# World Plus

## Lead prediction system

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# Agenda

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# Introduction

Significant benefits are prompting more companies to apply lead prediction systems

## Short-term Benefits

Improve Marketing Efficiencies

Enhance Competitive Positioning

Optimize Sales Strategies

## Long-term Benefits

Gain Data Driven Insights

Resource Optimization

Customer Retention & Relationship-Building

# World Plus Overview

Company background and essential information

## Basic information

- Number of employees    **10,000**
- Branches    **40**
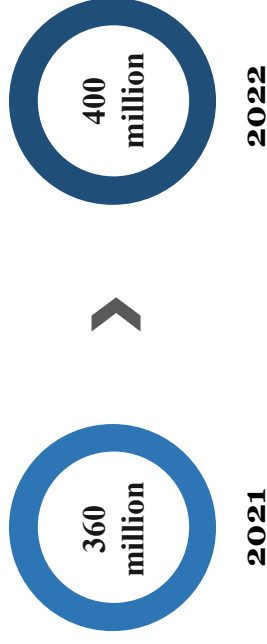- Headquarters    **London**

## Marketing channels

Call centres

Email

Live Chat

Social Media

## Products & Services

- Loans
- Investment options
- Savings accounts
- Credit products

## Revenue

360 million
2021

400 million
2022

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# Competitor Analysis

Machine-learning lead prediction systems are proved to be successful towards company performance

## Monzo Bank

**monzo**

**Deploys competitive prediction system**

Customers increased:

**27.1%**

(£5.9m to £7.5m)

Deposits grew:

**34%**

Total revenue increased:

**2.3 times**

(£154.2m to £355.6m)

Marketing costs increased:

**£18.1m**

(£3.6m to £21.7m)

## Starling Bank

**Starling Bank**

**Deploys competitive prediction system**

Customers increased:

**28.6%**

(£2.8m to £3.6m)

Deposits grew:

**16.9%**

Total revenue increased:

**2.09 times**

(£216.4m to £452.8m)

Marketing costs increased:

**£0.506m**

(£29.3m to £29.8m)

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# Our Approach

Implement lead prediction system based on CRISP - DM

Business Understanding

Data Understanding

Data Preparation

Modelling

Evaluation

Deployment
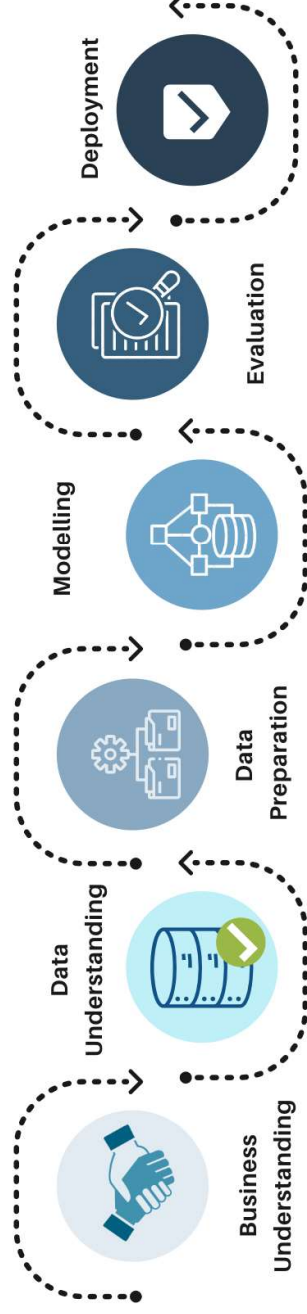
- Dataset gathered had 220,000 observations with 16 variables
- Applied different Data mining techniques: Random Forest , Decision Tree , SVM and Logistic Regression
- Model is evaluated based on lead prediction and minimum cost

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# Data Preparation

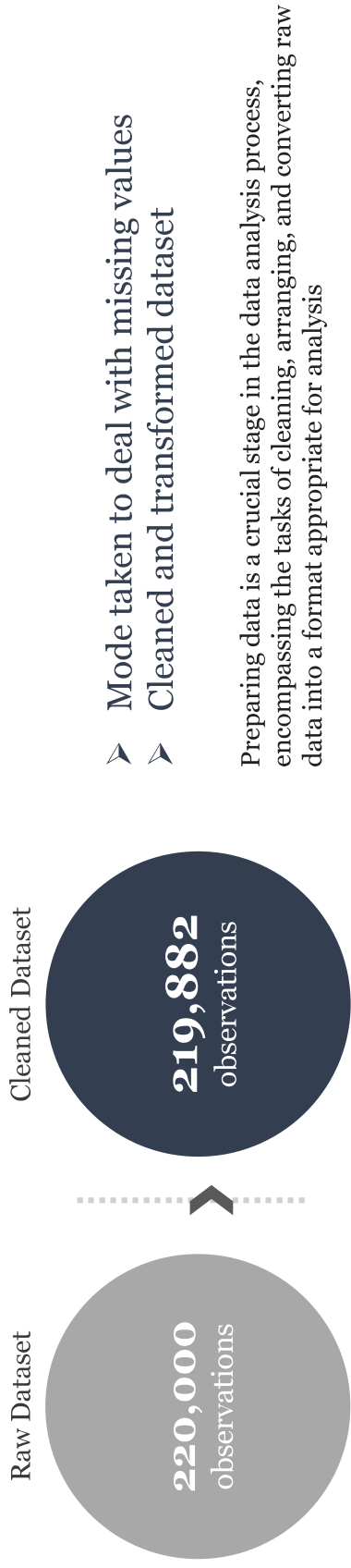How we dealt with World Plus's customer database

Raw Dataset

**220,000**
observations

Cleaned Dataset

**219,882**
observations

› Mode taken to deal with missing values
› Cleaned and transformed dataset

Preparing data is a crucial stage in the data analysis process, encompassing the tasks of cleaning, arranging, and converting raw data into a format appropriate for analysis

**Important features selected:** (Gives most contribution in our lead prediction system)

| Registration | Customers Age | Marketing Channel | Vintage (Customer Duration) |

# Model Evaluation Metrics

The Confusion Matrix
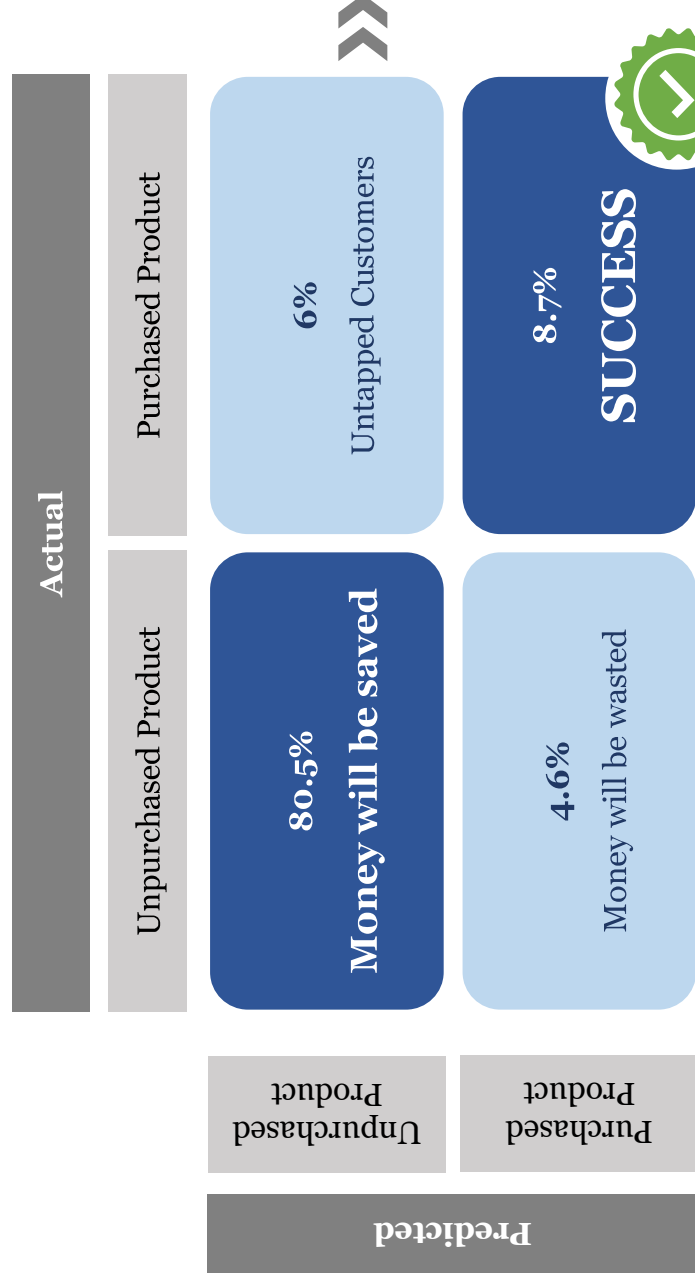
After implementing various Modelling techniques, **the SVM** model proved to be the best.

**Actual**

| | Unpurchased Product | Purchased Product |
|---|---|---|
| **Unpurchased Product** | 80.5%<br>**Money will be saved** | 6%<br>Untapped Customers |
| **Purchased Product** | 4.6%<br>Money will be wasted | 8.7%<br>**SUCCESS** |

**Predicted**

Note: Matrix based on test population of 65,964 customers.

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# Results of the SVM Model

Evaluation - SVM

**ACCURACY**

89%
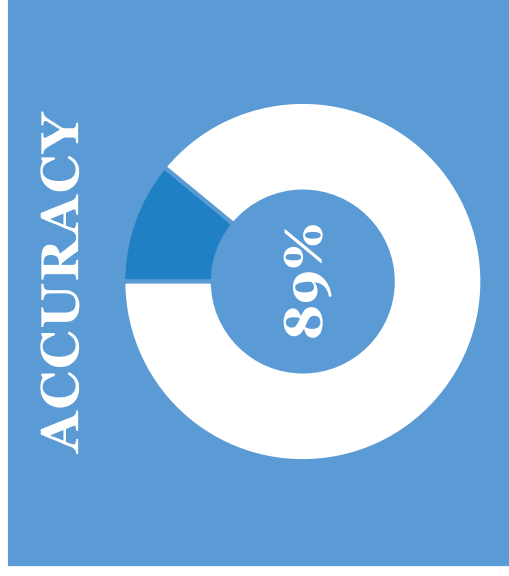
How often
we get it right?

**RECALL**

59%
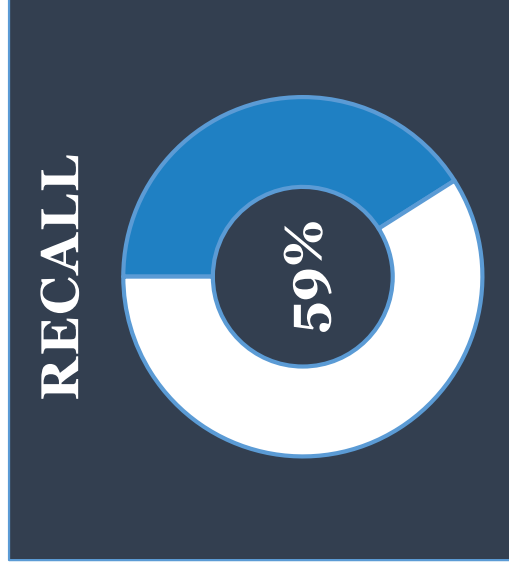
How many customers
do we reach?

**PRECISION**

65%
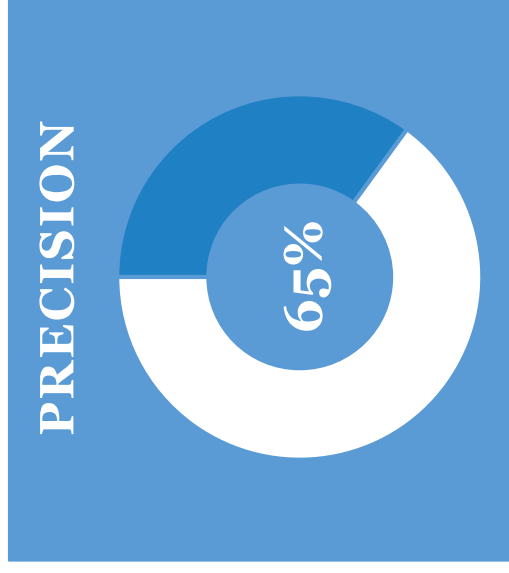
How many customers
are converting?

Note: Matrix based on test population of 65,964 customers.

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# Conversion rate improvement by our Model

We aim to improve the conversion ratio from 15% to 65% using our lead prediction

## Before Lead Prediction

Approaching - 2,20,000 customer

Converting – 32,563 customer

**Conversion Rate – 14.80%**
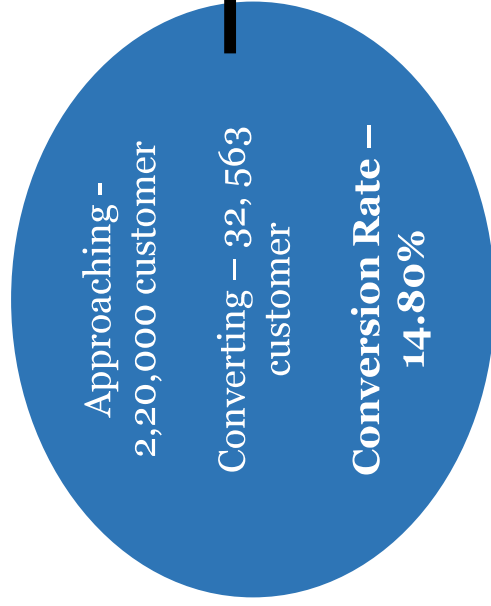
## Our Model

Identifies population predicted "Yes" which helps pinpointing customer

## After Lead Prediction

Approaching – 13.3% customers

Converting – 8.7% out of 13.3%

**Conversion Rate – 65.4%**
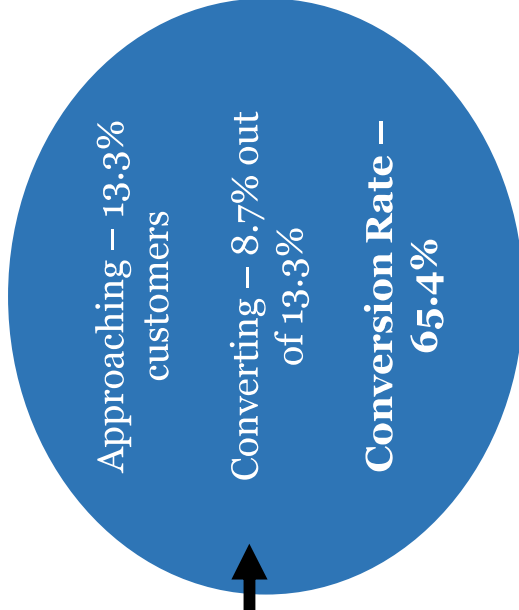
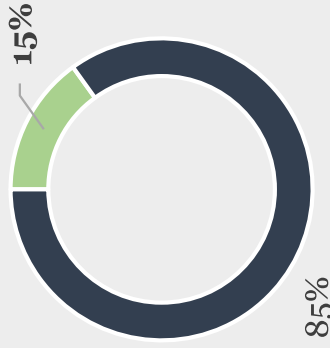# Results: Reduces cost by improving conversion rate

We aim to reduce average cost spend per customer acquisition by improving the conversion ratio.

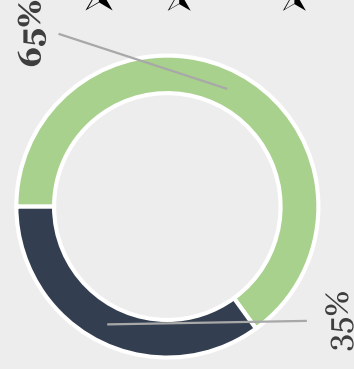Assume: Total Cost for reaching each Customer = £ 25

Total Cost for 1 m Customers = £ 25 m

**Current Practice:**

15%

85%

➢ **15%** Conversion Rate

➢ Total Customers converted: 150,000

➢ Avg. Cost per Customer: 25,000,000/ 150,000 = **£166.67/customer**
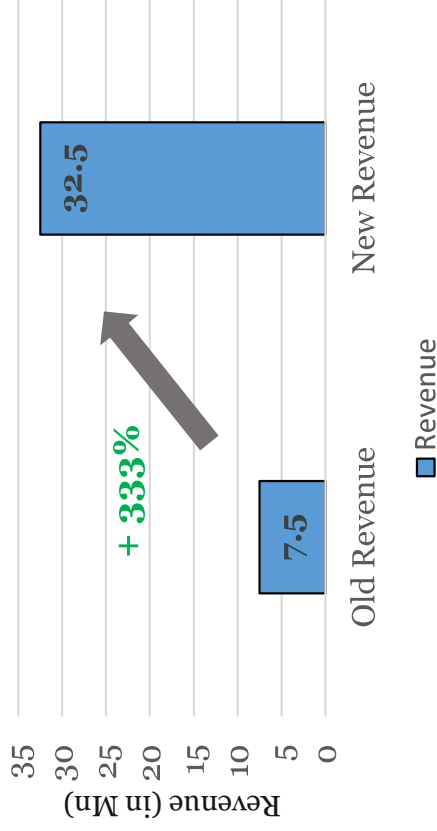
**Our Model:**

65%

35%

➢ **65%** Conversion Rate

➢ Total Customers converted: 650,000

➢ Avg. Cost per Customer: 25,000,000/ 650,000 = **£38.46/customer**

# Results: Increase in Revenue and Net Profit

We aim to maximize net profit by targeting the right customers

Assume: Bank income from selling each term deposit product = **£50**

## Change in Revenue after Model Deployment



Old Revenue: 7.5
New Revenue: 32.5
+ **333%**

Revenue (in Mn)

From 150,000 * 50 = 7.5 m >>>
650,000 * 50 = **32.5 m**

## Change in Net Profit after Model Deployment



Old Profit: -17.5
New Profit: 7.5
+ **143%**

Net Profit (in Mn)
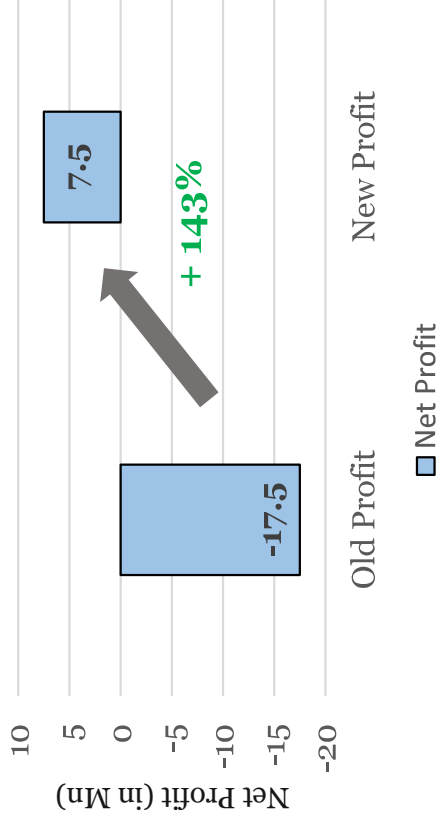
From 25 − 7.5 m = -17.5 m >>>
32.5 − 25 m = **7.5 m**

# Recommendation 1

Customer Age shapes the future of term deposit

## Age Comparison



**Customer Count** (x-axis): 0, 5000, 10000, 15000, 20000, 25000, 30000

**Age Bracket** (categories):
- 18-40: No 29440, Yes 2753
- 41-60: No 20074, Yes 4733
- Above 60: No 7579, Yes 1385

Buying Product
- ■ No
- ■ Yes
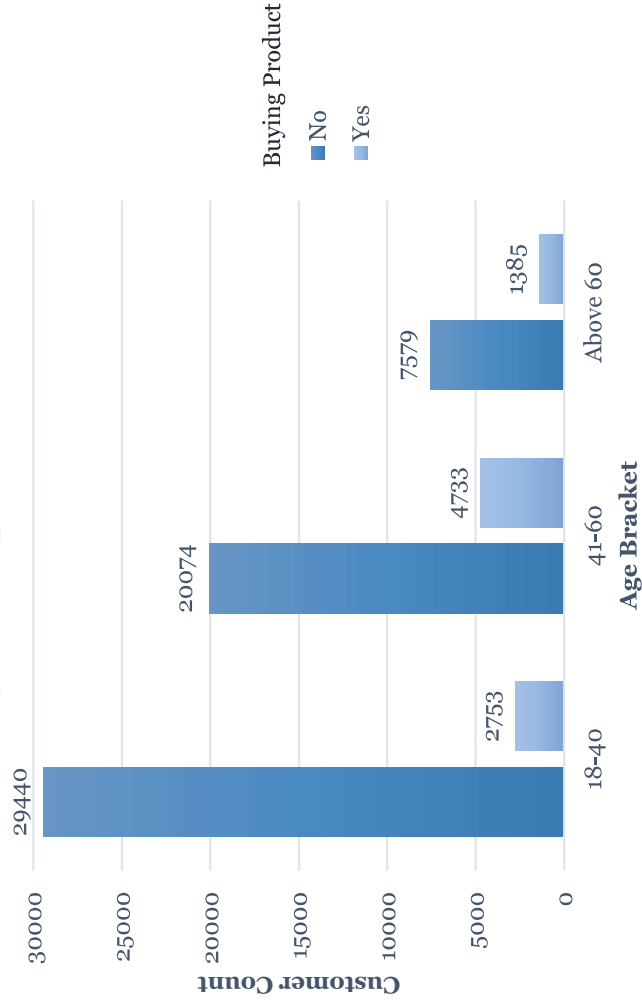
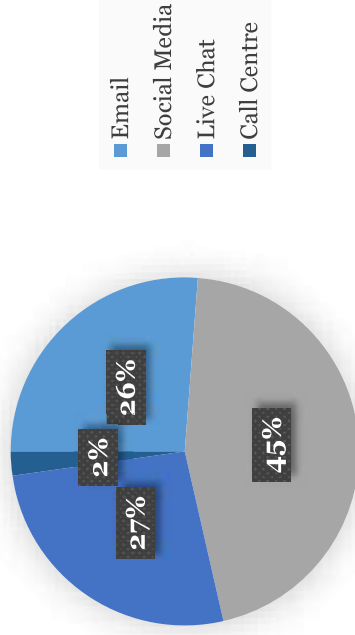> High percent of term deposit product purchases is observed among individuals **aged 41-60.**

> Studies on investment behavior indicate a tendency for people to **opt for less risky assets** as they approach **retirement age.**

> Despite 50% of bank customers falling within the 18-40 age range, **focusing on the 41-60 age group** is crucial for the **new** less risky term deposit **product.**

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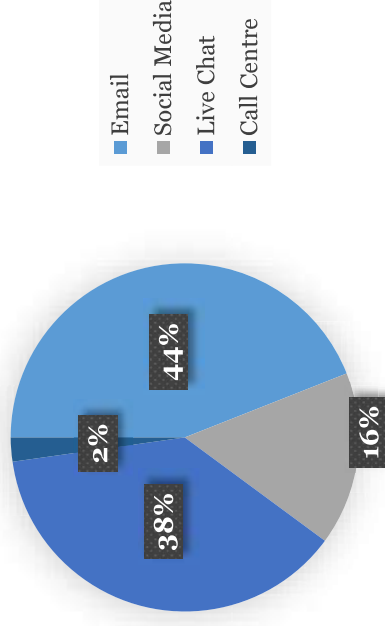smart analytics

# Recommendation 2

Strategic Marketing channels and Budget allocation for growth

## Current structure



Legend:
- Email
- Social Media
- Live Chat
- Call Centre

Values: 26%, 2%, 27%, 45%

## Our Recommendation



Legend:
- Email
- Social Media
- Live Chat
- Call Centre

Values: 44%, 2%, 38%, 16%

✓ **Email can be a preferred channel**, as it is better at driving traffic and direct conversions.

✓ Consider **minimizing use of social media channel** as they may just help with engaging audience.

✓ Implementing **our recommended division** can lead to attaining maximum conversion rate.

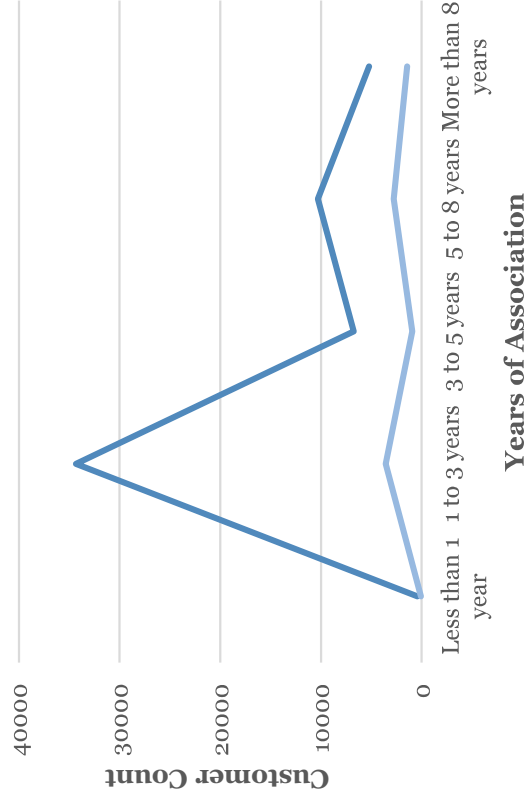Email Marketing vs Social Media: Why Should You Care? (2023) | Mailmunch

# Recommendation 3

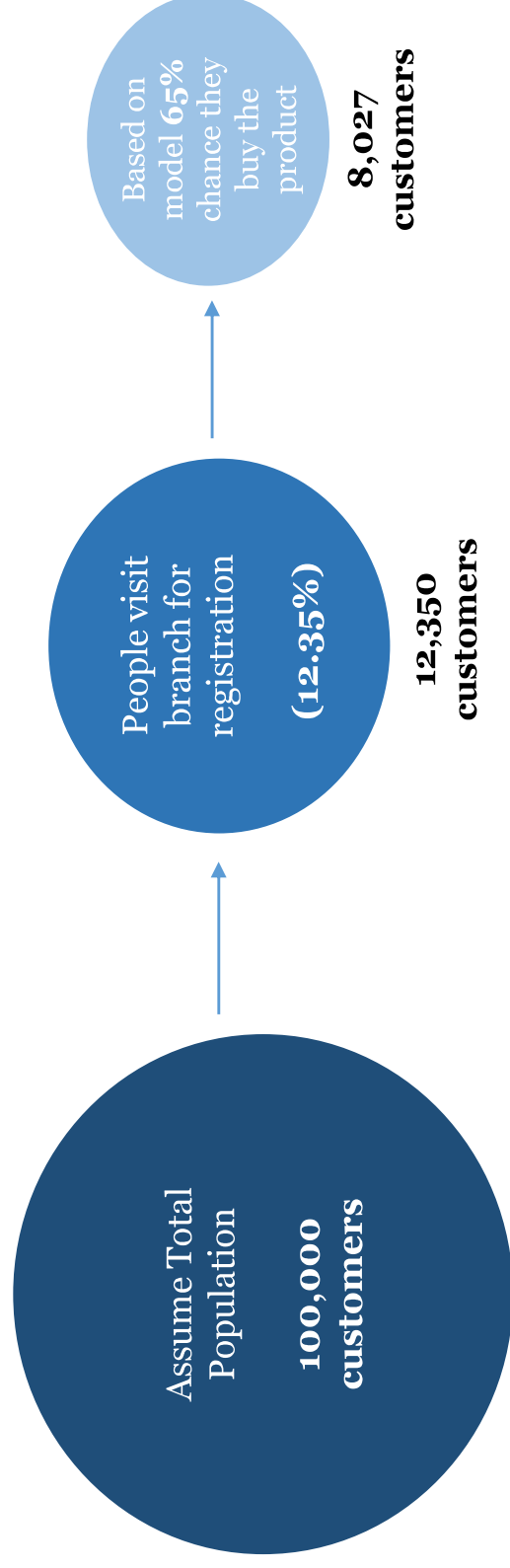Potential of Customer Retention for soaring sales of investment product

## Customer Association



**Customer Count** (y-axis): 0, 10000, 20000, 30000, 40000

**Years of Association** (x-axis): Less than 1 year, 1 to 3 years, 3 to 5 years, 5 to 8 years, More than 8 years

**Buying Product**
— No
— Yes

✓ According to consumer studies, most customers **choose their primary bank** for purchasing investment products.

✓ Consumers with association of more than **8 years have favorable conversion ratio.**

✓ **Utilizing effective channels of marketing and improving customer experience** can elevate the conversion rate for individuals associated with the bank for 3 to 8 years.

What Makes Customers Buy Bank Products? | ThinkAdvisor

# Recommendation 4

Customer curiosity to identify and capture most promising leads

**Assume Total Population**

**100,000 customers**

**People visit branch for registration**

**(12.35%)**

**12,350 customers**

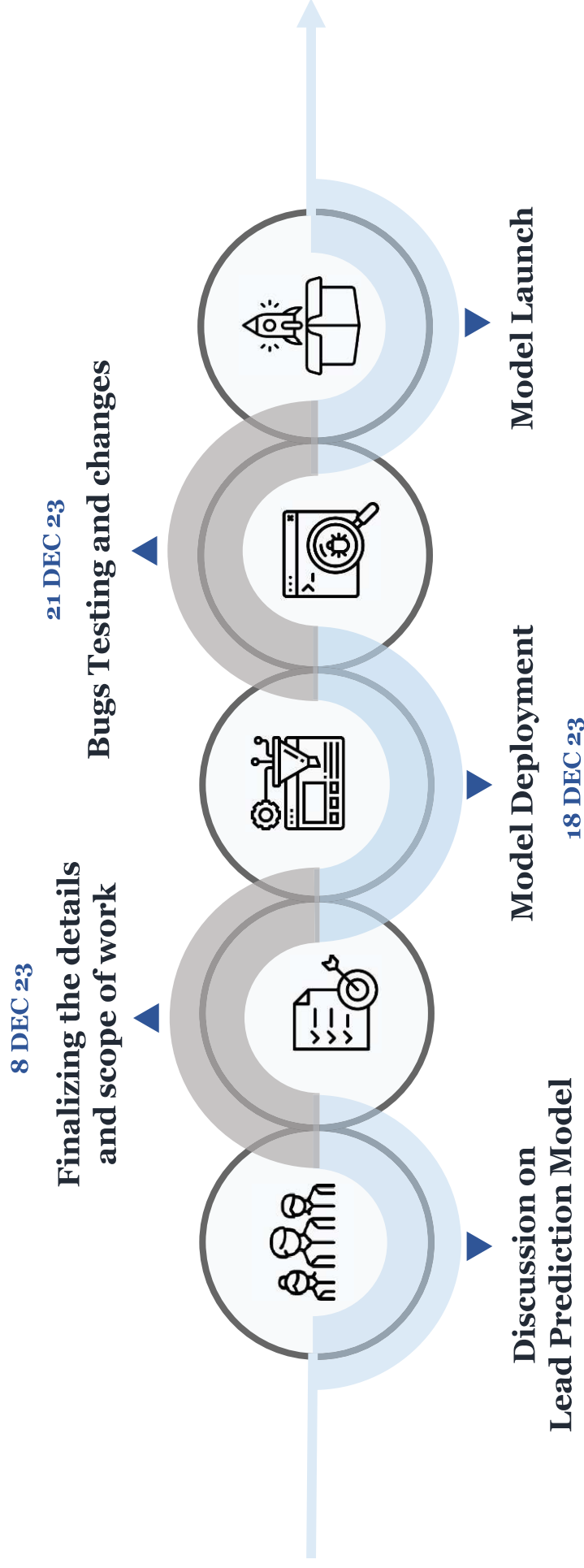Based on model **65%** chance they buy the product

**8,027 customers**

Trend shows that **World Plus should target all the leads who visit the bank for registration** as they all are highly convertible and will not take much effort from sales and marketing team.

* Registration percent based on 220,000 data

# Implementation Timeline

We aim to deploy the model by Q4 2023

**8 DEC '23**

**Finalizing the details
and scope of work**

**21 DEC '23**

**Bugs Testing and changes**

**Model Launch**

**Model Deployment**

**18 DEC '23**

**Discussion on
Lead Prediction Model**

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# Back up

Question scenario may be like: why do you choose SVM among four models

## Cumulative Gain Chart

The Comparision of the four models' results using cumulative gain chart
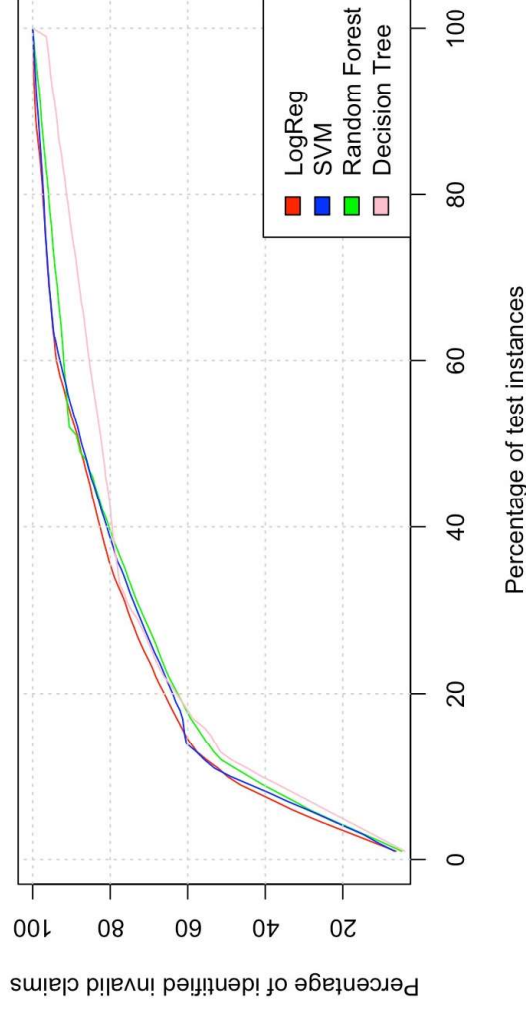


## Insights

- **Performance:** SVM and LR cover approximately same area, not easy to distinguish.

- **Interpretation:** since our dataset is non-linear, SVM perform better than LR.

- **Multicollinearity:** SVM is less affected, while LR is more sensitive.

**A well-balanced SVM model is** the first prioritization

# Thank You

Please feel free to ask us any questions