

## # Executive Report: A/B Test - New Page vs. Old Page

### ## 1. Introduction

This report presents the findings from an A/B test conducted to evaluate the impact of a new page design on user conversion rates. The goal was to determine whether the new design would lead to an increase in conversions, thereby improving our business performance.

### ## 2. Key Findings

- **Conversion Rates:** The control group (Old Page) had a conversion rate of 0.1204, while the treatment group (New Page) showed a conversion rate of 0.1188. Despite the slight difference in conversion rates, it did not reach statistical significance, indicating that the change in page design may not have a significant impact on conversions.
- **Statistical Significance:** The p-value was 0.189883, which is higher than the commonly accepted threshold of 0.05. This means there is not enough evidence to claim that the new page design has a statistically significant effect on conversion rates.

### ## 3. Business Impact

- **Estimated Annual Revenue Impact:** If we were to implement the new page design, it could potentially lead to a loss of \$2,160,215 in annual revenue.
- **Daily Additional Conversions:** The daily impact would be approximately 79 fewer conversions per day, which translates to a significant decrease in potential business opportunities.

### ## 4. Diagnostic Checks

- **Sample Ratio Mismatch:** No imbalance was detected between the control and treatment groups.
- **Power Analysis:** With a power of 25.87%, we have only a moderate ability to detect an effect if one truly exists. This suggests that our test might not have been large enough to capture any small but meaningful differences.
- **Bayesian Probability (Treatment > Control):** The Bayesian analysis indicates a probability of just 9.48% that the new page design would perform better than the current one, further supporting the conclusion of insufficient evidence.

### ## 5. Advanced Insights

- **Session Duration vs. Conversion Correlation:** There was a weak negative correlation between session duration and conversions (-0.0009). This suggests that users who spend more time on the page are less likely to convert, but this relationship is quite subtle and may not be causative.
- **Heterogeneous Treatment Effects:** We observed differences in how the new page design affected users based on their session durations. Users with shorter sessions showed a slight advantage for the new design, while users with longer sessions showed a slight advantage for the old design. This indicates that the impact of the new design may not be consistent across all user segments.

### ## 6. Recommendation

Given the results of this analysis, we recommend **NOT PROCEEDING** with implementing the new page design at this time. The evidence suggests insufficient confidence in the ability of the new design to improve conversion rates, and the potential negative impact on revenue is significant.

### ## 7. Appendix

Detailed technical reports with additional visualizations are available upon request for a deeper understanding of the analysis process and results.

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In summary, while the new page design showed some promising aspects in our A/B test, the evidence does not support its implementation at this time due to potential negative impacts on conversion rates and revenue. We recommend further investigation and possibly revisions to the

new design before retesting.