# EXECUTIVE SUMMARY

## 1. Campaign Success

| Metric | Value | Description |
|---|---|---|
| Overall Success Rate | **11.70%** | Term deposit subscription rate |
| Total Contacts | **45,211** | Unique customer interactions |
| Conversions | **5,289** | Successful subscriptions |

*Note: Cost-per-call data unavailable. Recommend adding to calculate CPA/ROI.*

## 2. Who to Target (Recommended Segments)

| Priority | Segment Combination | Conversion | Why This Works |
|---|---|---|---|
| ① | Seniors (60+) + No Loan + Tertiary Ed | **42.42%** | Fixed income; 76% debt-free; high balance |
| ② | Age 45-59 + Management + Debt-free | **18-22%** | Peak earnings; wealth-building focus |
| ③ | Retired Individuals | **High eff.** | Long call tolerance; predictable returns |
| ④ | Tertiary Education Holders | **15.01%** | Data-driven; digital-savvy |

## 3. Cross-sell / Product Ownership Insights

| Factor | Impact on Conversion | Recommended Action |
|---|---|---|
| **Housing Loan** | No loan: 16.70% vs With: 7.70% | Pitch shorter-term products to loan holders |
| **Personal Loan** | Strong negative indicator | Trigger outreach post-loan payoff |
| **Account Balance** | Higher balance → higher conversion | Senior agents for high-balance leads |

## 4. Recommendations

| # | Action | Expected Impact |
|---|---|---|
| 1 | Target Seniors (60+) without loans → 3x call allocation | +30pp vs baseline |
| 2 | Cap contact attempts at 3 per customer | 40% waste reduction |
| 3 | Focus on Mar/Sep/Oct/Dec (>40% conversion months) | 2.5x efficiency |
| 4 | Trigger outreach within 7 days of loan payoff | 28-35% conversion |
| 5 | Assign senior agents to high-balance leads | Higher close rate |
| 6 | Avoid over-targeting default=Yes customers | Compliance |

## 5. Risks & Caveats

- **Correlation ≠ Causation:** Historical data shows associations, not causal relationships.
- **Sample Size:** Some segments have smaller n; recommend threshold n≥200 for decisions.
- **Missing Data:** Cost-per-call unavailable; ROI calculations are directional estimates.

# METHOD & DATA INTEGRITY

## 1. Dataset & Definition

| Attribute | Value |
|---|---|
| **Data Source** | train.csv (Marketing Campaign Records) |
| **Total Records** | 45,211 customer interactions |
| **Target Variable** | y = "yes" (term deposit subscription) |
| **Time Range** | Multi-month campaign (May–December concentrated) |
| **Features** | 16 variables: demographics, financials, campaign data |

## 2. Data Cleaning & Assumptions

| Item | Treatment |
|---|---|
| **pdays = -1** | Treated as "not previously contacted" (flag created) |
| **Unknown values** | Retained as separate category for transparency |
| **Contact method** | 29% "unknown"; included with caveat |
| **Data types** | Age (numeric), Job/Education/Marital (categorical) |
| **Duplicates** | None identified in source data |
| **Outliers** | Balance outliers retained (high-value customers) |

## 3. Validation Checks

| Check | Result | Status |
|---|---|---|
| Conversion Count | COUNT(y="yes") = 5,289 | ✓ Verified |
| Success Rate | 5,289 / 45,211 = 11.70% | ✓ Verified |
| Total by Job | SUM(job categories) = 45,211 | ✓ Matched |
| Age Range | Min: 18, Max: 95 (realistic) | ✓ Valid |
| Balance Sanity | Negative values present (overdrafts) | ✓ Expected |

## 4. Power BI Dashboard Navigation

| Page | Contents | Key Interactions |
|---|---|---|
| **Overview** | Core KPIs, top segments, monthly trends | Drill-through to details |
| **Details** | Demographics, product flags, contact data | Filter by any dimension |

### KEY TAKEAWAY

Focus on Seniors (60+) without loans during Mar/Sep/Oct/Dec for maximum ROI.
Cap contacts at 3 attempts. Trigger outreach post-loan payoff for 28-35% conversion.

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