Vanguard Retirement Investment Planning Tool AB Testing

Fritzi and Jonathan

5 Steps Towards a Personalized Retirement Investment Plan

Vanguard®

Goal:

Empower clients to make confident, long-term investment decisions around retirement, ensuring they feel secure and informed.

Objective:

Enhance the user experience to drive engagement and comfort while increasing the number of clients who actively use and complete the planning process.

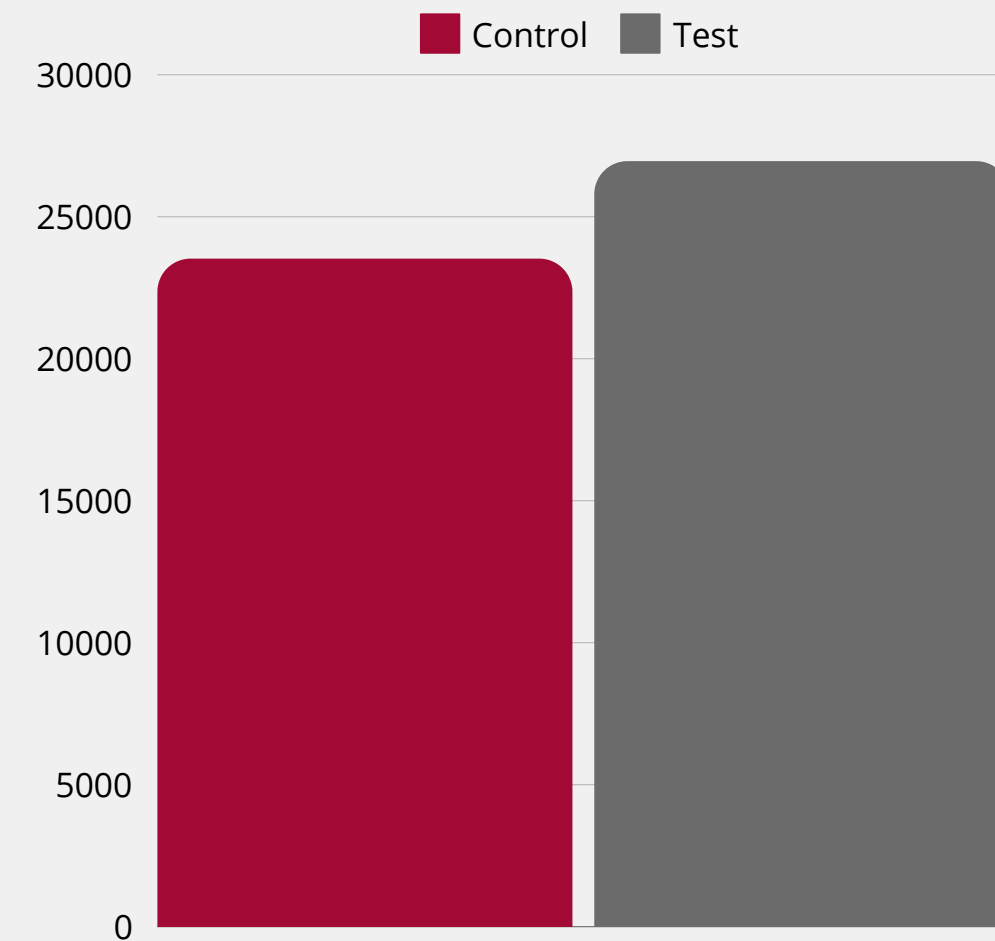| Start Client Onboarding | Step 1 Input Financial Information | Step 2 Explore Investment Strategies | Step 3 Review Plan | Conclusion Approve Plan |

AB Testing

Goal:

Test clients' engagement with Vanguard's traditional browser-based web interface vs. Vanguard's new app design.

Test period:

16 March 2017 - 20 June 2017
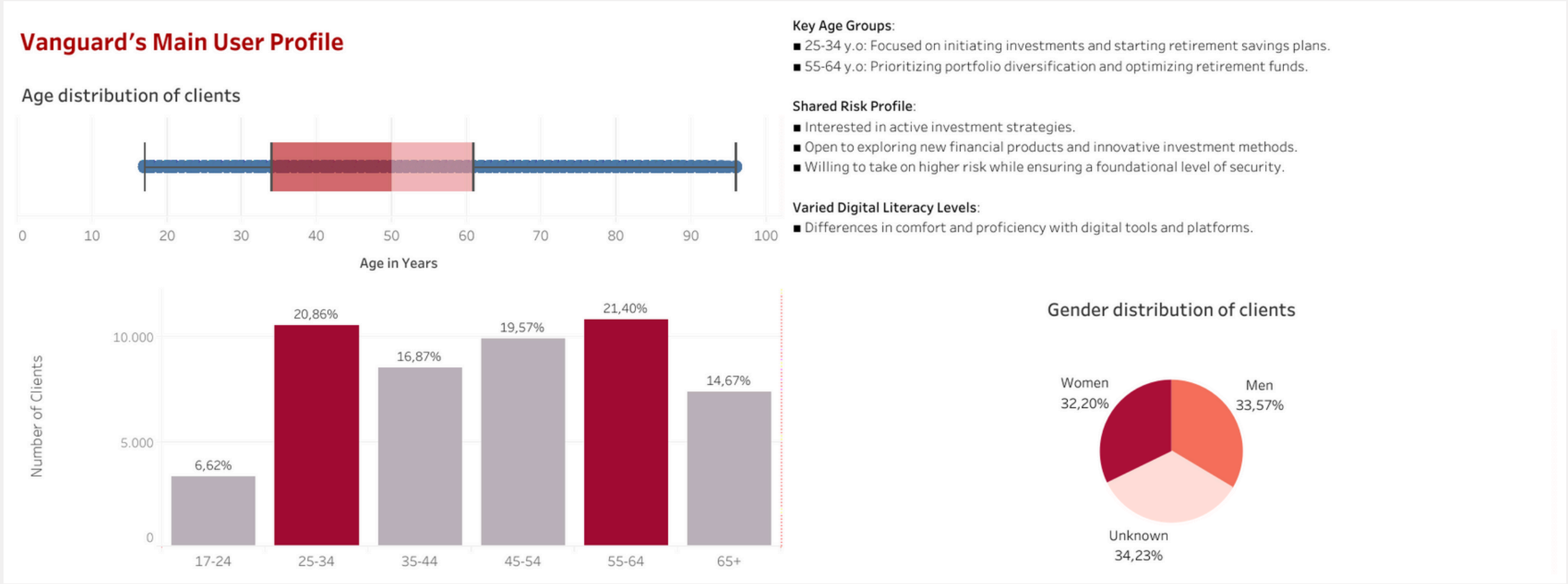
Data collected:

- Demographic data
- Clients' relationship with Vanguard
- Clients' investment record
- Clients' engagement with the online process
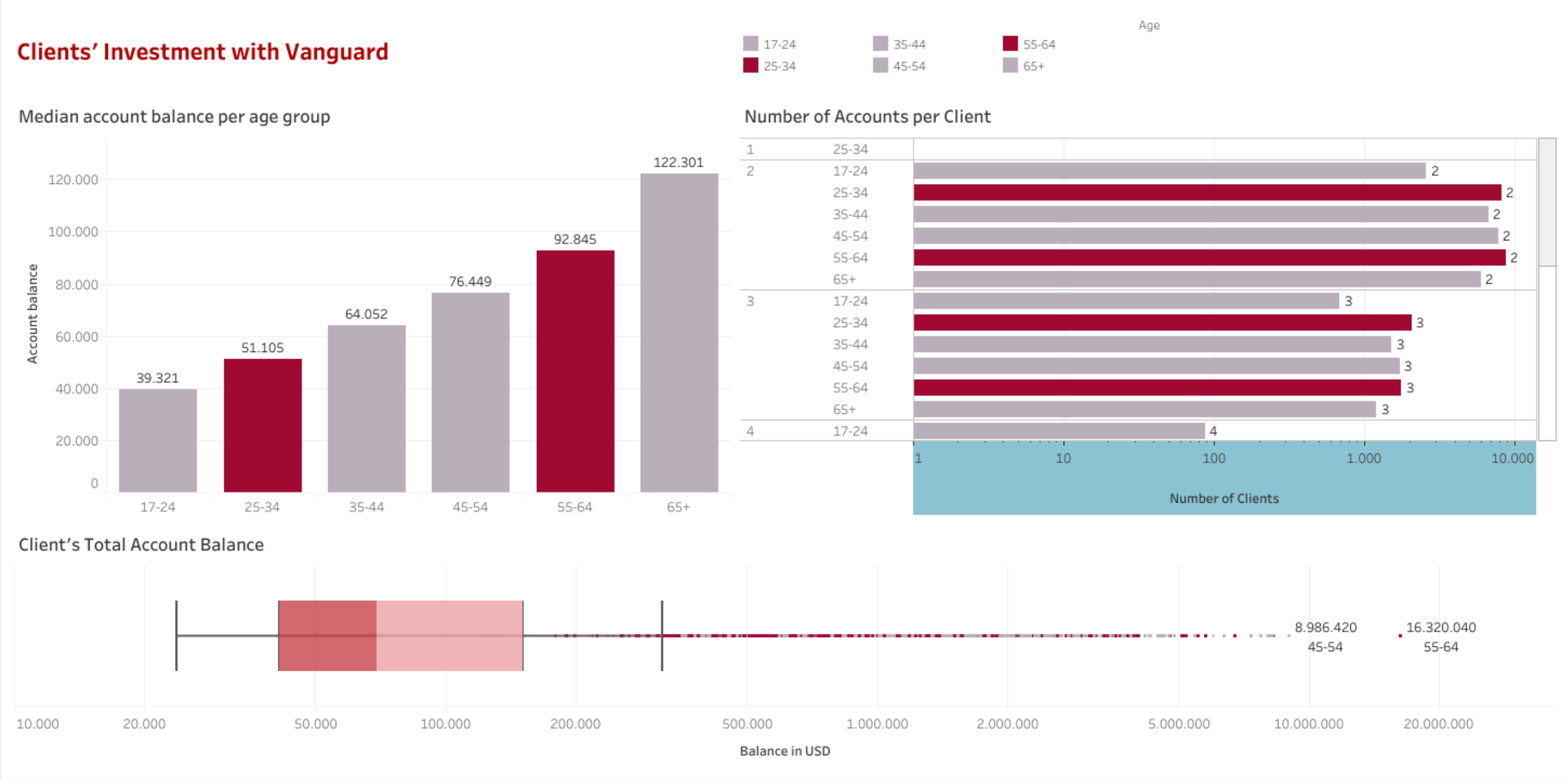
Vanguard Main User Profile

Vanguard Main User Profile

🔗 Tableau Dashboard

Clients' Investment with Vanguard

Age: 17-24, 25-34, 35-44, 45-54, 55-64, 65+

Median account balance per age group

Age group	Account balance
17-24	39.321
25-34	51.105
35-44	64.052
45-54	76.449
55-64	92.845
65+	122.301

Number of Accounts per Client

Accounts	Age	Number of Clients
1	25-34	
2	17-24	2
	25-34	2
	35-44	2
	45-54	2
	55-64	2
	65+	2
3	17-24	3
	25-34	3
	35-44	3
	45-54	3
	55-64	3
	65+	3
4	17-24	4

Client's Total Account Balance

8.986.420 45-54   16.320.040 55-64

Balance in USD: 10.000, 20.000, 50.000, 100.000, 200.000, 500.000, 1.000.000, 2.000.000, 5.000.000, 10.000.000, 20.000.000
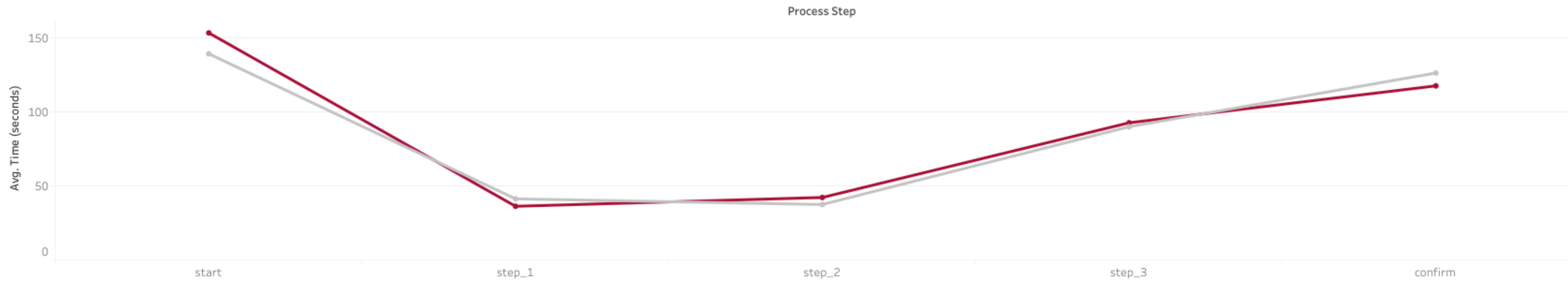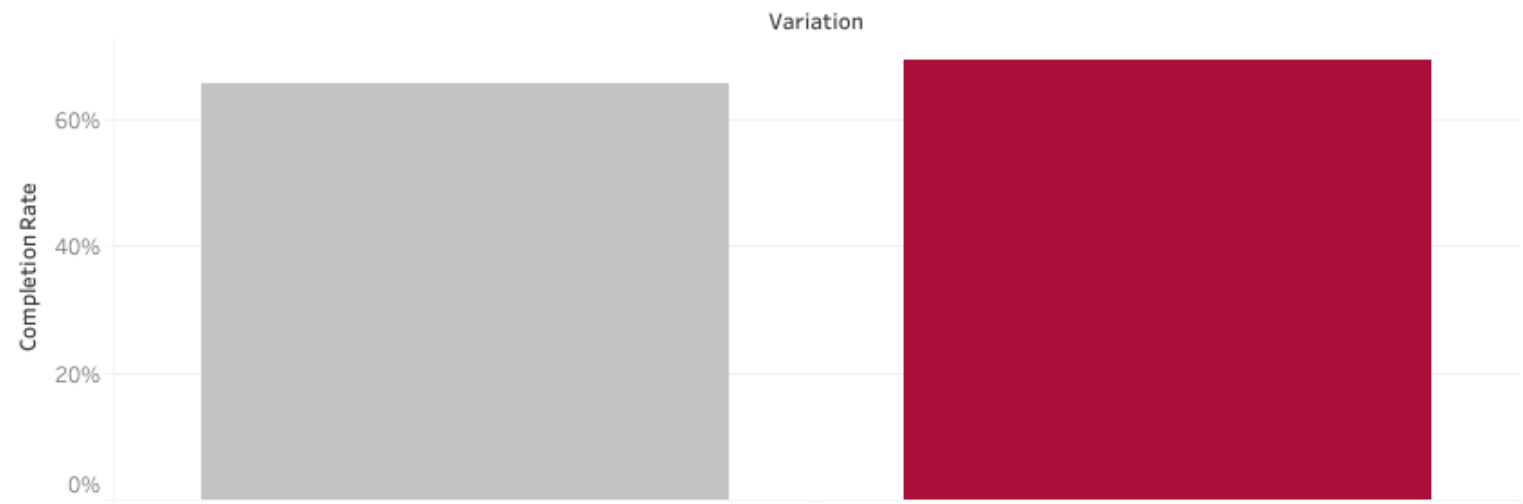
Key Performance Indicators

🔗 Tableau Dashboard

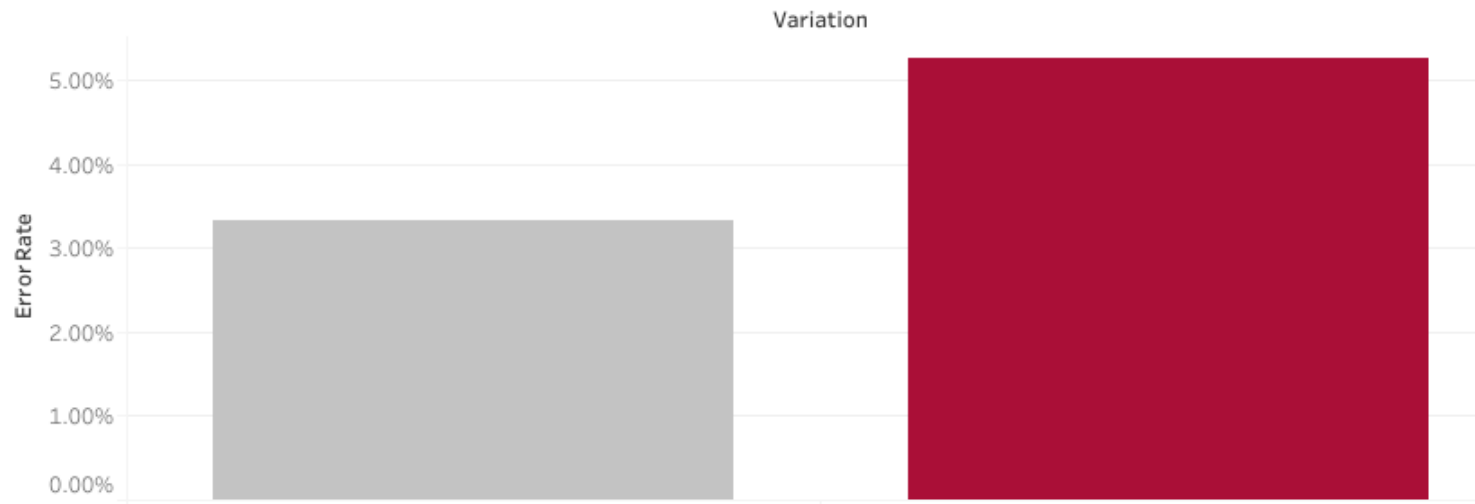## Vanguard Retirement Investment Planning Tool KPI's

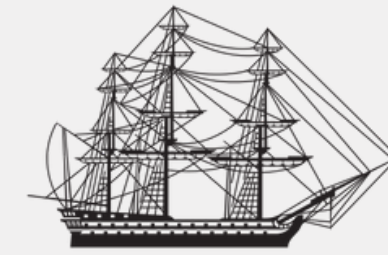**Time Spent on Each Step:** The average duration users spend on each step.

Completion Rate: The proportion of users who reach the final 'confirm' step.

Error Rates: The proportion of "error" instances to the total number of steps taken.
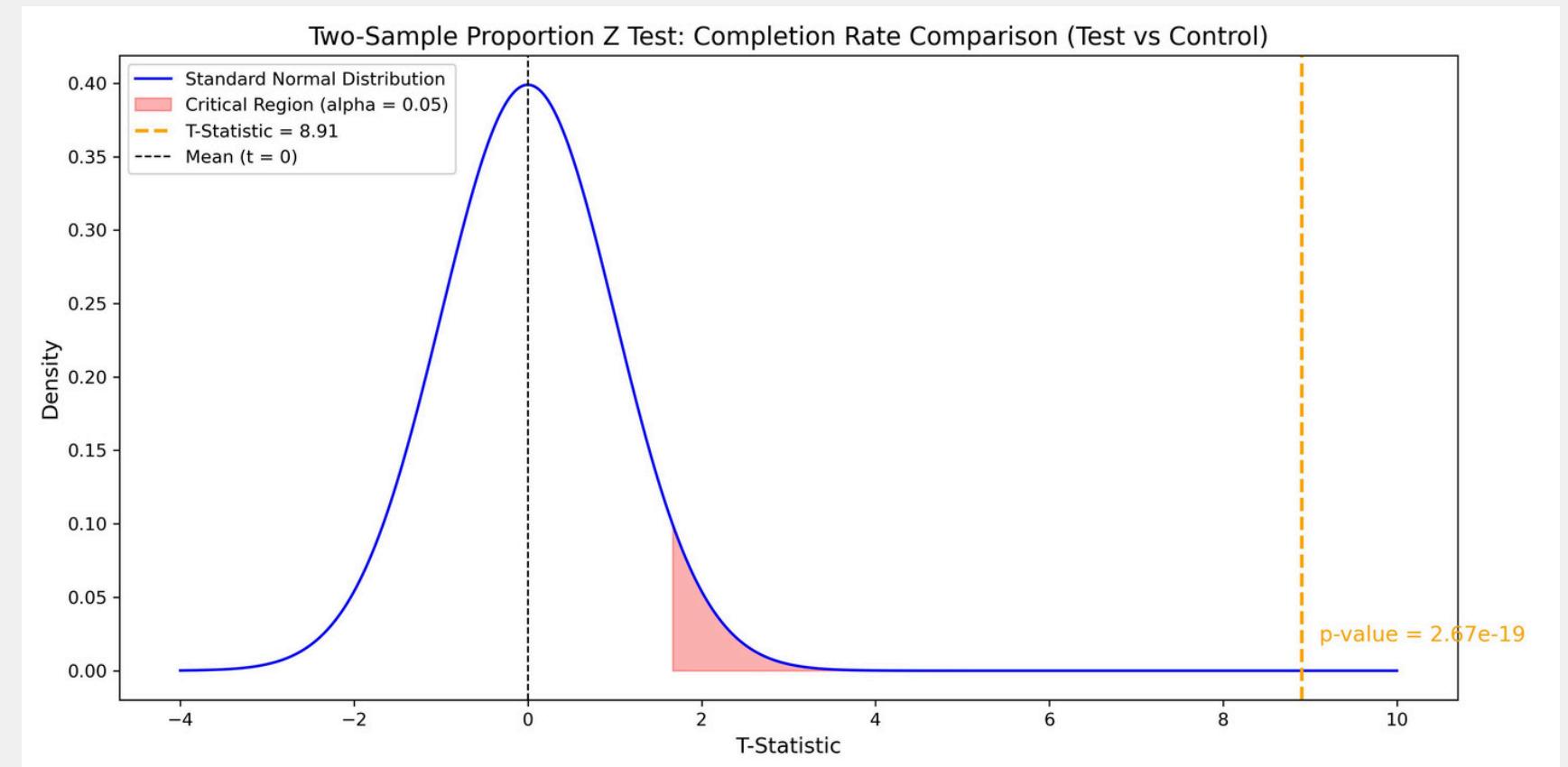
Hypothesis 1: User's Engagement

**Is the completion rate higher
for the test group?**

H0: completion_rate_test <= completion_rate_control
H1: completion_rate_test > completion_rate_control

Null-Hypothesis rejected:
There is significant evidence that the
completion rate for the test group is
higher than for the control group.
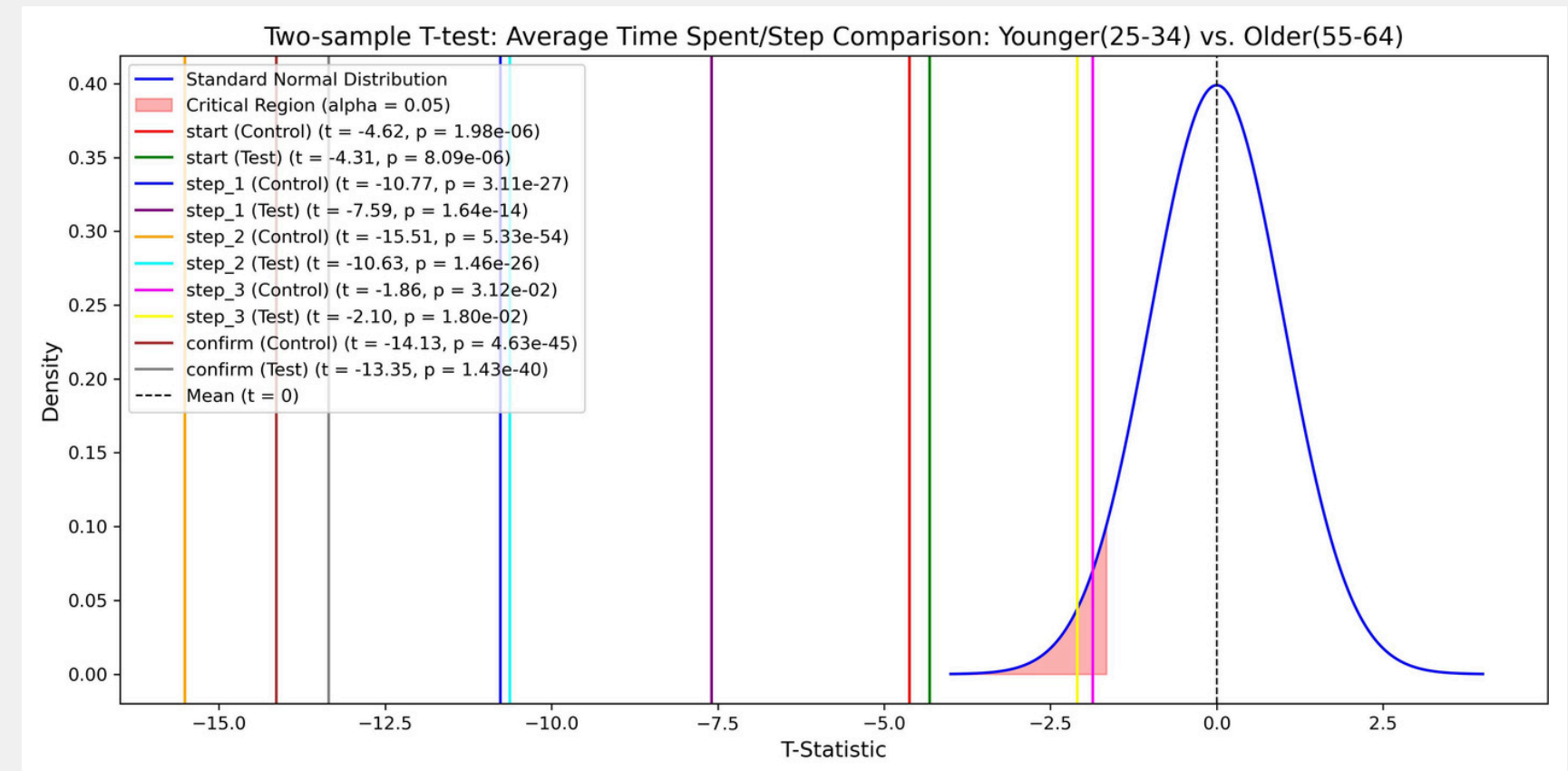
Hypothesis 2: Digital Age Gap

Does the younger age group complete each step faster than the older group, in each control and test group?

H0: time_per_step_younger >= time_per_step_older
H1: time_per_step_younger < time_per_step_older

Null-Hypothesis rejected in all tests: There is significant evidence that average time per step of the younger group is *faster* than the older group in both control and test groups.

Two-sample T-test: Average Time Spent/Step Comparison: Younger(25-34) vs. Older(55-64)

- Standard Normal Distribution
- Critical Region (alpha = 0.05)
- start (Control) (t = -4.62, p = 1.98e-06)
- start (Test) (t = -4.31, p = 8.09e-06)
- step_1 (Control) (t = -10.77, p = 3.11e-27)
- step_1 (Test) (t = -7.59, p = 1.64e-14)
- step_2 (Control) (t = -15.51, p = 5.33e-54)
- step_2 (Test) (t = -10.63, p = 1.46e-26)
- step_3 (Control) (t = -1.86, p = 3.12e-02)
- step_3 (Test) (t = -2.10, p = 1.80e-02)
- confirm (Control) (t = -14.13, p = 4.63e-45)
- confirm (Test) (t = -13.35, p = 1.43e-40)
- Mean (t = 0)

Key Findings from AB Test

- The AB test revealed **notable differences in process completion** between groups, with higher error rates in the test group.

- Age-related patterns emerged, showing a **generation gap in process efficiency** and trust in digital tools.

- The most significant **delays between age groups occurred in Step 2 and the confirmation stage**, indicating differing needs for information and reassurance.

Recommendations
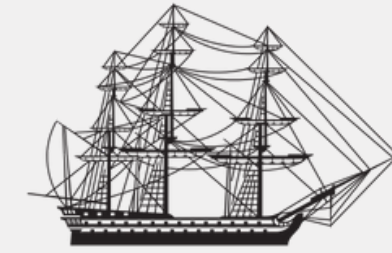
- Conduct **customers research** to learn more about client preferences:
    - Do younger clients prefer a modern, app-driven interface? Are they open to embrace AI tools in the future?
    - Do older clients value clarity, safety, and personal contact and prefer a browser-based platform?

- Reduce **data ambiguity** around timestamp tracking of process steps.

- Rephrase **narrative around error rate** and adjust interface accordingly.

- Introduce **flexible testing periods** using participant-based threshold.

Teamwork, Challenges & Learnings

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Role of a Data Analyst

- Plan, coordinate, research, troubleshoot, and *sometimes* code.
- Communication and coordination are key.

Task Management

- Use Trello for daily planning and task tracking.
- Continuously organize, reprioritize, and monitor progress.
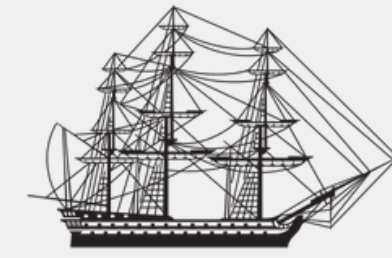
Working in Pairs

- Complementing skills
- Easier coordination, but higher workload.

Juggle with softwares

- Don't undestimate Tableau!
- New tools and software seem cool at first, but take time to learn

Stay Motivated

- Set realistic expectations and personal learning goal(s).
- Take breaks and keep up private/social life!

Thank you!