

ABOUT DATASET

Context

Find the best strategies to improve for the next marketing campaign. How can the financial institution have a greater effectiveness for future marketing campaigns? In order to answer this, we have to analyze the last marketing campaign the bank performed and identify the patterns that will help us find conclusions in order to develop future strategies.

Source

[Moro et al., 2014] S. Moro, P. Cortez and P. Rita. A Data-Driven Approach to Predict the Success of Bank Telemarketing. Decision Support Systems, Elsevier, 62:22-31, June 2014

Input variables:

- 1 - age: (numeric)
- 2 - job: type of job (categorical: 'admin', 'blue-collar', 'housemaid', 'management', 'retired', 'self-employed', 'services', 'student', 'technician', 'unemployed', 'unknown')
- 3 - marital: marital status (categorical: 'divorced', 'married', 'single', 'unknown'; note: 'divorced' means divorced or widowed)
- 4 - education: (categorical: primary, secondary, tertiary and unknown)
- 5 - default: has credit in default? (categorical: 'no', 'yes', 'unknown')
- 6 - housing: has housing loan? (categorical: 'no', 'yes', 'unknown')
- 7 - loan: has personal loan? (categorical: 'no', 'yes', 'unknown')
- 8 - balance: Balance of the individual.
- 9 - contact: contact communication type (categorical: 'cellular', 'telephone')
- 10 - month: last contact month of year (categorical: 'jan', 'feb', 'mar', ..., 'nov', 'dec')
- 11 - day: last contact day of the week (categorical: 'mon', 'tue', 'wed', 'thu', 'fri')
- 12 - duration: last contact duration, in seconds (numeric). Important note: this attribute highly affects the output target (e.g., if duration=0 then y='no'). Yet, the duration is not known before a call is performed. Also, after the end of the call y is obviously known. Thus, this input should only be included for benchmark purposes and should be discarded if the intention is to have a realistic predictive model.
- 13 - campaign: number of contacts performed during this campaign and for this client (numeric, includes last contact)
- 14 - pdays: number of days that passed by after the client was last contacted from a previous campaign (numeric; 999 means client was not previously contacted)
- 15 - previous: number of contacts performed before this campaign and for this client (numeric)
- 16 - poutcome: outcome of the previous marketing campaign (categorical: 'failure', 'nonexistent', 'success')
- 17 - Deposit - has the client subscribed a term deposit? (binary: 'yes', 'no')

PROJECT OVERVIEW

This project utilises the comprehensive dashboard to analyse the effectiveness of bank's marketing campaign, focus on client demographic, contact methods and the outcomes of campaign. Through the dashboard, we will find the pattern and factors which impacts on the decision to open term deposit or not. We could filter the effective bank's marketing method and customer segments in the future.

VISUALIZATION COMPONENTS AND INSIGHTS

1. Overall campaign performance

Total subscriptions: 5,289

Subscription rate: 47.83%

Number of clients: 11,162

Number of contacts: 28K

Number of contacts per Client: 2.51

Nearly half of contacted customers subscribed Term Deposit, indicates a moderately successful campaign. On average, each client was contacted 2.5 times, suggesting that persistence might play a role in success of marketing campaign.

2. Impact of Age on subscription

The highest subscription rates are seen in groups 18-25 (71%), 66-75 (83%), 76-85 (77%). Although other groups have the low subscription rates, the number of subscriptions performed higher than above customers. In particular, for customers in aging 26-35, their number of subscriptions are 1,800 while the subscription rate is 48%.

3. Impact of Education on subscription

Primary: Significant number of contacts but lower success rates.

Secondary: Moderate success.

Tertiary: Highest subscription rates (54%) and balances.

Clients with tertiary education levels are the most responsive, suggesting a correlation between education and financial engagement.

4. Impact of Loan and Marital status:

Without Loan: Higher subscription rates.

With Loan: Lower subscription rates.

Married: High subscription rates.

Single: Moderate success.

Divorced: Lower success.

Clients without loans and those who are married show higher engagement, indicating financial stability and family commitments as influential factors.

5. Impact of professionals

Retired and management have the highest subscription rate over 60% and 50% respectively.

6. Impact of contact methods

Cellular contacts are the most frequent and likely the most effective. Telephone and unknown methods are less utilized but should not be overlooked for potential impact.

7. Impact of contact duration

Below Average Duration: 31.6% success

Above Average Duration: 77.4% success

Longer contact durations significantly increase the likelihood of a successful subscription. Investing in longer, more engaging conversations could yield better results.

8. Monthly and Daily campaign impact

Monthly Subscription Rates: Highest in March (90%) and November (91%), lowest in January (41%) and September (43%).

Daily Subscription Rates: Variability observed, with certain days showing higher success rates.

Planning campaigns around peak months (March and November) can enhance success rates. Identifying optimal days for contacts can further optimize campaign timing.

ADDRESSING TARGET QUESTIONS

1. Which segment of the population should we target?

Focus on individuals aged 26-55, particularly those with tertiary education and stable marital status (married). This segment shows the highest subscription rates and financial stability.

2. What distribution channel should we use?

Prioritize cellular contacts, as they have the highest engagement rates. Consider supplementary methods like email or social media to reinforce the campaign message.

3. What is the optimal duration for contact?

Aim for longer contact durations to increase the likelihood of subscription. Ensure representatives are well-trained to maintain engaging and informative conversations. A

policy should be implemented that states that no more than 3 calls should be applied to the same potential client in order to save time and effort in getting new potential clients.

4. Which months and days are most effective for campaigns?

Plan major campaigns around March and November for higher subscription rates. Analyze daily trends to identify and leverage high-impact days for contact.

5. How does client education and loan status affect campaign success?

Target clients with higher education levels (tertiary) and those without existing loans, as they show higher engagement and subscription rates.

CONCLUSION

The dashboard provides valuable insights into the bank's marketing campaign performance, highlighting key demographics, contact methods, and timing for optimal results. By focusing on the identified segments and leveraging effective contact strategies, the bank can enhance its marketing efforts and achieve higher subscription rates. Continuous monitoring and data-driven adjustments will further refine the campaign's success.