PORTUGUESE BANK: TELEMARKETING CAMPAIGN FOR CROSS-SELLING

REPORT

ASTHA HARLALKA

After reviewing our telemarketing campaign's performance which is in place to persuade customers to subscribe to deposits, I realised we're struggling due to a lack of a targeted outreach. There is a possibility that this is because some leads may not see value in our offer, prefer other investments, or lack financial flexibility. I also feel we might not be communicating value effectively, and excessive calls or poor timing could be pushing them away.

To attract new customers, we can use **referral and loyalty programs**, where existing customers refer potential investors and long-term clients receive better interest rates. **Sponsoring university/college events** can also help introduce students to early investing. While **mass emailing** can reduce costs, these methods may not be fully effective.

A **data-driven approach** is crucial to improving our telemarketing campaign. By identifying leads with a higher likelihood of subscribing, we can **optimize costs and increase efficiency**. Currently, we spend about **$2 on a call with a customer**, with representatives averaging **4.3 minutes per customer**. Targeting the right prospects will help maximize conversions while minimizing wasted effort and expenses. Given that we are already struggling financially and the competition is increasing, I have identified a data-driven approach that can help us do better.

After analysing data from our past campaigns, I identified key factors that influence whether a lead is likely to subscribe. Using a predictive model called logistic regression, I determined the some of the most significant characteristics that impact conversion rates (Refer Exhibit A). These insights can help us refine our strategy and improve efficiency. Here's what stood out:

- **Longer Calls = Higher Conversions**: Rushed calls don't work well. Even **one extra second** improves the odds of subscription by about **0.42%.**
- **Past Subscribers Are 10x More Likely to Say Yes**: If the outcome from previous campaign was a success, the odds of subscribing increase **10 times.**
- **Timing Matters**: Certain month like **March and October performs best**, while **May and July underperform**.
- **Contact method:** If the contact method is **unknown,** the odds of subscribing drop significantly (Leads are about **80% less likely to convert if method is unknown)**.
- **Financial Background Affects Decisions**: Leads with **housing (44% less) or personal (34% less) loans** are less likely to subscribe.

- **Some Groups Convert Better**: **Retirees and students** are more likely to subscribe. Leads with **tertiary education** have about **53%** higher chance of subscribing.
- **Too Many Calls Backfire**: Each extra call **lowers** the chances of conversion by **9.7%**.

We chose **logistic regression model** because it's easy to interpret. Each factor either increases or decreases the odds of a subscription. Unlike black-box machine learning models**,** logistic regression shows why a prediction was made using **p-values** (above 0.05 indicates significance) and **z-values** (absolute value >2 indicates significance). Also, this model is more effective on new data. Based on key features we identified, I assigned a **probability score** to each lead (Refer the sheet link in Exhibit B). After sorting the data, I found that about **54% of the top 10% leads** subscribed previously, compared to the current **11.7% conversion rate** on the whole dataset. This means **targeting the top 10% of leads based on the calculated probability score could boost our success rate by nearly 5 times** (Refer Exhibit C)**.** This model tells us the characteristics of leads that improve the chances of subscription and we can apply the same to a larger dataset for a more targeted approach.

Below are certain changes we can make to our existing campaign to improve the results:

1. **Rank Order Customers by Model Score:** We should prioritize high probability customers identified using the probability score that we assigned to each observation. These leads are 5 times more likely to subscribe. In case of a newer dataset, use the same model to identify the best leads. Each lead receives a probability estimate of saying "yes". The best prospects include those who had a successful prior campaign, who have spent longer time on calls with us, individuals without existing loans and those who can be reached on a mobile number. Timing also matters, for instance, calls made in historically better months like March and October tend to yield higher success rates.
2. **Limit Repeated Calls:** Ensure that you do not call/follow-up with a lead more than 2-3 times. Have the representative understand that too many calls can annoy the customer.
3. **Focus on Relationship Building with the leads:** Focus on training representatives to have personalized, customer-centric conversations with the leads rather than having them deliver a product pitch. Train representatives to understand each lead's financial goals and build trust through success stories. Encourage discussions, not sales monologues, and create urgency with exclusive perks but without any pressure. Handle objections gracefully, ensuring the lead feels heard and valued.

4. **Multi-channel touchpoints:** Financial decisions take time, and most people won't subscribe immediately. While it's important to give them space to think, we also don't want them to forget about the offer. Instead of excessive follow-up calls, using multiple touchpoints such as emails, messages, or app notifications can gently reinforce the conversation and keep the offer top of mind. This approach helps encourage a decision without feeling intrusive.
5. **Referrals:** Because investors often know others interested in investing, a well-designed referral program can be very effective in acquiring new customers. What's critical is rewarding both the referrer and the referee. For instance, adding an extra $25 to each of their deposits when the referral subscribes could be a good incentive.

These strategies will help us make more profit by saving costs and increasing subscription (Refer Exhibit D) and improvements such as follows:

- **Profit Outcome**: Estimated net profit rises from $15,358 (call everyone) to $40,658 (call the top 10%). This is nearly a **2.5 times** jump in bottom-line performance. This is mainly due to optimized efforts.
- **Long-Term Value of customers would increase**: Many deposit subscribers may re-invest or buy other products (loans, credit cards, etc.) if they are satisfied with their initial investments. So, the $20 profit per deposit assuming an annual investment of $1000 can be just the starting point of a longer customer lifetime value and higher profitability.
- **Goodwill and scalability:** Fewer spam-style calls and more relevant offers builds brand goodwill. As we acquire more data (or new leads), the same logistic regression approach can be updated easily, allowing us to maintain or improve these gains year after year.

Therefore, I believe that by using a targeted data-driven approach and focusing on the top 10% of leads identified by our model, we can slash telemarketing costs by 90% while significantly improving net profit, making this the most efficient and profitable way to boost deposit subscriptions. This approach will also strengthen our competitive position and enhance our brand reputation.

EXHIBIT A

The most significant features that affect the probability of success as per the logistic regression model

Features	Coefficient	z-value	p-value
Duration	0.0042	50.493	<2e-16
Poutcome - Success	2.28	22.296	<2e-16
Month - March	1.537	9.63	<2e-16
Month - July	-0.791	-7.919	2.39E-15
Month - May	-0.478	-5.105	3.32E-07
Contact - Unknown	-1.541	-16.269	<2e-16
Housing Loan - Yes	-0.583	-10.454	<2e-16
Job - Retired	0.247	2.143	0.03214
Campaign (No. of Contacts)	-0.102	-7.544	4.57E-14
Marital - Married	-0.273	-3.601	0.000317
Education - Tertiary	0.429	4.413	1.02E-05
Loan - Yes	-0.416	-5.392	6.96E-08

EXHIBIT B

Probability Score Calculation and Top 10% Most-Likely Subscribers

https://docs.google.com/spreadsheets/d/12lIuhYA34rp2kv0Bivfsuin2G5RECvLHP5L64oI57wA/edit?gid=1264509760#gid=1264509760

EXHIBIT C

Why Predictive Modelling (Logistic Regression) Outperforms Random Calling

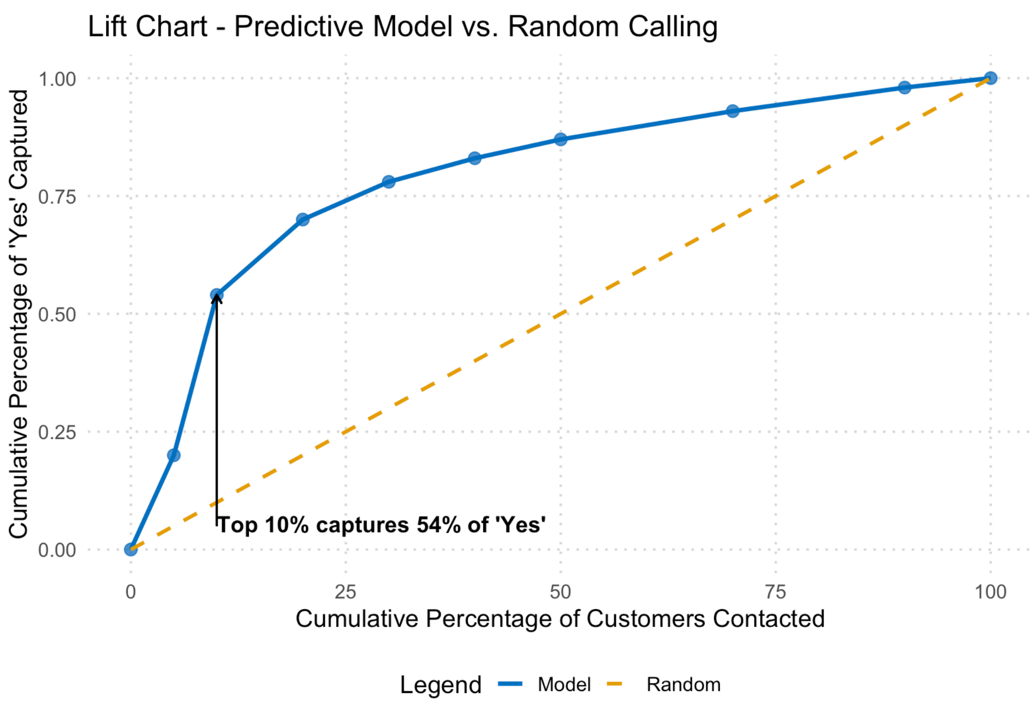

EXHIBIT D

Estimated Financial Benefit from using Targeted Approach

Metric	Call All 45,211 leads	Call Top 10% ≈ 4,521 leads
Telemarketing Cost (Phone + Representative)	$90,422 (45,211 × $2)	$9,042 (4,521 × $2)
Expected Conversion Rate	11.7% (baseline)	5× higher than baseline (≈ 54%)
Expected Conversions (#)	5,289	≈ 2,485
Profit per Deposit assuming average deposit of $1000	$20	$20
Total Deposit Profit	$105,780 (5,289 × $20)	$49700 (2,485 × $20)
Net Profit	$15,358 ($105,780 – $90,422)	$40658 ($49700– $9,042)
Cost Reduction vs. Calling All	—	~90% fewer calls
Profit Improvement vs. Calling All	—	Nearly 2.5× higher net profit