



A Study on Design and Development of Interactive Business Dashboards Using Power BI for Data Visualization and Reporting: Sri Lakshmi Supermarket, Hyderabad

Alciya Reji¹ & Mr. M. Anthony²

¹Student Scholar

HT No: 1326-24-672-121

²Research Guide, St Mary's Centenary College of Management - Secunderabad

Corresponding Author – Alciya Reji

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Abstract:

Data visualization plays a major role in improving business reporting and decision-making in modern organizations. Retail businesses generate large volumes of data every day from sales transactions, inventory records, billing systems, and customer activities. This study focuses on the design and development of interactive business dashboards using Microsoft Power BI for Sri Lakshmi Supermarket, Hyderabad. The main objective of the study is to convert raw business data into meaningful insights through interactive dashboards and visual reports.

The study helps management analyze sales performance, inventory status, product demand, and operational efficiency more effectively. Primary data was collected through questionnaires from employees and management staff, while secondary data was collected from journals, books, websites, and business reports. A sample size of 50 respondents was used for the study.

The findings indicate that Power BI dashboards improve reporting accuracy, reduce manual work, save time, and support faster decision-making. The study concludes that Power BI is an effective business intelligence tool for retail organizations and helps improve operational efficiency and business performance.

Keywords: Power BI, Data Visualization, Business Intelligence, Interactive Dashboards, Retail Analytics, Inventory Management, Sales Analysis, Decision-Making.

Introduction:

In today's digital business environment, organizations generate large amounts of data from daily operations such as sales transactions, customer interactions, inventory management, and financial activities. Managing this data effectively is important for improving operational efficiency and business performance. Traditional reporting methods using manual records and spreadsheets are often time-consuming and do not provide real-time insights for effective decision-making.

Data visualization helps businesses convert complex data into charts, graphs, and dashboards that are easy to understand. Business Intelligence tools such as Microsoft Power BI enable organizations to analyze data and generate interactive dashboards for better reporting. Power BI allows businesses to integrate data from multiple sources and create visual reports that support managerial decision making.

This study focuses on the design and development of interactive dashboards using Power BI for Sri Lakshmi Supermarket,

Hyderabad. The study aims to understand how dashboards improve sales analysis, inventory management, and operational performance through real-time reporting and data visualization.

Problem Statement:

Many retail businesses still depend on traditional reporting systems and manual data analysis methods. These methods are time-consuming, prone to errors, and do not provide real-time business insights. Sri Lakshmi Supermarket faces challenges in managing sales, inventory, and operational data efficiently. Therefore, there is a need for an advanced business intelligence tool like Power BI that can improve data visualization, simplify reporting, and support better business decision-making.

Review of Literature:

Previous studies explain that business intelligence tools and data visualization techniques improve organizational performance and decision-making. Smith and Taylor (2020) stated that interactive dashboards help managers understand complex business data easily. Brown et al. (2019) highlighted that BI tools improve reporting accuracy and operational efficiency.

Johnson (2021) explained that Power BI dashboards help organizations analyze sales trends and customer behavior effectively. Sharma and Gupta (2019) found that data visualization tools improve reporting speed and support quick decision-making in retail businesses. These studies show that Power BI dashboards play an important role in improving business reporting and operational efficiency.

Objectives of The Study:

1. To study the role of Power BI in business data visualization.
2. To design interactive dashboards for sales and inventory analysis.

3. To analyze the effectiveness of Power BI dashboards in improving decision-making.
4. To study the impact of dashboards on operational efficiency at Sri Lakshmi Supermarket.

Research Questions:

1. How does Power BI improve business reporting and data visualization?
2. What benefits do interactive dashboards provide to retail businesses?
3. How effective are Power BI dashboards in supporting managerial decision-making?

Research Methodology:**1. Research Design:**

The study follows a descriptive research design to analyze the effectiveness of Power BI Dashboard in business reporting.

2. Sample Size:

The study was conducted using sample size of 50 respondents including employee and manager

3. Sample Area:

The research was conducted at Sri Lakshmi Supermarket, Hyderabad

4. Data Collection:**Primary Data:**

Primary data was collected through structured questionnaire distribution to employee and manager

Secondary Data:

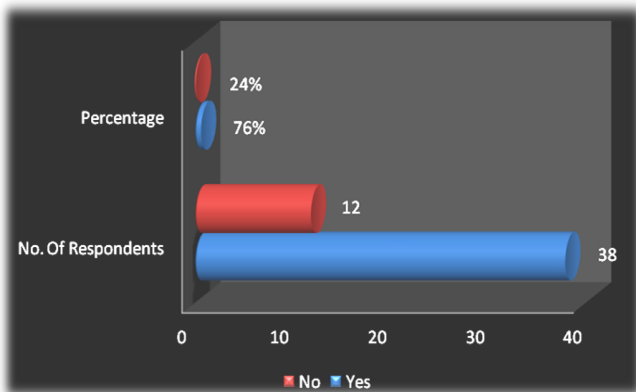
Secondary data was collected from journals, websites, reports and books related to BI and data visualisation.

5. Sampling Technique:

The study used simple random sampling collect responses from participants

Data Analysis:**Q1) Awareness of Power BI****Table 1:**

Response	No. Of Respondents	Percentage
Yes	38	76%
No	12	24%
Total	50	100%

Graph 1:**Analysis:**

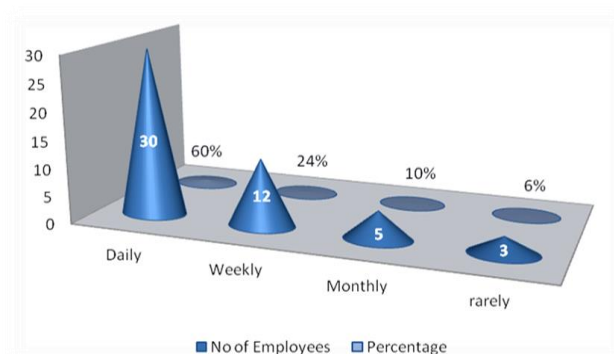
The majority of employees (76%) are aware of Power BI dashboards.

Interpretation:

This indicates that digital awareness within Sri Lakshmi Supermarket is strong. Most employees understand the importance of data visualization in reporting. However, 24% lack awareness, suggesting the need for awareness programs to ensure complete understanding of dashboard systems.

Q2) Frequency of Dashboard Usage**Table 2:**

Frequency	Daily	Weekly	Monthly	Rarely	total
No of Employees	30	12	5	3	50
Percentage	60%	24%	10%	6%	100%

Graph 2:**Analysis:**

Most employees access dashboards daily.

Interpretation:

The data reveals that 60% of employees use dashboards on a daily basis, indicating that Power BI is integrated into routine operations at

Sri Lakshmi Supermarket. This shows strong dependence on real-time data for decision-making. Very few employees use it rarely, suggesting that dashboard adoption is widespread and effective.

Findings:

1. Power BI dashboards help visualize complex business data in a simple format.
2. Interactive dashboards improve reporting efficiency and save time.
3. Management can monitor sales trends and inventory performance easily.
4. Dashboards support quick and accurate business decision-making.
5. Employees require training to effectively use advanced Power BI features.

Suggestions:

1. Sri Lakshmi Supermarket should provide Power BI training for employees.
2. The supermarket should use real-time dashboards for inventory monitoring.
3. Advanced Power BI features can be implemented for better forecasting and analysis.
4. Dashboard reporting should be integrated into daily business operations.

Conclusion:

Data visualization and interactive dashboards play an important role in improving business reporting and operational efficiency. The study shows that Power BI dashboards help Sri Lakshmi Supermarket analyze sales, inventory, and performance data effectively. The implementation of dashboards reduces manual reporting work, improves accuracy, and supports.

Overall, Power BI is an effective business intelligence tool for retail organizations and contributes to improved operational performance, transparency, and business growth.

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