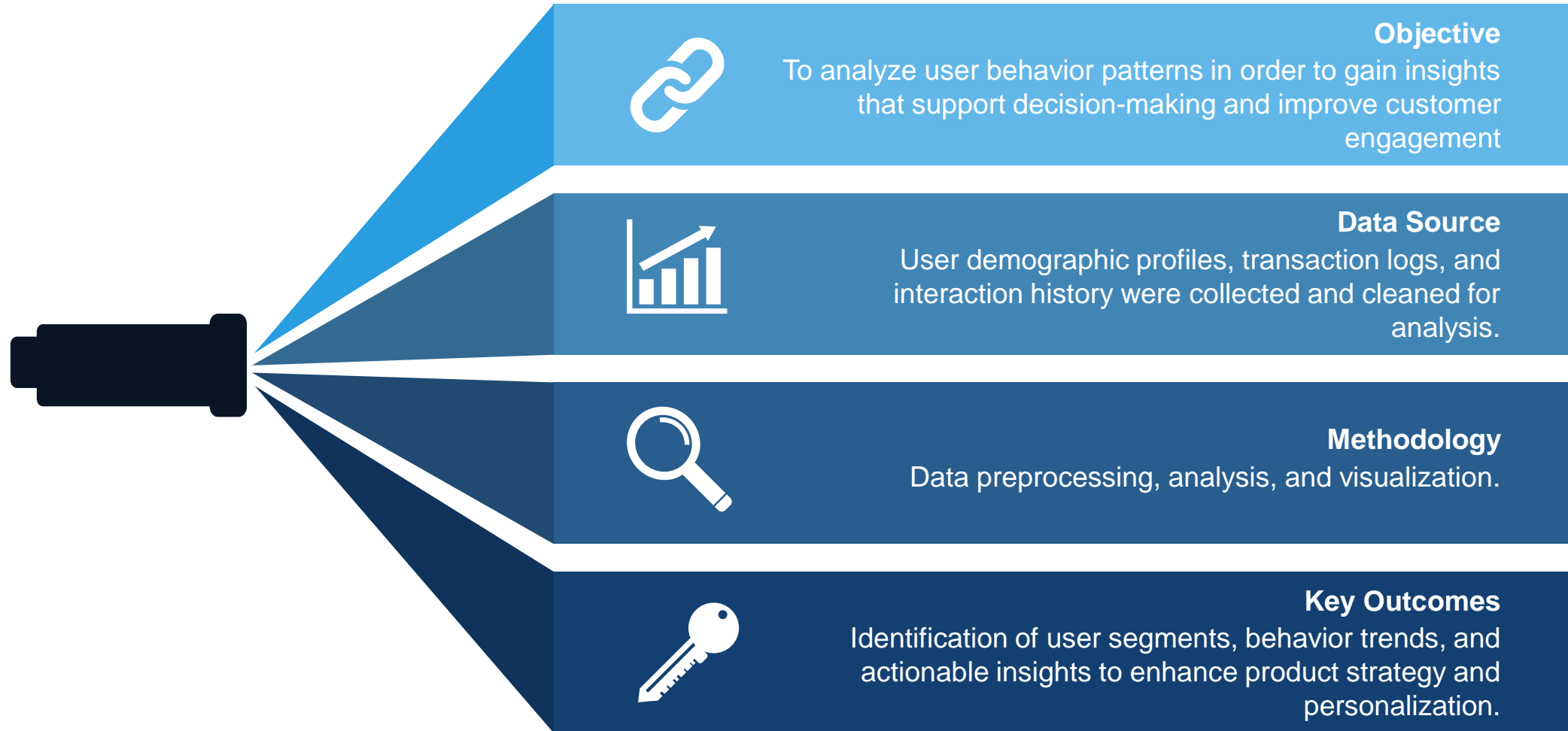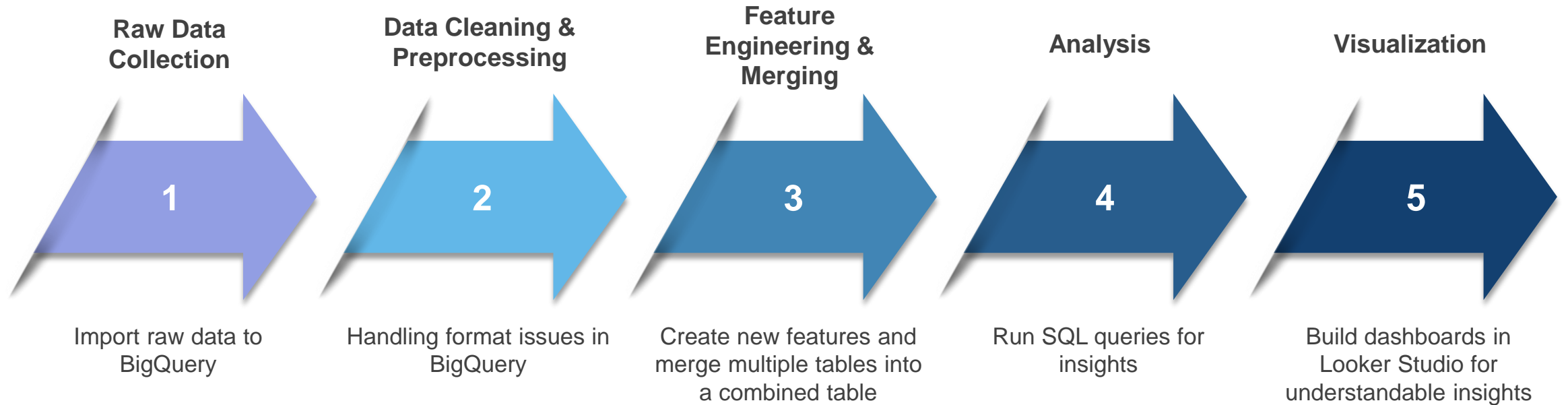Project by Wanda Armadianti

User & Credit Transaction Analytics

End to end analysis of user, card, and transaction data to understand customer behavior and detect potential risks
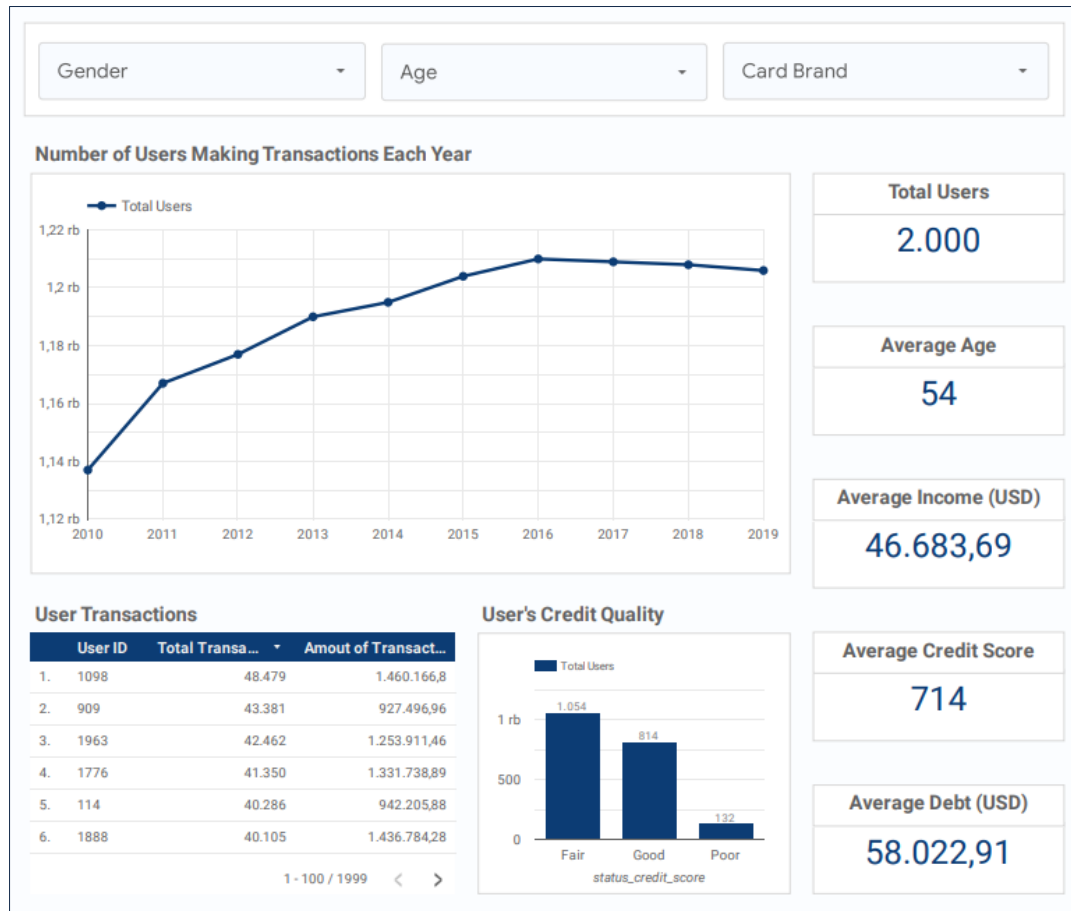
Project Overview

Objective
To analyze user behavior patterns in order to gain insights that support decision-making and improve customer engagement

Data Source
User demographic profiles, transaction logs, and interaction history were collected and cleaned for analysis.

Methodology
Data preprocessing, analysis, and visualization.

Key Outcomes
Identification of user segments, behavior trends, and actionable insights to enhance product strategy and personalization.

Data Pipeline

Raw Data Collection

1

Import raw data to BigQuery

Data Cleaning & Preprocessing

2

Handling format issues in BigQuery

Feature Engineering & Merging

3

Create new features and merge multiple tables into a combined table

Analysis

4

Run SQL queries for insights

Visualization

5

Build dashboards in Looker Studio for understandable insights

User Analysis

User Profile
The platform's users are primarily mature, financially capable individuals, though their debt burden is notable.

Trends
Number of users making transaction increased from 2010 until about 2016, but slowed after 2016, possibly due to market saturation or the emergence of new competitors.
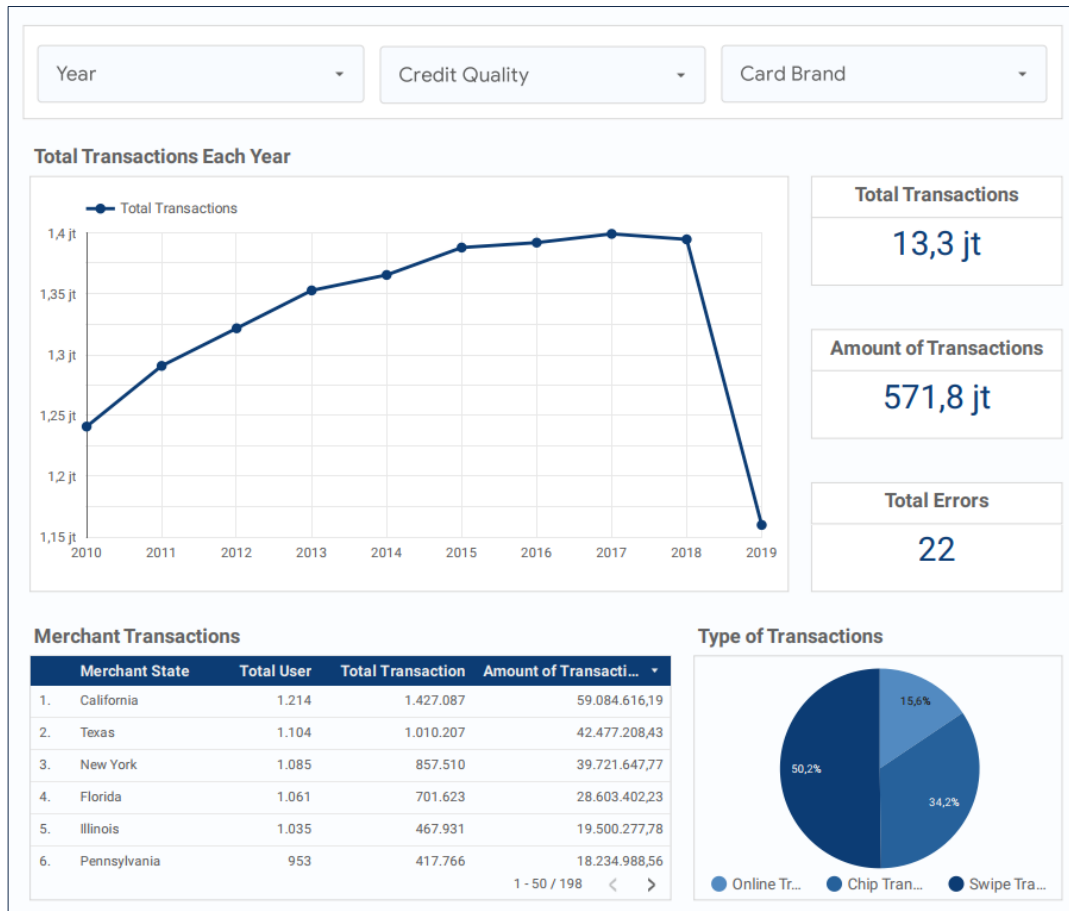
Transaction Behavior
Power users play a critical role in revenue; retaining and rewarding them is essential.

Credit Quality of Users
Most users fall into Fair and Good categories, meaning the platform has a relatively healthy credit base with limited high-risk users.

Transaction Analysis

Trend
Transactions grew well from 2016 to 2018 but dropped sharply in 2019. This signals a slowdown or operational issue that needs review.

Performance
13.3M transactions worth $571.8M with only 22 errors. The system is highly reliable and accurate.

Merchant States
Most merchant comes from California, Texas, and New York. A few regions dominate the market.

Transaction Types
Online leads at 50.2%, then Chip 34.2% and Swipe 15.6%. Digital use is rising but card-present is still important.

Card Analysis

Trend
Number of cards used for transaction increased until 2016 then flattened and dropped by 2019 means the bank was good at growing early but failed to sustain momentum.

Card per User
Most clients hold only 1 or 2 cards. Very few own 3. This shows customers prefer simplicity and do not spread spending across many cards.

Brand Share
Mastercard dominates at 45.6 percent. Visa follows with 38.4 percent. Amex and Discover are small. The bank depends heavily on two brands and could diversify.

Portfolio Size
6,146 cards with the highest credit limit of 151,223. No signs of fraud on the dark web. This shows risk management is strong but card growth is limited.

Business Recommendations

1
Loyalty & Retention Program for Power Users

Since power users drive a significant share of revenue, the platform should implement loyalty programs such as cashback, reward points, or exclusive access. This helps retain high-value users and reduces the risk of churn to competitors.

2
Service Diversification & Strategic Partnerships

User growth slowed after 2016, likely due to market saturation and rising competition. To address this, the platform could expand into new services (e.g., investment products or micro-credit) and build partnerships with merchants or fintech players.

3
Investigate the Root Cause of the 2019 Transaction Decline

The sharp drop in 2019 is a major red flag threatening revenue and business growth. Ignoring this could be detrimental. The company must immediately allocate resources to understand "why" this happened.

4
Implement a Dual Growth Strategy: Dominate & Expand

The high market concentration in California, Texas, and New York is a strength but also a risk due to over-reliance. The most powerful forward-looking strategy is to leverage this solid base for smarter growth.

5
Implement a Customer Deepening & Reactivation Program

The data shows that growth has stalled and reversed, and most customers hold only 1-2 cards. This indicates a failure to engage the existing customer base. The most immediate opportunity is to extract more value from current clients.

6
Restart Acquisition with a New, Targeted Card Product

With only 6,146 cards, the portfolio is small and growth is limited. This suggests the current product offering is no longer competitive or appealing enough to attract new customers. The bank needs to re-enter the market with a fresh proposition.

THANK YOU