

Project Report

Project-7: Financial KPI Analysis for a Startup

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Duration: **1 month**

Tools Used: **Python (Pandas, NumPy), Excel, Power BI**

1. Introduction

Understanding key financial metrics is critical for early-stage startups to evaluate growth, profitability, and customer value. This project simulates 18 months of synthetic financial data to analyze the performance of a fictional startup using data analytics and visualization.

2. Abstract

The objective of this project is to track and analyze the startup's revenue, expenses, marketing spend, and customer base to compute key financial KPIs: Customer Acquisition Cost (CAC), Customer Lifetime Value (LTV), Burn Rate, and the LTV:CAC Ratio. Visualizations were created in Power BI to display trends and relationships between these metrics. The goal is to assist stakeholders in making strategic decisions backed by data.

3. Tools Used

- Python (Pandas, NumPy): For generating and cleaning the synthetic dataset.
 - Excel: To manually inspect data.
 - Power BI: To build an interactive dashboard with line charts, bar charts, KPI cards, and slicers.
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4. Steps Involved in Building the Project

1. Data Creation:

Generated a 547-row synthetic dataset containing daily financial metrics: revenue, expenses, marketing spend, and customer counts.
Added a YearMonth column for monthly aggregation.

2. KPI Calculation:

Calculated Burn Rate = Expenses + Marketing Spend – Revenue.

CAC = Marketing Spend / New Customers.

LTV = Average Revenue per Customer × Estimated Lifetime.

LTV:CAC Ratio = LTV / CAC.

3. Data Aggregation:

Aggregated data by YearMonth to analyze monthly trends.

Created summary metrics like total revenue, average CAC, and total customers.

4. Dashboard Development in Power BI:

- KPI Cards for total revenue, CAC, LTV, and burn rate.
- Line Chart: Revenue vs. Total Spend over time.
- Bar Chart: Monthly LTV vs CAC.
- Pie Chart: Customer Composition (New vs Retained).
- Burn Rate Column Chart to highlight profitable vs. Loss-making months.
- Slicer for filtering by month using YearMonth.

5. **Conclusion**

The financial KPI dashboard reveals consistent revenue growth and an LTV:CAC ratio above the industry benchmark of 3.0. Burn Rate turned positive in the final quarter, suggesting improved financial discipline. The startup also showed strong retention, indicating customer satisfaction. This project showcases how data-driven insights can guide sustainable and scalable startup growth.
