



## BANKING KPI DASHBOARD BY USING POWER BI

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### ABSTRACT

The Banking KPI Dashboard project is designed to create a robust, interactive, and scalable platform for monitoring, analyzing, and visualizing key performance indicators across banking operations. In the modern financial landscape, banks handle vast volumes of transactional, operational, and customer data daily, which, if not properly analyzed, can result in missed opportunities, operational inefficiencies, and increased financial risks. The proposed system addresses this challenge by consolidating data from multiple internal and external sources—including financial records, loan portfolios, customer databases, and digital banking channels—into a centralized interface that provides real-time, actionable insights. The dashboard tracks critical financial KPIs such as Net Interest Margin, Return on Assets, and Cost to-Income Ratio, as well as operational and customer-related metrics like Loan Default Rate, Customer Churn Rate, and Digital Transaction Volume. Through interactive charts, graphs, and KPI cards, stakeholders can quickly identify trends, detect anomalies, and make data-driven decisions, enhancing operational efficiency, profitability, and customer satisfaction. The system is designed with usability in mind, providing customizable views, drill-down analysis, and automated updates to ensure accuracy, transparency, and accessibility for executives, branch managers, analysts, and operational teams. Beyond monitoring current performance, the dashboard is built to support predictive and prescriptive analytics, allowing banks to forecast potential risks, evaluate alternative strategies, and proactively manage both operational and financial challenges. This forward-looking capability enables informed decision-making, improved resource allocation, and the implementation of strategic initiatives to enhance growth and competitive advantage. Furthermore, the system aligns with the broader trend of digital transformation in banking,



integrating advanced visualization tools, automated reporting, and AI-driven insights to support continuous improvement and innovation.

## I INTRODUCTION

In the modern financial environment, banks handle a vast amount of data generated from daily operations such as customer transactions, loan processing, deposits, withdrawals, credit card usage, and digital banking services. Managing and analyzing this large volume of information is essential for banks to maintain operational efficiency, financial stability, and customer satisfaction. However, traditional methods of data analysis often rely on manual reports and spreadsheets, which can be time consuming and may not provide real-time insights. Therefore, there is a growing need for advanced data analysis tools that can transform complex banking data into meaningful and easily understandable information. A Banking KPI Dashboard is an effective solution that helps financial institutions monitor and evaluate their performance using key performance indicators (KPIs). KPIs are measurable values that indicate how effectively an organization is achieving its strategic and operational objectives. In the banking sector, important KPIs include metrics such as total deposits, total loans, non-performing assets (NPA), loan repayment rates, customer acquisition, revenue growth, and branch performance. Tracking these indicators regularly allows banks to assess their financial health and identify areas that require improvement. The purpose of a Banking KPI Dashboard is to present these key metrics in a visual and interactive format using charts, graphs, and summary indicators. By converting raw data into graphical representations, the dashboard allows managers and decision-makers to quickly understand trends, patterns, and performance levels. For example, bank executives can easily compare the performance of different branches, analyze customer growth over time, or monitor loan approval and default rates. This enables faster and more accurate decision-making.

## II LITERATURE SURVEY

The banking sector generates a large volume of data daily, making it essential to monitor key performance indicators (KPIs) efficiently. Research shows that dashboards and business intelligence tools help consolidate and visualize this data, allowing managers to track metrics such as deposits, loans, revenue, and customer growth. Data visualization techniques like charts and graphs simplify complex information, making it easier to identify trends, risks, and performance gaps. Interactive dashboards with filtering and drill-down options further enhance analysis and support faster, data driven decision-making. Studies also emphasize the importance of clear design and the use of tools like Power BI, Tableau, or Excel for creating

effective banking dashboards. Overall, KPI dashboards play a vital role in improving operational efficiency, transparency, and strategic planning in financial institutions.

### **III SYSTEM ANALYSIS**

The system focuses on analyzing and visualizing key performance indicators (kpis) of a banking organization using power bi. it collects data from multiple sources such as customer transactions, loan records, deposits, and account activities, and transforms it into meaningful insights. the dashboard provides a centralized view of important metrics like total deposits, loan disbursements, customer growth, revenue, and non-performing assets. through interactive visuals, filters, and real-time updates, decision-makers can easily monitor performance trends and identify areas that need improvement. the system also ensures data accuracy, security, and efficient reporting, helping bank management make faster and better strategic decisions.

#### **Existing system**

the existing system in banking organizations mainly relies on traditional methods such as manual data collection, spreadsheets, and basic reporting tools like Microsoft Excel. data from different departments like loans, deposits, and customer accounts is stored in separate systems, making it difficult to integrate and analyze efficiently. reports are usually generated periodically (daily or monthly), which delays decision-making and reduces the ability to track real-time performance. the process is time-consuming, prone to human errors, and lacks interactive visualization. as a result, management faces challenges in identifying trends, monitoring kpis effectively, and making quick strategic decisions.

#### **Disadvantages of existing system**

- depends heavily on manual work using tools like Microsoft Excel
- high chances of human errors in data entry and calculations
- no real-time data updates, reports are delayed
- difficult to combine data from multiple banking systems
- lacks interactive and visual dashboards

#### **Proposed system**

The proposed system uses Microsoft Power BI to create an advanced and interactive banking kpi dashboard. it integrates data from multiple banking sources such as transactions, loans, and customer databases into a single platform for better analysis. the system provides real-time data updates, ensuring accurate and up-to-date information for decision-making. through



interactive charts, graphs, and filters, users can easily monitor key metrics like revenue, deposits, and loan performance. It also improves data security, reduces manual effort, and minimizes errors. Overall, the system enhances efficiency, supports faster decision-making, and helps bank management gain deeper insights into business performance.

### Advantages of proposed system

- real-time data updates using Microsoft Power BI
- reduces manual work and saves time
- improves data accuracy and minimizes errors
- interactive dashboards with charts and visualizations
- easy integration of data from multiple sources

### IV METHODOLOGY

The methodology of the Banking KPI Dashboard project describes the systematic approach followed to collect, process, analyze, and visualize banking transaction data in order to generate meaningful insights for decision-making. The first step in this project involves collecting banking data from various sources such as Excel files, CSV files, and banking transaction records. The dataset contains important information including transaction amount, branch details, region, transaction type, date, deposits, withdrawals, and customer activities. This collected data serves as the input for the entire dashboard development process. After collecting the data, the next step is data preprocessing. In this stage, the raw dataset is cleaned and prepared to ensure accuracy and reliability. Data preprocessing includes removing duplicate records, handling missing or incomplete values, correcting inconsistent data formats, and eliminating irrelevant data entries. These steps help improve the quality of the dataset and ensure that the data used for analysis is consistent and error-free. Once the data cleaning process is completed, the data is transformed into a suitable format for analysis. Data transformation is performed using Power Query tools available in Microsoft Power BI. During this stage, different operations such as filtering columns, merging datasets, and creating calculated columns are performed. The transformed data is then structured in a way that supports efficient data analysis and visualization. After transforming the data, the next step is data modeling. Data modeling organizes the dataset into structured tables and establishes relationships between them. Various calculated measures are created during this stage, such as total transaction amount, total deposits, total withdrawals, total number of transactions, and average transaction value. These calculated measures are essential for evaluating banking performance and generating key performance indicators. Following data modeling, the processed data is visualized using different types of charts and graphical

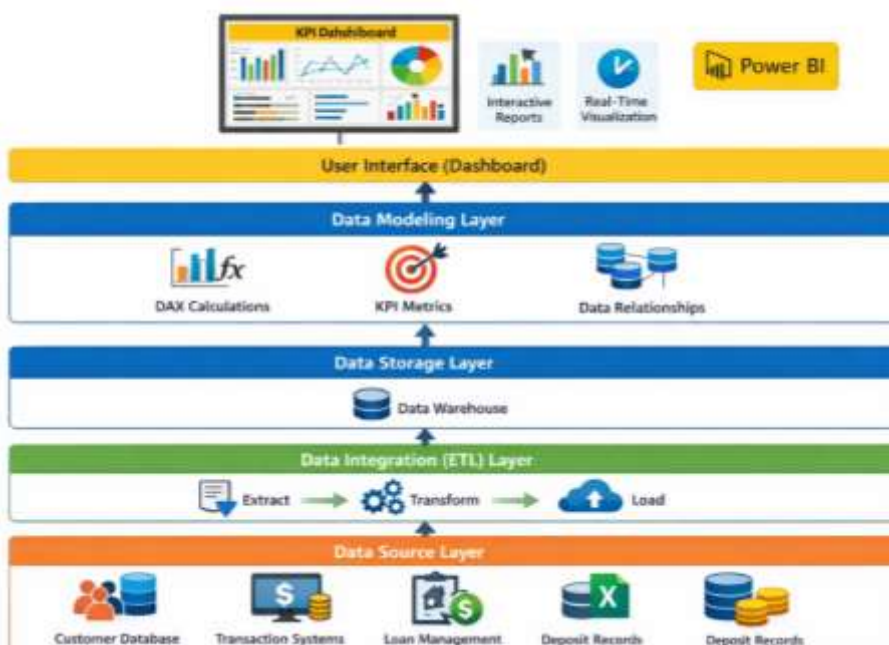
representations. The visualization stage uses features available in Microsoft Power BI to create interactive charts such as bar charts, pie charts, line graphs, and KPI cards. These visualizations help represent complex banking data in an easy-to-understand format, allowing users to quickly identify patterns, trends, and performance metrics.

### System Architecture

The existing system in most traditional banks relies heavily on manual reporting and static spreadsheets to monitor financial and operational performance. Key performance indicators (KPIs) such as total deposits, loans, revenue, non-performing assets (NPA), and customer growth are tracked through separate departments using individual reporting tools. These reports are often generated periodically, such as weekly or monthly, and are not updated in real-time. Limitations of the Existing System:

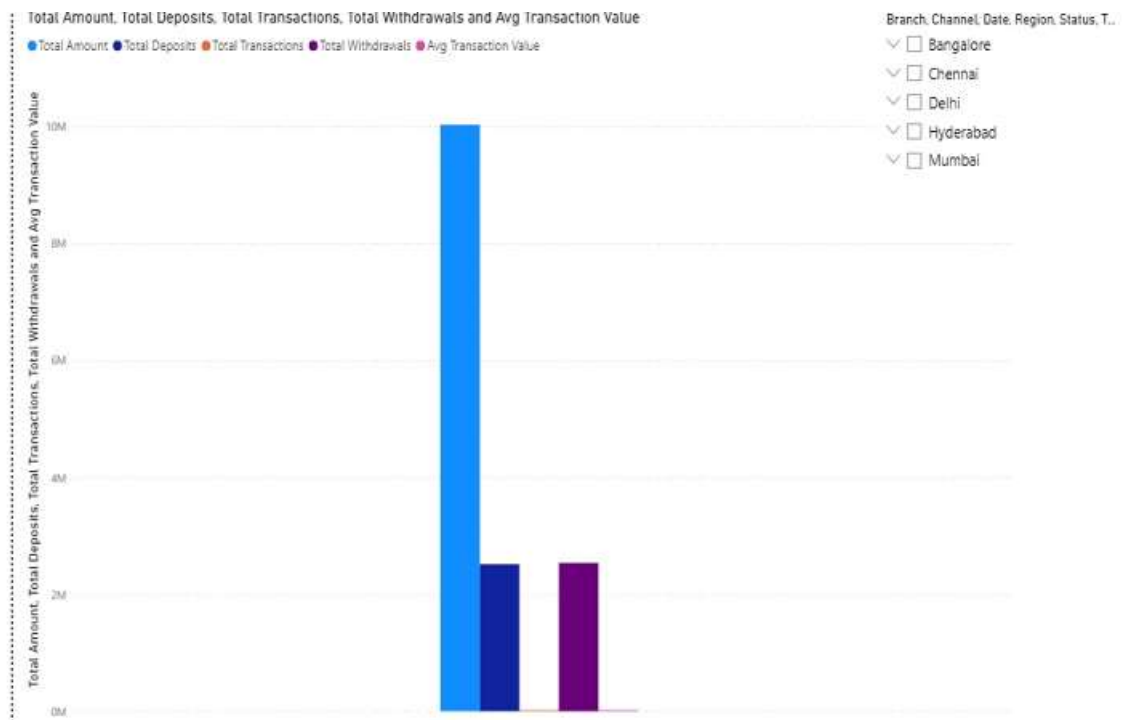
1. Manual and Time-Consuming – Bank employees spend significant time collecting data from multiple sources, compiling reports, and analyzing them.
2. Fragmented Data – Different departments maintain data separately, which makes it difficult to get a comprehensive overview of overall bank performance.
3. Delayed Insights – Reports are static and updated infrequently, leading to delays in identifying trends, risks, or operational issues.
4. Limited Visualization – Data is often presented in tabular form, making it difficult to quickly interpret trends or compare performance metrics across branches or products.
5. Lack of Interactivity – Users cannot filter, drill down, or explore data dynamically to gain deeper insights, limiting decision-making capabilities.
6. Error-Prone – Manual data handling increases the chances of errors, which can affect the accuracy of performance analysis.

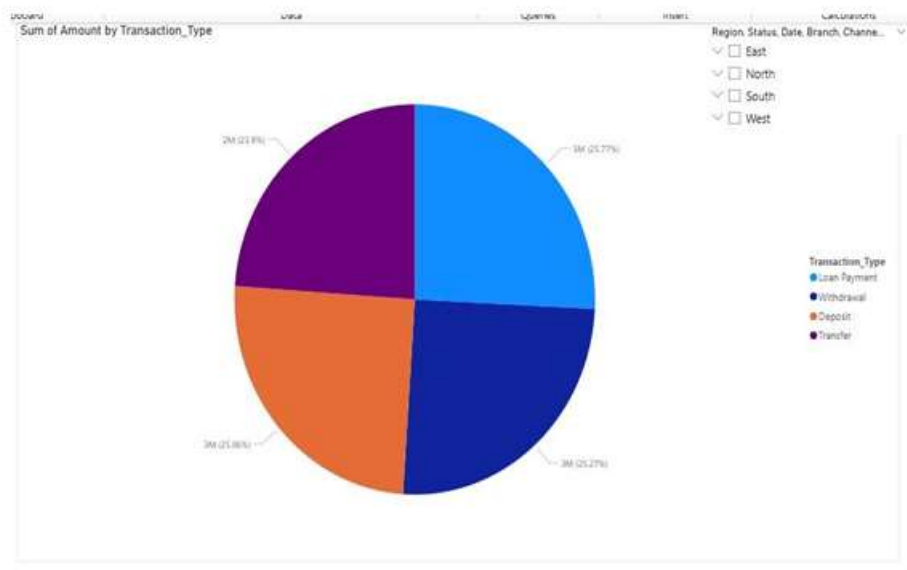
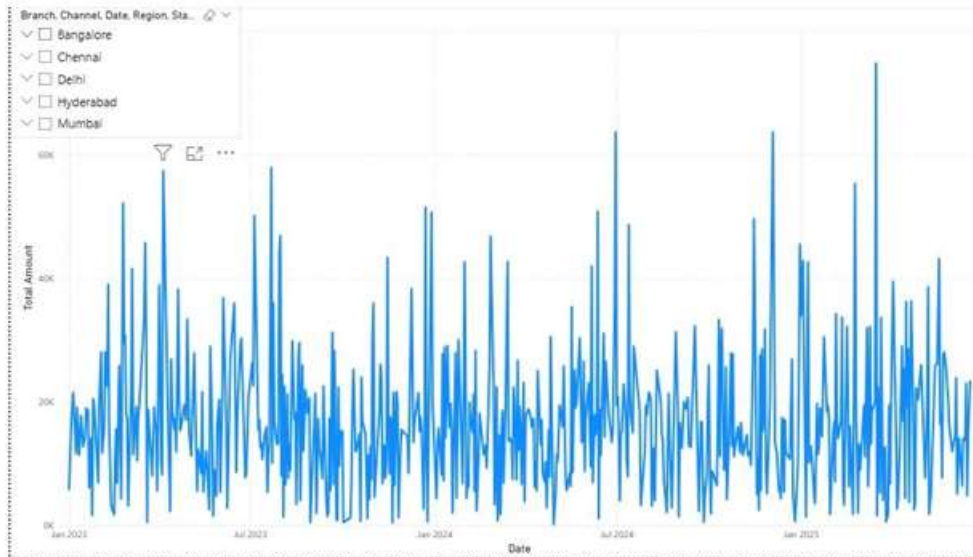
**Banking KPI Dashboard System Architecture**





## V RESULTS&OUTPUT





## VI CONCLUSION

The Banking KPI Dashboard serves as a vital tool for transforming complex banking data into meaningful insights. By consolidating financial, operational, and customer metrics into a single interactive platform, it allows banks to monitor performance in real time, identify trends, and make data-driven decisions. Key performance indicators such as Net Interest Margin, Loan Default Rate, and Customer Churn Rate provide a clear picture of financial health, operational efficiency, and customer engagement, enabling management to address



challenges proactively and optimize strategies. Beyond performance monitoring, the dashboard enhances transparency and collaboration across teams. Technical teams can use the underlying code and data workflows to maintain and expand the system, while business managers and stakeholders can easily interpret the visualizations to guide strategic planning. Its scalability ensures that new KPIs, data sources, or predictive analytics models can be incorporated, making it adaptable to evolving banking needs and technological advancements. In essence, the dashboard bridges the gap between raw data and actionable intelligence. It not only tracks the present state of banking operations but also supports forecasting, risk management, and decision-making for the future. By integrating key metrics into an accessible and comprehensible interface, the Banking KPI Dashboard empowers organizations to improve operational performance, enhance customer satisfaction, and maintain a competitive edge in an increasingly data-driven financial landscape. The Banking KPI Dashboard represents a strategic convergence of data, technology, and decision-making within modern banking operations. It transforms large volumes of transactional, financial, and customer data into clear, actionable insights, allowing banks to monitor performance across multiple dimensions simultaneously

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