

Problem Definition

Step 1: Identifying the Problem Area

The problem area revolves around optimizing the payment process of e-commerce (working with online payment only, i.e. prepayment) to increase sales rate and customer satisfaction by introducing the new option of paying after getting the order.

Step 2: Conducted Preliminary Research

According to our research, COD (cost-on-delivery) is a desired payment option of customers as it provides them a sense of security and ease. In addition, customers prioritize COD as they consider it a tool to have more control over the buying process (Anjum, Chai, 2020).

Post-Payment Scheme or Cash on Delivery (COD) mode is the post-payment scheme in which, e-shoppers need to pay the amount of product at the time of product or service delivery. Moreover, COD is the preferred payment method of e-consumers. In fact, "COD is an important online factor to build trust between consumers and electronic sellers". (Rasheed, e.t.l, 2023).

Buyers who use the Cash on Delivery transaction method show good faith by being honest and providing clear information about their identity on the application, such as name, telephone number, and correct address. Before making a transaction, the buyer is expected to have carefully studied the description of the item to be purchased. So that by placing an order, the customer is deemed to have agreed to the specifications of the goods and will pay when the product is delivered. Sellers must accurately describe the details of the products offered through the application in question, including the brand, type of goods, use, and physical characteristics of the good. (Rahmadia, e.t.l, 2024).

Step 3: Defining a Specific Problem

Specific Problem: Determining the optimal payment method (pre or post-order) to offer to maximize sales rate for e-commerce.

Step 4: Proposing a Solution with Methodology

Data Collection:

- Transaction data
- User demographics and preferences regarding payment methods

- User behavior data related to checkout process abandonment (this refers to the percentage of users who start the checkout process but do not complete it.) and completion (this indicates the percentage of users who successfully complete the entire checkout process and finalize their purchase) rates.

Analytical Techniques:

1) Test

- A/B testing methodology to compare checkout processes with different payment methods (e.g. cash to card, pre to post).
- Statistical analysis to determine if the differences in sales rate between the groups of people paying before getting the order (controlled) and after getting it (treated) are statistically significant.

2) Segmentation

- User segmentation analysis to identify if certain user segments prefer one payment method over the other.
- Look-alike analysis
- Diffusion Research based on look-alike analysis (identifying innovators percentage, early adopters, ...)

Implementation Plan:

1) Testing

- Choosing metrics to evaluate the experiments: Mean of Sales in both treated and controlled groups
- Power Analysis: Significance level (0.05), Statistical power (0.2), Practical Significance level, Calculating the required sample size
- Sampling for control/treatment groups with calculated sample size and running the test
- Analyzing the results and drawing conclusions

2) Segmentation

- Conducting look-alike analysis as in our hw1
- Finding the percentages of customers in each of the key groups of diffusion (Innovators, Early Adopters, Early Majority, Late Majority, Laggards) for look-alike innovation
- Based on the previous step defining those groups for our data

Expected Outcomes:

- Increasing sales by offering the preferred payment method.

- Enhanced understanding of user preferences regarding payment methods and their impact on purchasing behavior.
- Improved customer satisfaction and loyalty

Evaluation Metrics:

- Average Order Value (AOV): By calculating the average value of orders we will analyze whether offering the post-order payment method influences the average order value compared to the pre-order method.
- Sales Revenue: By assessing the total revenue generated from sales made using each payment method we will determine whether the introduction of the post-order payment method results in increased sales revenue compared to the pre-order method.
- To be added

Anjum, S., & Chai, J. (2020). Drivers of Cash-on-Delivery Method of Payment in E-Commerce Shopping: Evidence From Pakistan. *Sage Open*, 10(3). <https://doi.org/10.1177/2158244020917392>

Rasheed, M. ., Ismail, M. ., Lodhi, A. S. ., & Rida. (2023). Exploring Perceptions and Realities of Online Shopping: A Study on Youth E-Consumers in Lahore, Pakistan. *Bulletin of Business and Economics (BBE)*, 12(3), 667-676. <https://doi.org/10.61506/01.00091>

Rahmadia, F., Wulandari, M. D., & Suparnyo. (2024). The Principle of Good Faith in the Cash on Delivery Payment Method as a Basic of Consumer Liability. *ICCCM Journal of Social Sciences and Humanities*, 3(3), 1–6. <https://doi.org/10.53797/icccmjssh.v3i3.1.2024>