

# AI-Driven Banking Risk & Loan Performance Analytics Dashboard

Developing a comprehensive understanding of risk analytics in banking and financial services to minimize the risk of losing money while lending to customers through data-driven decision making.



## CHALLENGE

# The Problem We're Solving

Banks face a critical challenge: how to make informed lending decisions that minimize financial risk while serving customers effectively. Traditional methods often lack the data-driven insights needed to accurately assess an applicant's likelihood of loan repayment.

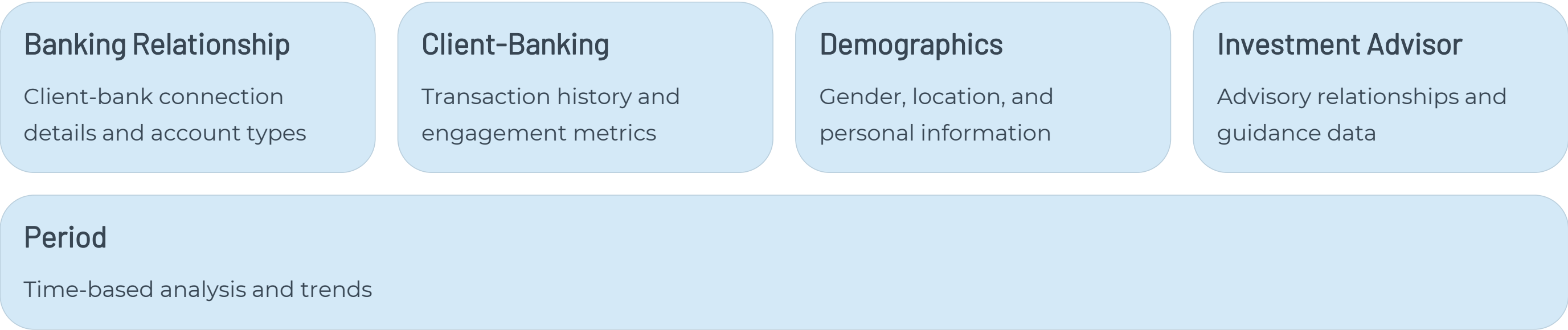
Our solution leverages Power BI's latest tools to create interactive dashboards that analyze applicant profiles comprehensively. These dashboards enable banks to make confident approval decisions based on concrete data patterns and risk indicators, transforming raw banking data into actionable intelligence.

## Key Capabilities

- Real-time risk assessment
- Applicant profile analysis
- Data-driven loan decisions
- Comprehensive client insights

# Understanding Our Dataset

The foundation of our risk analytics system is a comprehensive dataset containing detailed bank and client information. This multi-table structure provides a 360-degree view of banking relationships and client profiles.



These tables are interconnected through primary and foreign keys, enabling comprehensive cross-referential analysis and deep insights into client behavior and risk profiles.

# Data Cleaning & Transformation

We implemented sophisticated data cleaning processes to enhance the dataset's analytical value. Three critical transformations were applied to create actionable insights from raw banking data.

01

## Engagement Timeframe

Created timeline categories based on client tenure: <1 year, <1.5 years, <5 years, <10 years, and >10 years, providing clear segmentation of client relationships.

03

## Income Bands

Categorized estimated income into Low (<\$100K), Mid (\$100K-\$300K), and High (>\$300K) bands for risk stratification and targeted analysis.

02

## Engagement Days

Calculated the exact number of days from joining date to present using DATEDIFF function, enabling precise tenure analysis and relationship maturity assessment.

04

## Processing Fees

Mapped fee structures to processing rates: High (0.05), Mid (0.03), Low (0.01), automating fee calculations across all client accounts.

# Power BI Functions Powering Our Analytics

## SUM

Aggregates all numbers in a column, returning decimal totals for financial calculations.

```
Bank Deposit =  
SUM('Clients - Banking'[Bank Deposits])
```

## DISTINCTCOUNT

Counts unique values in a column, essential for client counting and deduplication.

```
Total Clients =  
DISTINCTCOUNT('Clients - Banking'[Client ID])
```

## SUMX

Evaluates expressions row-by-row before summing, perfect for calculated totals.

```
Total Fees =  
SUMX('Clients - Banking',  
[Total Loan] * [Processing Fees])
```

## SWITCH

Evaluates expressions against value lists, returning conditional results for categorization.

```
Income Band =  
SWITCH(TRUE(),  
[Estimated Income] < 100000,  
"Low",  
[Estimated Income] < 300000,  
"Mid",  
"High")
```

## DATEDIFF

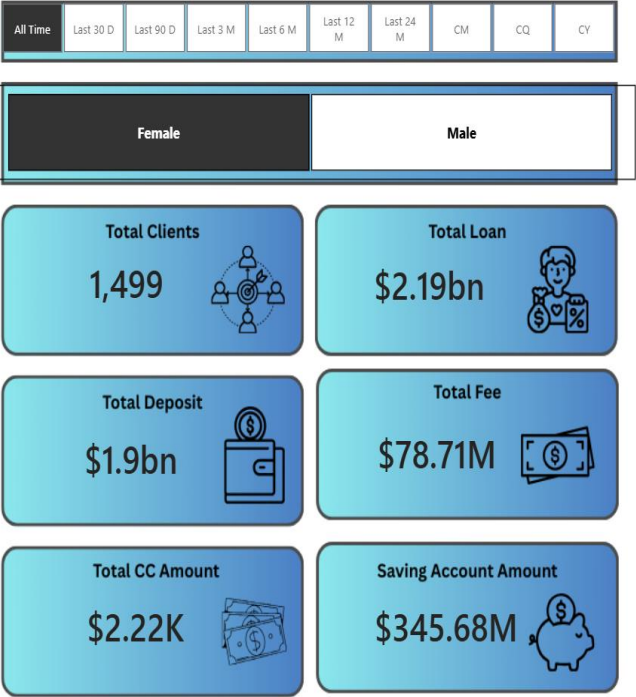
Calculates interval boundaries between dates for tenure and engagement analysis.

```
Engagement Days =  
DATEDIFF([Joined Bank],  
TODAY(), DAY)
```

AI-DRIVE BANKING RISK & LOAN  
PERFORMANCE ANALYTICS  
DASHBOARD



- DEPOSIT ANALYSIS
- LOAN DEPOSIT
- SUMMARY



# Key Performance Indicators

Our dashboard tracks 12 critical KPIs that provide comprehensive insights into banking operations, client relationships, and financial health. These metrics enable real-time risk assessment and strategic decision-making.

1,333

Total Clients

Distinct count of all banking clients

\$1.99bn

Total Loan

Combined bank loans, business lending, and credit card balances

\$814.22M

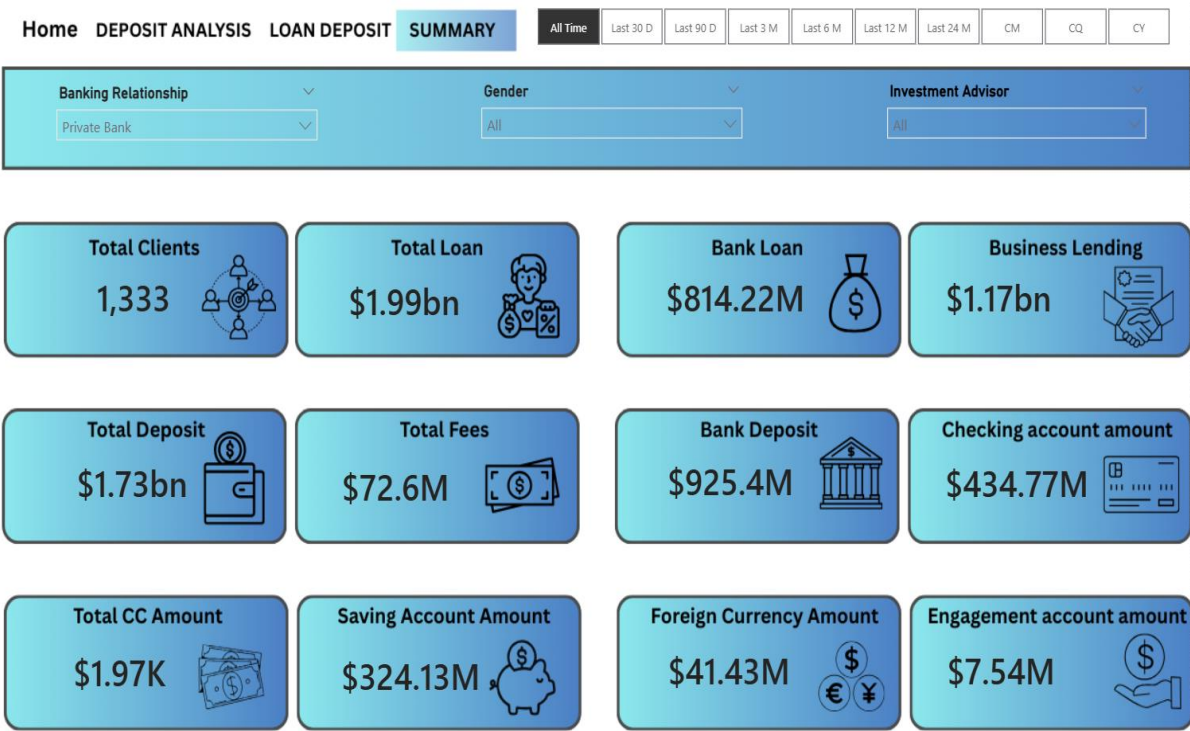
Bank Loan

Total loan amounts to be repaid by clients

\$1.17bn

Business Lending

Loans provided to small businesses



# Deposit & Account Metrics

## Total Deposit

**\$1.73bn**

Sum of all deposit types: bank deposits, savings, foreign currency, and checking accounts

## Bank Deposit

**\$925.4M**

Money deposited directly into bank accounts

## Savings Account

**\$324.13M**

Interest-bearing deposit accounts

## Foreign Currency

**\$41.43M**

Accounts held in non-domestic currencies

## Checking Accounts

**\$434.77M**

Funds in accounts for daily transactional needs

## Total Fees

**\$72.6M**

Account setup and maintenance charges



# Four Powerful Dashboard Views



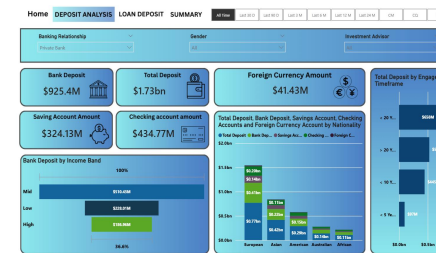
## Home Dashboard

Central hub displaying total clients (2,940), total loans (\$4.38bn), total deposits (\$3.77bn), and total fees (\$158.19M) with gender-based filtering and time period selection.



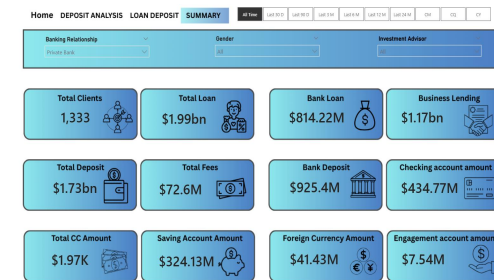
## Loan Analysis

Detailed breakdown of bank loans (\$814.22M), business lending (\$1.17bn), and credit cards (\$4.28M) by nationality and banking relationship, with European clients leading at \$0.36bn.



## Deposit Analysis

Comprehensive view of deposits by income band (Mid: \$510.43M, Low: \$228.01M, High: \$186.96M) and engagement timeframe, with nationality-based segmentation.



## Summary Dashboard

Complete overview of all 12 KPIs including total clients (1,333), loans, deposits, fees, and account amounts, providing a holistic view of banking operations.





# Key Insights & Strategic Value

Our Power BI dashboards deliver actionable intelligence that transforms banking operations. The data reveals critical patterns and opportunities for strategic decision-making.



## Investor Intelligence

Banks can instantly access complete loan amounts and financial profiles for any investor, enabling rapid risk assessment and personalized service.



## Competitive Strategy

Private banks dominate with the highest client counts. Other banking institutions can leverage these insights to develop targeted strategies for client acquisition.



## Nationality Patterns

European clients represent the largest loan segment at \$0.36bn, followed by Asian (\$0.20bn) and American (\$0.13bn) clients, informing market focus and resource allocation.

# Conclusion & Future Opportunities

## Proven Impact

Power BI dashboards represent one of the most effective resources for the banking sector, transforming complex data into clear, actionable insights for risk management and strategic planning.

## Future Enhancements

- Predictive analytics for loan default probability
- Real-time fraud detection algorithms
- Customer lifetime value modeling
- Automated risk scoring systems
- Integration with external credit bureaus
- Machine learning for pattern recognition

By empowering banks with comprehensive visibility into client relationships, account types, and financial behaviors across nationalities and demographics, these dashboards minimize lending risk while maximizing operational efficiency and customer satisfaction.