SECTION B · GROUP 16

Project Yield

BankMarketingCampaign Analysis

Sector:Finance / Banking | FacultyMentor:**SatyakiDas**

Aditya Yadav

Alok Kumar

Amogha Raj Sandur

Musthyala Sadhvik

Sarthak Mishra

Shitanshu Tiwari

BUSINESS CONTEXT

The Cost of Casting a Wide Net

The Challenge

Banks rely on telemarketing to drive term deposit registrations. Undifferentiated outreach inflates operational costs while yielding low conversion 4 a classic efficiency gap in retail banking campaigns.

Problem Statement

How canthe bank**optimise its marketing campaigns** to increase term deposit conversions while simultaneously **reducing outreach to disengaged prospects** 4 improving both revenue and cost efficiency?

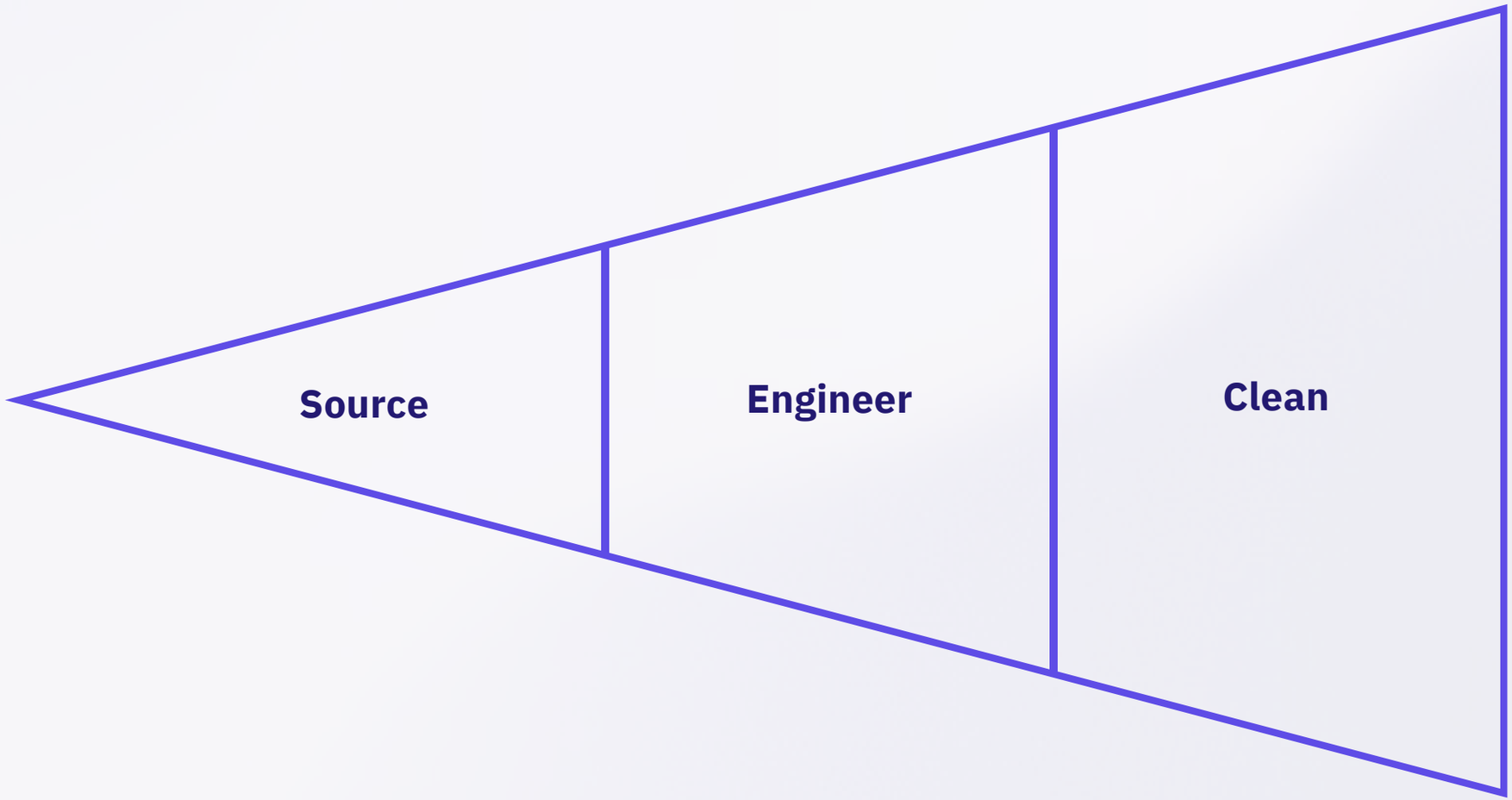
Project Objective

Identify the **behavioural and demographic drivers** of conversion to enable a precision, data-driven marketing strategy 4 shifting from mass outreach to targeted engagement.

DATA ENGINEERING

From Raw Data to Reliable Insights

TheBankMarketingDataset comprised**43,354records**acrossdemographic,behavioural,andcampaign-level attributes. A rigorous four-stage pipeline transformedrawinputsinto analysis-readyfeatures.



Feature engineering was critical: a binary **debt/credit status** variable unlocked financial health segmentation, while the **New vs Existing** customer flag 4 derived from `pdays` 4 revealed a significant conversion gap between customer cohorts.

Dashboard Walkthrough

ExecutiveView: Displays keyKPIs (Total Contacts,Conversions,Conversion Rate, Avg Balance of Converted) with high-level trend charts.

Operational View: Allows filtering by Job, Marital Status, and Education to pinpoint specific low-performing segments for exclusion.

Interactive Filters: Job,Month, Campaign Number.

KPI FRAMEWORK

Baseline Metrics: Measuring What Matters

FourcoreKPIsanchortheanalyticalframework,providingaquantifiedbaselineagainstwhichallstrategicrecommendations are benchmarked.

80%

Effort on New Leads

11.62%

Conversion Rate

Baseline term deposit sign-up rate across all contacted customers in the dataset period.

17.8M

Avg Balance 4 Converted

Average account balance of customers who successfully subscribed to a term deposit.

12.9M

Avg Balance 4 Non-Converted

Average account balance of customers who did not convert 4 a **$4.9M gap** vs converted peers.

Share of campaign outreach directed at new customers, despite lower conversion vs existing customers.

Key Linkage: Each KPI maps directly to the problem statement 4 conversion rate tracks campaign effectiveness; balance gap quantifies revenue opportunity; effort misallocation signals operational inefficiency.

KEY INSIGHTS 4 EDA

Three Findings That Change the Strategy

Financial Health Drives Conversion

Customers classified as **"In Credit"** exhibit significantly higher average account balances at the point of registration. Financial stability is not merely a demographic trait 4 it is a **leading indicator of purchase intent** for term deposit products.

Prior Success Predicts Future Conversion

Whena customer'spreviouscampaign outcome was recorded as **"Success,"** their likelihood of converting exceeds **60%** 4 more than five times the baseline rate of 11.62%. Past positive engagement is the single strongest predictor in the dataset.

Call Duration Is a Conversion Signal

Converted customers averaged**537**

seconds per call versus significantly shorter durations for non-converts. Extended call duration reflects genuine customer interest and intent 4 it is both a performance metric and a real-time conversion signal for agents.

ADVANCED ANALYSIS

Precision Segmentation: Who to Target and Why

Movingbeyondaggregatestatistics,cluster-levelsegmentationidentifiedtwohigh-valuetargetcohortsandexposedacriticalmisallocation of campaign effort.

Segment Alpha 4 Affluent Professionals

Profile: High-balance accounts, tertiary-educated, management or senior professional roles.

Why they matter: This segment combines financial capacity with product sophistication 4 they understand term deposits and have the liquidity to commit. A targeted value proposition yields disproportionate revenue impact.

Segment Beta 4 Previous Success Leads

Profile: Customers whose prior campaign outcome was "Success" or "Other."

Why they matter: Reconversion rates exceed **60%** 4 the lowest-cost, highest-return segment in the entire database. Yet they currently receive less than 20% of campaign effort.

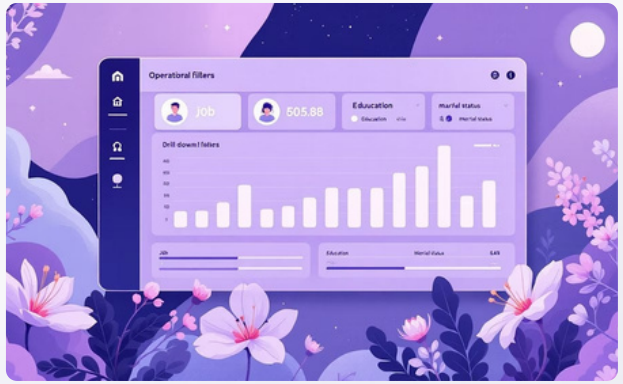
The Effort Paradox

Existing customers convert at a **higher rate** than new leads, yet **80% of outreach** targets new prospects. Rebalancing this allocation is the single highest-leverage operational change available.

DASHBOARD WALKTHROUGH

From Data to Decision: The Analytics Dashboard

Theproject dashboardisstructuredacrosstwocomplementaryviews,enablingstakeholdersateveryleveltoextractactionableintelligence 4 from boardroom tofrontline.



Executive View 4 Strategic Overview

- **Total Contacts** made in the campaign period
- **Total Conversions** and overall Conversion Rate
- **Average Balance** of converted accounts
- High-level trend lines for month-on-month performance

Operational View 4 Drill-Down Analysis

- Filterable by **Job Category, Marital Status, Education Level**
- Campaign number and outreach frequency breakdowns
- Month-over-month conversion trends by segment
- Interactive slicers for real-time campaign adjustments

DASHBOARD WALKTHROUGH

Dashboard Walkthrough Executive View

Executive View 4 Strategic Overview

43,354
Total Contacts

5,289
Conversions

11.62%
Conversion Rate

17,828,672
Avg Balance of Converted

High-level trendchartsvisualize performanceover time, including conversion ratesand revenue contribution (greenand greydonutcharts, bar charts)to providean immediate pulseon campaign health.

Operational View 4 Drill-Down Analysis

Thedashboard offersgranularfilteringcapabilities,enablingadeepdiveintocustomer segments and campaignperformance.

- Filter by Job
- Filter by Marital Status
- Filter by Education

Purpose: Pinpoint specific low-performing segments for exclusion.

Interactive Filters

- Job
- Month
- Campaign Number

RECOMMENDATIONS

Three Strategic Moves to Transform Campaign ROI

Re-engage Previous Winners

Allocate **60% of outreacheffort** towards customers with a prior "Success" or "Other" outcome. At a 60%+ reconversion rate, this is the highest-return segment in the portfolio. Redirect budget from cold prospecting accordingly.

Optimise Call Frequency

Exclude prospects contacted more than 5 times in a campaign cycle. Conversion rates decline sharply beyond this threshold 4 continued outreach generates cost without incremental return. Hard-cap campaign touches per customer at 5.

Deploy Tailored Messaging

Develop**segment-specificcall scripts** for Management and Technician roles, tertiary-educated customers, and high-balance account holders. Personalised value propositions 4 emphasising security, returns, and exclusivity 4 directly improve call-to-conversion ratios.

BUSINESS IMPACT & VALUE

The Business Case: Quantified ROI

Implementing thethree strategic recommendationsgeneratesmeasurablegainsacrossbothoperational efficiency and revenue performance 4 delivering acompelling returnon analytical investment.

15%

Reduction in Call Volume

Achieved by capping repeat contacts and deprioritising low-probability cold leads 4 with **no significant loss in conversions**.

5%

UpliftinAvgConverted Balance

Driven by targeting high-balance Segment Alpha customers, lifting the **revenue quality** of each conversion.

60%

ReconversionRate4Beta Segment

By reallocating effort to prior-success leads, the effective conversion rate of targeted outreach **quintuples** the baseline.

Why Stakeholders Should Approve

This is not an incremental improvement 4 it is a **strategic reorientation** of the marketing function. Every recommendation is:

- **Data-backed** 4 grounded in 43,354 real customer records
- **Immediately actionable** 4 no new infrastructure required
- **Financially measurable** 4 KPIs defined and baselined
- **Scalable** 4 framework applies to future campaigns

LIMITATIONS & NEXT STEPS

Limitations, Next Steps & Closing Vision

Current Limitations

Missing Macro Context

Interestrate and macroeconomic data were unavailable 4 external rate environments significantly influence term deposit attractiveness and should be incorporated.

Single-Year Snapshot

Thedataset coversone campaign cycle. Seasonal effects and year-on-year behavioural shifts remain unverified 4 multi-year data would materially strengthen confidence intervals.

Static Behavioural Data

Allfeatures are point-in-timesnapshots. Real-time digital behavioural signals 4 website visits, app activity 4 were not captured in the current scope.

NextSteps:ThePath toPredictive Marketing

Integrate Real-Time Behavioural Data

Connect CRM with digital channels4websiteactivity,applogins, and product page visits 4 to enrich customer profiles dynamically.

Launch Trigger-Based Campaigns

Movefrom calendar-drivenoutreach toevent-driven campaigns 4 contacting customers when behavioural signals indicate active product consideration.

Deploy Predictive Targeting Models

Buildand validate propensity-to-convertmodelsusing logistic regression or gradient boosting 4 enabling true precision marketing at scale.

> **"From mass outreach to precision-driven marketing 4 the future of bank campaigns is intelligent, targeted, and measurable."**