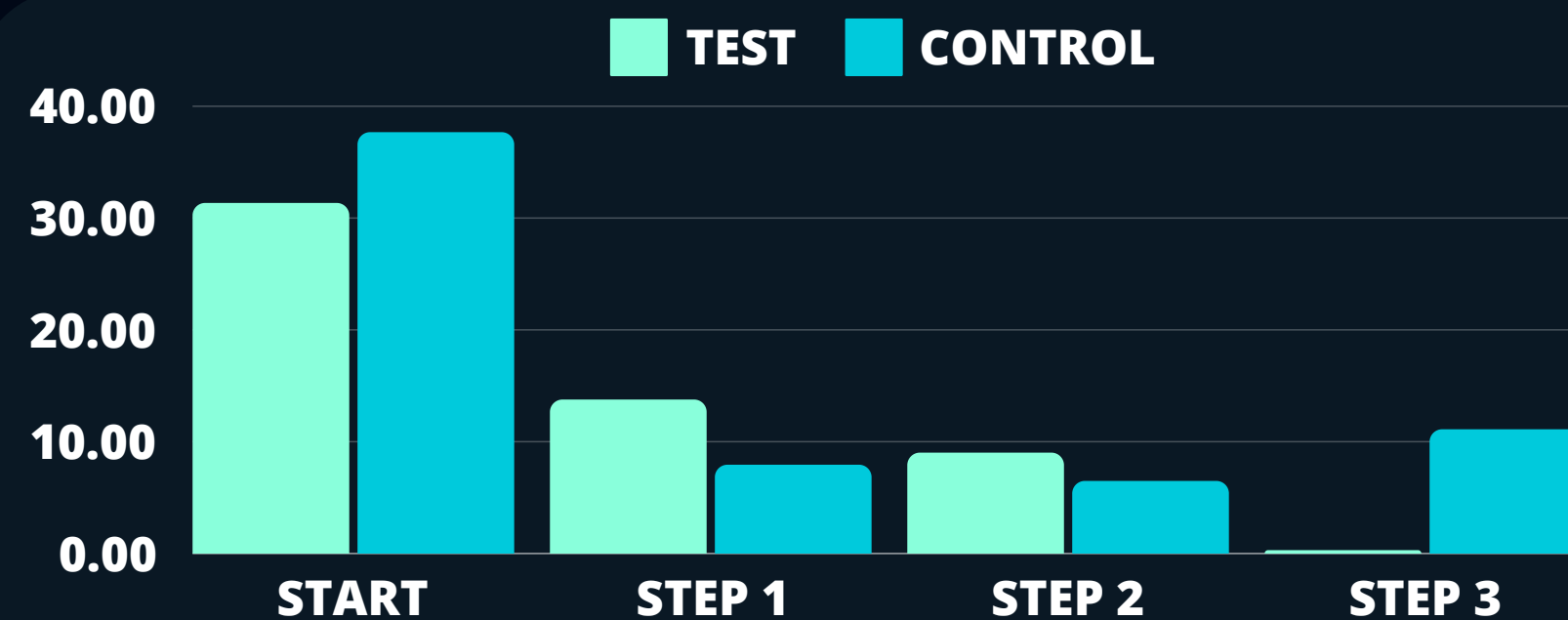


TIME SPEND PER STEP.



COMPARED TO THE DROP RATE

Is the drop rate related to the time per step?

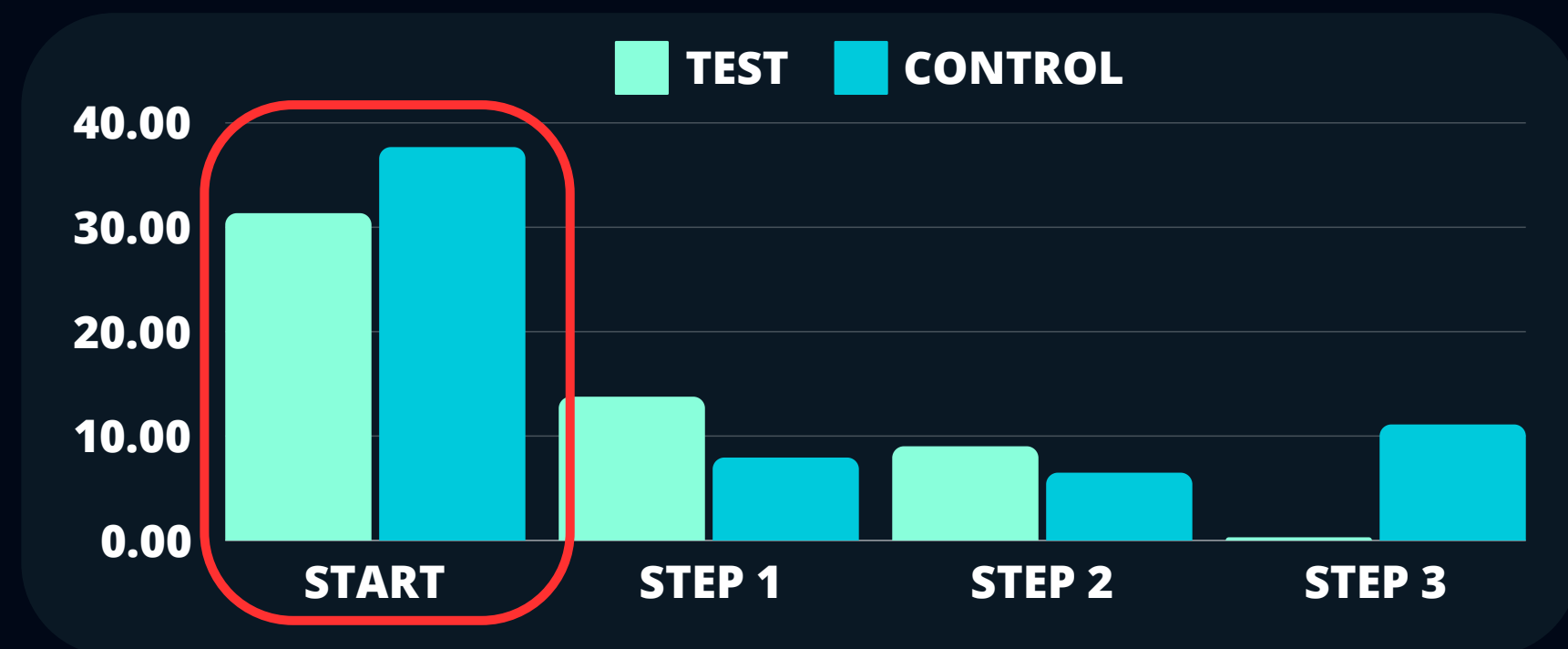


DROP VS ERROR RATE.



COMPARED TO THE DROP RATE

Is the Drop Rate related to the Error Rate?



Hypothesis Testing.

A/B test meets or exceeds this 5% threshold

COMPLETION
RATE TEST

0.45

COMPLETION
RATE CONTROL

0.36

REJECT THE NULL
HYPOTHESIS

P-VALUE

8.991685408566583e-181

THRESHOLD 5%

COMPLETION RATE
THRESHOLD

0.38

The completion rate for the Test group is greater than the completion rate threshold for the Control group increased by 5%.

Hypothesis Testing.

CHI-SQUARE RELATION – PROCESS STEP VS. CLIENT TENURE

CHI-SQUARE
STATISTIC

72.35

P-VALUE

8.991685408566583e-181

There is a significant association between completion of the process step and the Client Tenure Class.

Contingency Table: Client Tenure Class vs. Process Step

Client Tenure Class	Process Step				
	confirm	start	step_1	step_2	step_3
Old User	50438	121384	79678	65421	56182
Recent User	10105	24160	16189	14128	12019

Tableau Visualizations.

https://public.tableau.com/app/profile/.lio.vieira/viz/Project2_17115557612890/Dashboard1?publish=yes

Conclusions.

Key Findings for Test UI:

- Improved completion rate and lower drop rates observed.
- Higher error rates detected, indicating areas for improvement.
- Errors may contribute to drop rates.

Final Verdict:

- Based on the analysis, the new interface showed improvements in certain metrics such as lower drop rates and higher completion rates. However, it also exhibited a higher error rate, indicating that there is room for improvement. Therefore, while the test UI demonstrated promising results, it still requires further refinement to optimize its effectiveness.