

QUALCO



Predictive Analytics Use Cases

5 ways to Reframe
Collections, Loan Origination
& Product Cross-selling

USE CASES



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Introduction

Effective financial management has always been pivotal in maintaining a solid portfolio. With the volume of debts and financial assets continuing to surge, financial institutions grapple with the challenge of efficiently managing and optimising their portfolios. Fortunately, new technologies and data analytics offer innovative solutions to enhance financial strategies and streamline processes.

This report presents five use cases from industry challenges, demonstrating how servicers and financial institutions can effectively exploit data-driven insights. It showcases how [QUALCO Data-Driven Decision Engine](#) reframes financial strategies, enabling servicers and financial institutions to optimise operations, enhance customer experience, and drive profitability. In particular:

Use Case 01 | Optimising Contactability for Strategic Collection Efforts

Leveraging predictive analytics, QUALCO Data-Driven Decision Engine helps efficiently target high-probability contacts, resulting in enhanced contactability rates, optimised resource allocation and reduced costs.

Use Case 02 | Identifying the Best Communication Channel

QUALCO Data-Driven Decision Engine utilises machine learning to pinpoint the most effective communication channel, empowering customised communication strategies, increased contact rates and maximised returns.

Use Case 03 | Elevating Your Loan Origination Strategy

Our solution conducts a comprehensive analysis of loan default probabilities to propose alternative terms for accepted loans likely to default and identify potential opportunities among loans initially rejected.

Use Case 04 | Forecasting the Probability of Settlements Missing Instalments

The decision engine's predictive models accurately forecast the probability of settlements missing instalments, empowering proactive risk management and ensuring timely payments.

Use Case 05 | Mastering Cross-Selling via Next Best Product Recommendation

The platform enables precise product recommendations tailored to individual customers, leading to increased sales uplift and customer loyalty.

USE CASE 01

Optimising Contactability for Strategic Collection Efforts

A common challenge in collections is the ambiguity surrounding the likelihood of reaching the intended recipient or encountering a third-party intermediary. By harnessing predictive analytics, debt collection agencies can optimise contact attempts, increase successful interactions, reduce costs, and streamline resource allocation.

Case Overview

A collection agency provided data on defaulted accounts with no recent associated contact attempts but scheduled for phone outreach. The aim was to forecast the probability of connecting via phone with the right person (RPC) or a relevant third party.

Our Approach

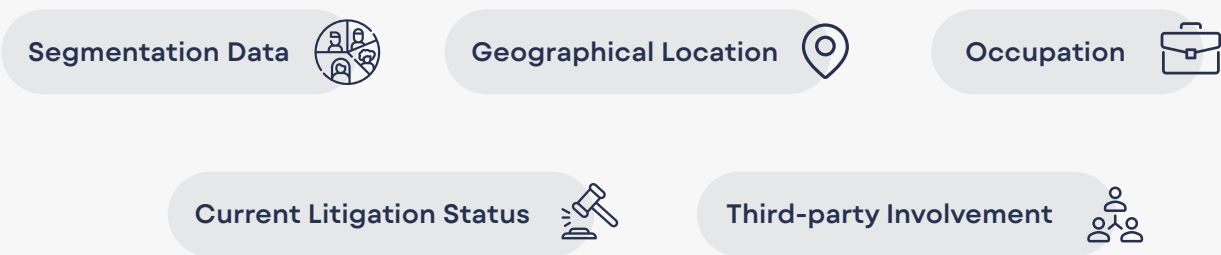
QUALCO Data-Driven Decision Engine (D3E) was used to assess the likelihood of engaging a customer or a third party during a call initiative, focusing on accounts with no contact attempts in the past three months. The platform automatically identified important segmentation parameters, including the timing of any initial contact attempt, concurrent legal proceedings, and the efficacy of the latest recorded contact attempt. The proposed segmentation facilitated the production of accurate individual contactability predictions, leading to the better prioritisation and identifying uncontactable customers.



QUALCO D3E IN ACTION

Step 1 Model Development

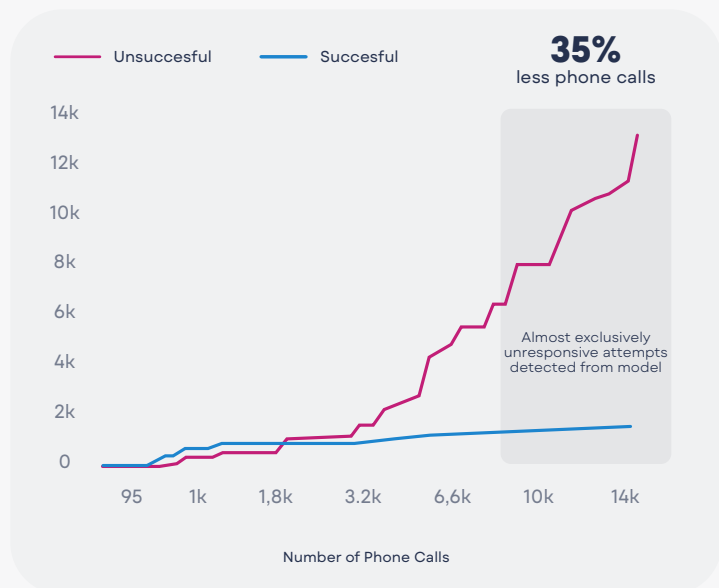
We developed a robust machine-learning model that analysed a comprehensive set of predictors to identify those with the highest predictive power for successful contact. These predictors included:



Using these predictors, the model distinguished between debtors or third parties likely to respond to phone contact attempts and those less likely to engage.

Step 2 Customer Segmentation

After validating the model, we segmented the customer database to prioritise individuals based on their predicted responsiveness. This approach helped focus resources on high-probability contacts, maximising efficiency and effectiveness. Notably, the model identified that **35%** of contact attempts had a negligible likelihood of response, suggesting a strategic deprioritisation to conserve resources and focus efforts where they were most likely to yield results.



Customer database segmentation, prioritising individuals based on their predicted responsiveness.

Step 3 Calls Prioritisation

The resources saved were redirected towards customers who had yet to be contacted but were deemed highly likely to respond, and these individuals were prioritised for immediate contact.

RESULTS

Enhanced Contactability Rates

Achieved a **3.5 times increase** in successful contact rates through targeted outreach.

Streamlined Resource Allocation

Reduced agents' **unsuccessful efforts by 35%** and ensured optimal resource allocation.

Reduced Communication Costs

Minimised overall communication **expenses** by implementing targeted outreach strategies.



USE CASE 02

Identifying the Best Communication Channel

Traditional collection approaches often encounter obstacles, such as capacity constraints, when determining the most effective action. Additionally, evaluating the effectiveness of communication attempts across various channels presents a significant challenge.

Case Overview

A bank sought to optimise its communication strategies with debtors by analysing extensive communication and transactional data. This data spanned a portfolio of **22k** active monthly loans over eight years. All loans within the portfolio had defaulted at some point, with borrowers on repayment plans of 1 or 2 instalments. The primary objective was identifying and recommending the most effective communication channels to improve contact rates and streamline payment arrangements.

Our Approach

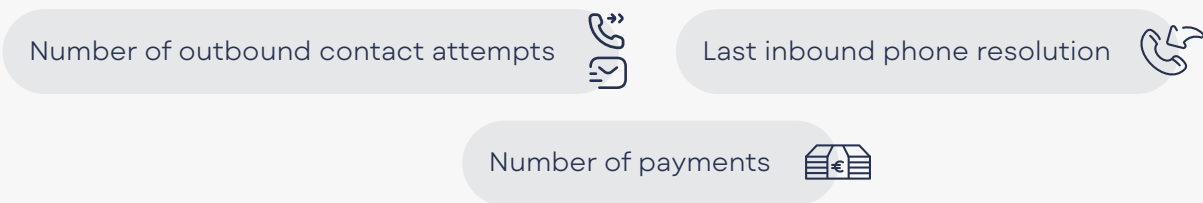
Leveraging QUALCO Data-Driven Decision Engine, we applied advanced machine learning models to predict the probability of successful contact outcomes - including payments, commitments to pay, or agreements on debt restructuring - through different communication channels. Our system suggested customised communication strategies for each debtor by analysing key predictors and amplifying successful communication attempts.



QUALCO D3E in Action

Step 1 Model Development

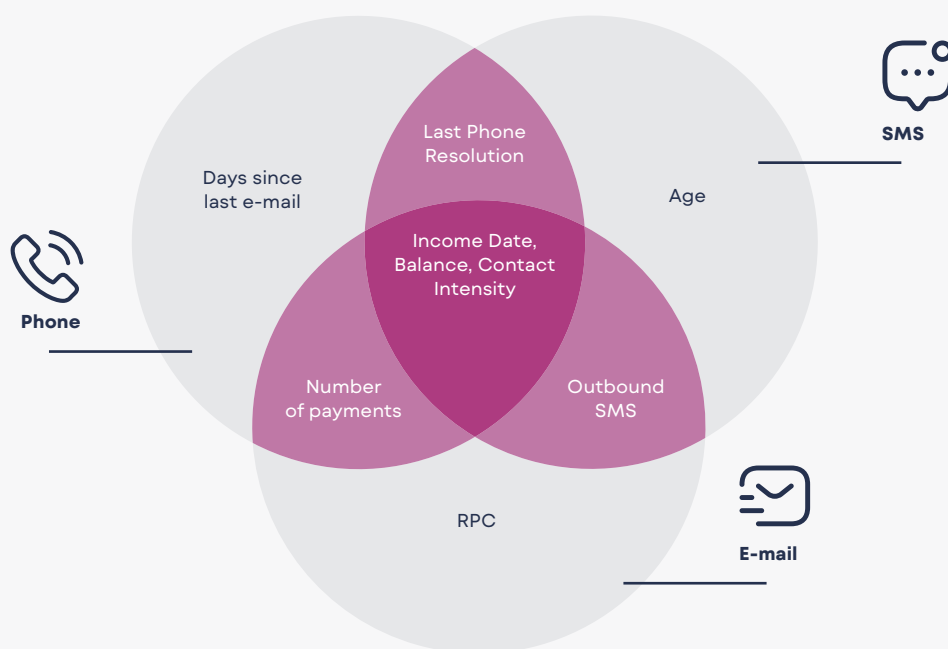
Through a meticulous analysis of thousands of potential predictors, QUALCO Data-Driven Decision Engine identified the parameters with the highest predictive power. These parameters include:



We developed a machine-learning model for each communication channel (email, phone, SMS). These models were trained on historical data to predict the likelihood of successful contact outcomes.

Step 2 Customer Segmentation

We segmented customers based on their predicted responsiveness to various communication strategies. We identified a group unlikely to respond to any of the three channels, suggesting that contacting them may be ineffective.



Automatically detected predictors per communication channel

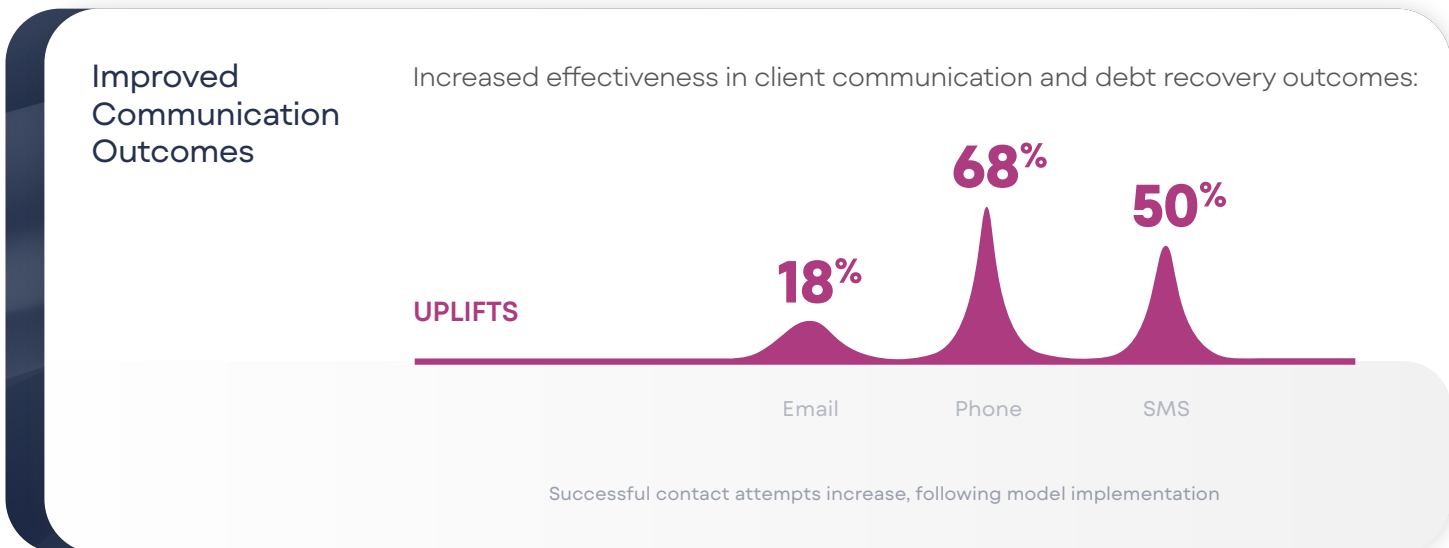
Step 3 Channel Selection

We recommended the optimal communication channel for each customer to maximise response rates and debt recovery outcomes while avoiding redundancy and confusion.

<p>Phone is most effective for:</p> <ul style="list-style-type: none"> ● Frequent inbound communications ● High volume of contact attempts ● Two instalments and no defaults 	<p>E-mail is most effective for:</p> <ul style="list-style-type: none"> ● Occasional inbound communications ● Recent phone contact (emails serve effectively as follow-ups) ● Any number of defaulted instalments 	<p>SMS is most effective for:</p> <ul style="list-style-type: none"> ● Infrequent inbound communications ● Minimal outbound contact attempts ● One or two missed payments
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Model - driven insights per communication channel

Results



Enhanced Resource Allocation

Optimised resource allocation and increased operational efficiency by:

- Identifying **45%** of customers as uncontactable due to a very low likelihood of positive response, allowing for a reallocation of efforts.
- Determining that **39%** of debtors had been initially contacted through less effective channels and pinpointing that **20%** had a greater than **70%** likelihood of a positive response if approached via a more suitable channel.

Achieved Cost Savings

Reduced communication costs and improved return on investment (ROI) through targeted communication strategies and rationalised channel usage.

USE CASE 03

Elevating Your Loan Origination Strategy

Traditional loan origination methods, often characterised by empirical models built on data that may be of compromised quality, can be significantly enhanced by integrating artificial intelligence. AI models have the potential to rationalise loan terms, improve approval processes and mitigate risks.

Case Overview

A loan servicer sought the best loan origination strategy for their student loan portfolio. The primary objective was formulating the most effective strategy, considering default probabilities, expected loan amounts, and the portfolio's overall health.

Our Approach

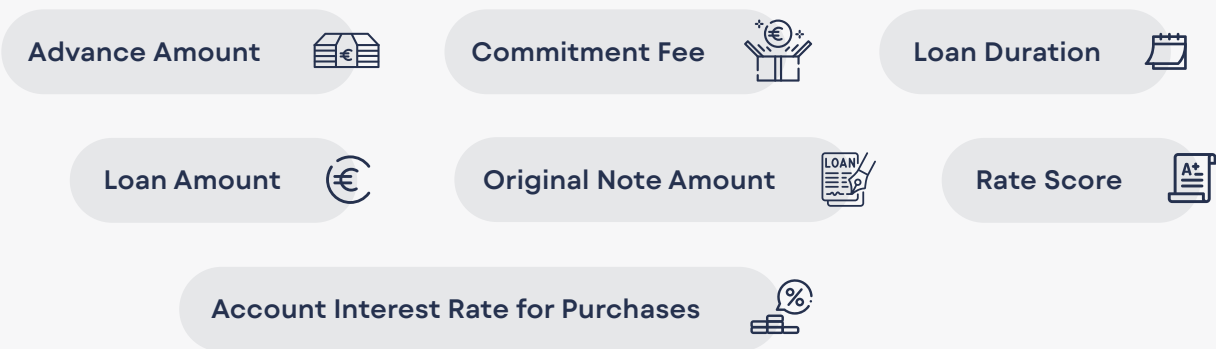
We leveraged the machine learning capabilities of QUALCO Data-Driven Decision Engine to conduct a comprehensive analysis of loan default probabilities and calibrate the client's business-as-usual strategy. This analysis enabled us to propose alternative terms for loans deemed credible but likely to default and identify opportunities among loans initially rejected. Our methodology was based on the combination of ML models trained to predict the probability of default and the expected repayment amount on loans for which the entire transactional history was available.



QUALCO D3E IN ACTION

Step 1 Model Development

QUALCO Data – Driven Decision Engine built regression and classification models using historical data on approved loans to predict default probabilities and expected recovery amounts. Employing advanced data analysis techniques, the model identified predictive factors, including:



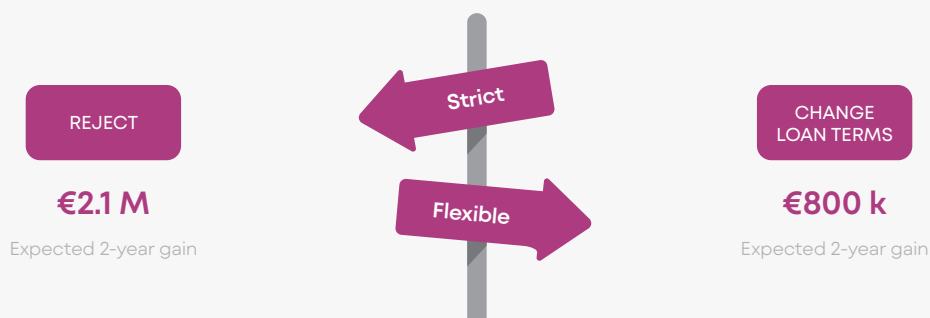
Step 2 Customer Segmentation

The platform's trained models were used to segment loans based on their likelihood of default and the expected recovery rates.

Step 3 Strategy Selection

Based on model predictions, we identified profitable opportunities in previously declined loans and proposed two distinct loan origination strategies for approved loans with a high-risk profile:

- **Strict Strategy**
Reject loans with a probability of default greater than **58%** to safeguard portfolio health, resulting in a **€2.1M** gain over two years.
- **Flexible Strategy**
Propose alternative terms to loans with a **58%+** probability of default to accommodate applicants' repayment abilities, leading to an **€800k** gain over two years.



Alternative strategies proposed for approved loans with a high-risk profile

RESULTS

Increased Recovery Rates

Ensured a **10% uplift** in overall returns through tailored loan origination strategies, enhancing profitability.

Enhanced Portfolio Health

Optimised client's **loan origination strategy** without disrupting established practices by post-processing credit decisions, utilising the model's predictions.

Improved Risk Management

Mitigated risks and minimised losses by identifying opportunities in declined loans and considering alternative loan terms.



USE CASE 04

Forecasting Settlement Instalment Default Probability

Traditional collection methods often lack the predictive accuracy required for preemptive identification of settlements at risk of missing instalments. Debt collection companies need a more sophisticated approach to maintain economic stability and ensure timely payments.

Case Overview

Based on customer historical data, a servicer sought to detect which settlements already in arrears were likely to miss their next instalment. The goal was to develop recommendations for tailored communication strategies for different customer segments, leading to maximised results.

Our Approach

Using the machine learning capabilities of QUALCO Data-Driven Decision Engine, we developed a predictive model to estimate the probability of settlements missing their upcoming instalment. The platform accurately assessed the likelihood of payment disruptions by analysing various parameters like unpaid settlement amounts and time since the last missed instalment.



QUALCO D3E IN ACTION

Step 1 Model Development

QUALCO Data-Driven Decision Engine used data analysis techniques to develop a robust machine learning model that identifies predictive factors such as:



Building on the identified predictors, the model identified which settlements are most likely to miss their next upcoming payment.


Step 2 Account Segmentation

Based on the model's scores, which reflect the probability of missing a settlement, we segmented the accounts into three categories: low, medium, and high-risk. The effectiveness of the model was assessed by running a champion-challenger test on low and high-risk groups:

Low Risk 

Champion:
Continued to receive the existing treatment approach with no alterations.

Challenger:
Received a more lenient treatment and more amicable call script, with **6% fewer** communication attempts.

High Risk 

Champion:
Continued to receive the existing treatment approach with no alterations.

Challenger:
Received a more intensive treatment and assertive call script, with **3.5% more communication attempts**.

Step 3 Strategy Formation

We compared the outcomes between the subgroups to determine the revised strategies' effectiveness and then optimised the approach for maximum efficacy.

RESULTS

Improved Collections Results

Achieved a **26% increase in positive exits**, indicating a higher rate of promises to pay and enhancing overall payment recovery.

Increased Cash Uplifts

Boosted **uplift in cash collection by up to 7%**, highlighting the effectiveness of tailored treatment strategies in mitigating default risks and securing timely payments.

Enhanced Risk Management

Improved financial stability and **portfolio health** by proactively identifying and mitigating potential payment disruptions.



USE CASE 05

Mastering Cross-Selling with Next Best Product Recommendation

Effective cross-selling in financial services requires precisely recommending the next best product or service to existing customers. Success lies in delivering tailored recommendations that enhance customer satisfaction and loyalty while optimising resource allocation.

Case Overview

A financial institution needed expertise in identifying the next best products or services for their existing customers. With limited demographic information and indicators of active subscription to 21 products, they sought recommendations for three other offerings.

Our Approach

Leveraging QUALCO Data-Driven Decision Engine's machine learning capabilities, we built predictive models for each product, calculating the probability of a customer converting upon receiving an offer. Then, we segmented the dataset to tailor our recommendations effectively.



QUALCO D3E IN ACTION

Step 1 Model Development

Using data analysis, QUALCO Data-Driven Decision Engine automatically identified relevant predictive factors such as:



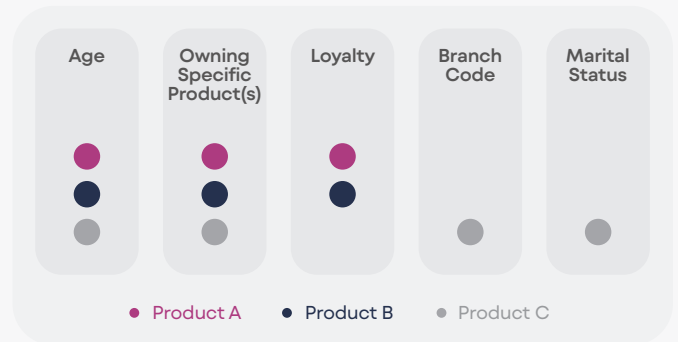
This process tailors the next-best product recommendations, enabling more effective targeted marketing campaigns. Through detailed analysis, the model linked these predictive factors to each product:

○ Products A & B

They exhibited significant correlations to age, ownership of specific products, and customer loyalty.

○ Product C

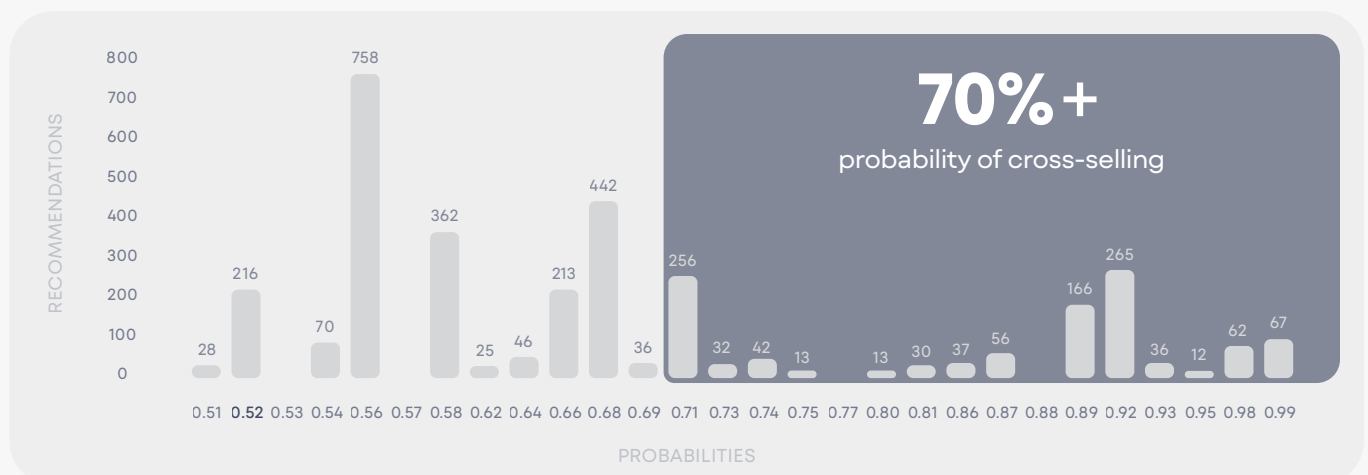
Its dynamics were influenced by age, ownership of specific products, branch code, and marital status.



Overview of predictive factors related to each product

Step 2 Customer Segmentation

We assessed the potential for sales uplift across different products by segmenting customers based on their likelihood to respond positively to cross-selling initiatives. This segmentation strategy allowed the institution to specifically target customers with a **50% or higher** likelihood of conversion, focusing outreach efforts primarily on those with a **70% or higher** probability of success in cross-selling.



Identifying which customers should be contacted first

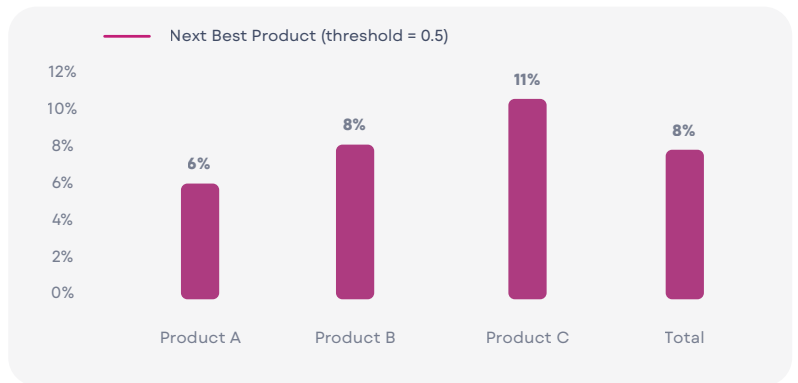
Step 3 Marketing Strategy Formulation

With a refined understanding of customer preferences, we helped design targeted marketing campaigns that maximised conversion rates, resulting in an 8% increase in overall sales uplift.

RESULTS

Increased Sales Uplift

Ensured higher sales uplift for the three products of interest.



Sales Uplift Reported per product

Enhanced Customer Loyalty

Fostered stronger customer relationships through personalised recommendations, increasing loyalty and returns.

Gained Marketing Insights

Unlocked valuable insights into customer behaviour, enabling targeted marketing campaigns tailored to specific segments. Notable strategies include:

- Targeting relatively new clients with a particular product resulted in a **27%** sales uplift in the proposed segment.
- Focusing on relatively new customers aged **30-60** who had previously engaged with another product achieved a **58%** conversion rate when targeted for a subsequent product.



About

QUALCO Data-Driven Decisions Engine

QUALCO Data-Driven Decision Engine is an integrated decision-making platform that automates every stage of the credit portfolio and collections analytics workflow. It empowers:

- **Data Organisation** to keep track of one's portfolio's changes easily
- **Data Processing** to transform and sequence data for analytical insights
- **Machine Learning capabilities** to understand customer behaviours and segments
- **Tailored Treatments** to customise actions for various customer groups, enhancing performance
- **Strategic Insights** to shape treatment strategies and estimate their impact on profitability
- **Regulatory Compliance**, by generating compliance reports based on analysis results

Designed for any business that manages credit, QUALCO Data-Driven Decision Engine equips financial institutions and servicers with the tools to transform raw data into actionable insights. By leveraging advanced analytics and machine learning algorithms, organisations can unlock untapped potential, drive operational efficiency, and deliver exceptional customer value.



**Embark on your journey towards optimised strategies
and sustainable growth with QUALCO.**





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