



BANK MARKETING CAMPAIGN ANALYSIS

Insight Mining Exercise - Practical Application



SCENARIO

You're a Data Analyst at a Portuguese bank. Your Marketing Director walks into your office and says:

"Our term deposit campaign is barely hitting 11.7% success rate. The board wants to know WHY we're underperforming and WHAT we should do differently in the next quarter. I need insights by end of day."

She hands you an Excel file (Bank_Term_Deposite_Data.xlsx) with 45,211 customer contact records from the last campaign.

Your mission: Use the **5-Step Insight Mining Framework** to find actionable insights that could improve campaign performance.



THE DATA YOU HAVE

File: Bank_Term_Deposite_Data.xlsx

What's inside:

1. 45,211 customer contact records
2. 17 variables per customer
3. Campaign outcome: "yes" = subscribed to term deposit, "no" = didn't subscribe

Key Variables:

1. **Demographics:** age, job, marital status, education
2. **Financial:** balance, housing loan, personal loan, credit default
3. **Campaign:** contact type, month, day, call duration, number of contacts

4. **Previous:** previous campaign outcome (poutcome), days since last contact (pdays)
5. **Target:** y (yes/no - did they subscribe?)

YOUR TASK: Follow the 5-Step Framework

 **TIME LIMIT: 60 minutes total**

Work through each step systematically. Document your findings as you go.

STEP 1: UNDERSTAND THE CONTEXT (5 minutes)

Answer these questions BEFORE opening the Excel file:

1. **What is the business question?**
2. Write it in one sentence
3. **Who is the audience and what will they do with your insights?**
4. Think: What kind of recommendations can they act on?
5. **What does success look like?**
6. What would make this analysis valuable?

 **Write down your answers**

STEP 2: AUDIT THE DATA (10 minutes)

Open the Excel file and perform these checks:

Quick Exploration:

1. How many rows and columns?
2. What's the date range? (Check the 'month' column)
3. Any obvious data quality issues?
4. Missing values?

5. Strange values (negative numbers where they shouldn't be)?
6. Duplicate records?

Column Understanding:

1. List all 17 column names
2. Which columns are categorical? Which are numeric?
3. What does "pdays = -1" mean? (Hint: check how many have this value)

Target Variable Check:

1. How many "yes" vs "no" in the 'y' column?
2. Calculate the overall conversion rate (yes/total)

 **Write: One paragraph summary of what you found**

STEP 3: BUILD THE FOUNDATION (15 minutes)

Create these baseline views in Excel (use pivot tables or formulas):

Task 3.1: Overall Metrics

Calculate:

1. Total contacts: _____
2. Total conversions (yes): _____
3. Overall conversion rate: _____%
4. Most common job type: _____
5. Most contacted month: _____

Task 3.2: Segment Performance

Create a table showing conversion rate by:

Segment Total Contacts Conversions Conversion %

By Education

- Primary
- Secondary
- Tertiary

By Contact Type

- Cellular
- Telephone
- Unknown

Task 3.3: Time Analysis

1. Which 3 months had highest conversion rates?
2. Which 3 months had lowest conversion rates?

👉 **Fill in the tables and note any patterns you see**

STEP 4: HUNT FOR PATTERNS (SCAN Method) (20 minutes)

Now dig deeper! Use the SCAN framework:

S - Spikes/Drops: Look for sudden changes

Questions to investigate:

1. Compare conversion rates across months - any dramatic differences?
2. Is there a relationship between call duration and success?
3. Hint: Calculate average duration for "yes" vs "no"
4. What about campaign intensity (number of contacts)?

👉 **Write: What spike or drop did you find? Why might this matter?**

C - Comparisons: What beats what?

Compare these segments:

1. Education levels: Which educated group converts best?
2. Previous campaign outcome: Compare those with "success" vs "failure" vs "unknown"
3. Contact method: Cellular vs Telephone vs Unknown
4. Marital status: Single vs Married vs Divorced

👉 **Write: What's your most surprising comparison? Give numbers.**

Example: *"Tertiary education converts at X% vs secondary at Y% - a Z percentage point gap"*

A - Anomalies: What doesn't fit?

Look for the weird stuff:

1. Are there any months with unusually high/low conversion despite high contact volume?
2. Does previous success guarantee current success? (Check outcome = "success")
3. Any job types that punch above/below their weight?

👉 **Write: Describe one anomaly that caught your attention**

N - No-change: Where you expected change but didn't see it

Investigate:

1. Does having a housing loan affect conversion? Calculate the difference.
2. Does age make a big difference? Compare under 30, 30-50, over 50.
3. Does balance (money in account) matter as much as you'd expect?

👉 **Write: What DIDN'T matter that you thought would?**

STEP 5: VALIDATE & REFINE (10 minutes)

Now test your findings and create the final insight:

Validation Checklist:

1. Do your numbers add up correctly?
2. Is the pattern consistent across different months?
3. Can you explain WHY this pattern exists?
4. Would someone unfamiliar with the data understand your finding?

Craft Your Insight Using the 3-Part Formula:

[WHAT happened] + [WHY it matters] + [WHAT to do about it]

Example structure:

"We discovered that [specific finding with numbers]. This matters because [business impact]. We should [specific recommendation] which could [expected outcome]."

DELIVERABLE: Write Your Top 3 Insights

INSIGHT #1: The Channel Problem

1. What: _____
2. Why it matters: _____
3. Recommendation: _____

4. Expected impact: _____

INSIGHT #2: The Timing Advantage

1. What: _____
2. Why it matters: _____
3. Recommendation: _____
4. Expected impact: _____

INSIGHT #3: The [Your Discovery]

1. What: _____
2. Why it matters: _____
3. Recommendation: _____
4. Expected impact: _____

SELF-ASSESSMENT: How Well Did You Do?

Rate yourself (1-5, where 5 is excellent):

Framework Application:

1. Step 1 - Did I understand context before touching data?
2. Step 2 - Did I audit thoroughly?
3. Step 3 - Did I build solid baseline metrics?
4. Step 4 - Did I find meaningful patterns using SCAN?
5. Step 5 - Did I validate and write clear insights?

Insight Quality:

1. Are my insights specific (with actual numbers)?
2. Are they actionable (clear what to do)?
3. Are they surprising (not obvious)?
4. Do they answer the original business question?



SUBMISSION

Once complete, prepare to present:

1. Your top 3 insights (with numbers and recommendations)
2. One key learning from applying the SCAN method
3. What you would do differently if you had more time