Capstone Project 1 Report

Meta Ad Performance Analysis Dashboard

Domain: Digital Marketing Analytics

Tool: Power BI

By:SRAVAN KUMAR ERRA

Index

1. Introduction
2. Problem Statement
3. Objective
4. Tools & Technologies
5. Methodology
6. Data Description
7. Dashboard Design
8. Key Insights
9. Challenges Faced
10. Real-Life Applications
11. Conclusion
12. Future Scope
13. References

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1. Introduction

In today's digital era, online advertising plays a major role in business growth. Organizations invest significant budgets in social media platforms such as Facebook and Instagram to reach their target audience. However, without proper analytics, it becomes difficult to measure campaign effectiveness and return on investment.

This project focuses on analyzing Meta advertising data and developing an interactive dashboard to monitor ad performance, audience behavior, and conversion efficiency using Power BI.

2. Problem Statement

Marketing teams run multiple ad campaigns across platforms, targeting different audiences and regions. Due to large volumes of data, it becomes challenging to identify high-performing campaigns, track conversions, and optimize budget allocation.

The absence of a centralized and visual reporting system makes decision-making slow and inefficient. Hence, there is a need for an interactive dashboard to analyze Meta ad performance.

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3. Objective

The main objectives of this project are:

- To analyze campaign performance using key marketing metrics
- To monitor impressions, clicks, engagements, and purchases
- To evaluate conversion and engagement efficiency
- To identify high-performing audience segments
- To optimize budget utilization
- To support data-driven marketing decisions

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4. Tools & Technologies

Tool	Purpose
Microsoft Excel	Initial data review and validation
Power BI Desktop	Dashboard creation and visualization
Power Query	Data cleaning and transformation
DAX	KPI and measure creation
CSV Files	Source data

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5. Methodology

The project was executed using the following steps:

1. Data Import and Cleaning
    - Imported CSV files into Power BI
    - Removed duplicates and handled missing values
    - Standardized categorical fields
    - Converted data types
2. Data Analysis
    - Created calculated measures using DAX

    - Derived KPIs such as CTR and Conversion Rate
    - Segmented data by campaign, region, age, and gender
3. Dashboard Development
    - Designed layout and visual structure
    - Created charts and KPI cards
    - Added slicers and filters
    - Implemented cross-filtering
4. Validation
    - Verified results across visuals
    - Ensured logical consistency

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6. Data Description

Source: Meta Advertising Campaign Dataset

The dataset contains campaign-level and user-interaction data.

Key Fields:

- Campaign Name
- Platform (Facebook / Instagram)
- Impressions
- Clicks
- Shares
- Comments
- Engagements
- Purchases
- Budget
- Gender
- Age Group
- Country
- Ad Type
- Date and Time

Each row represents campaign performance or user interaction.

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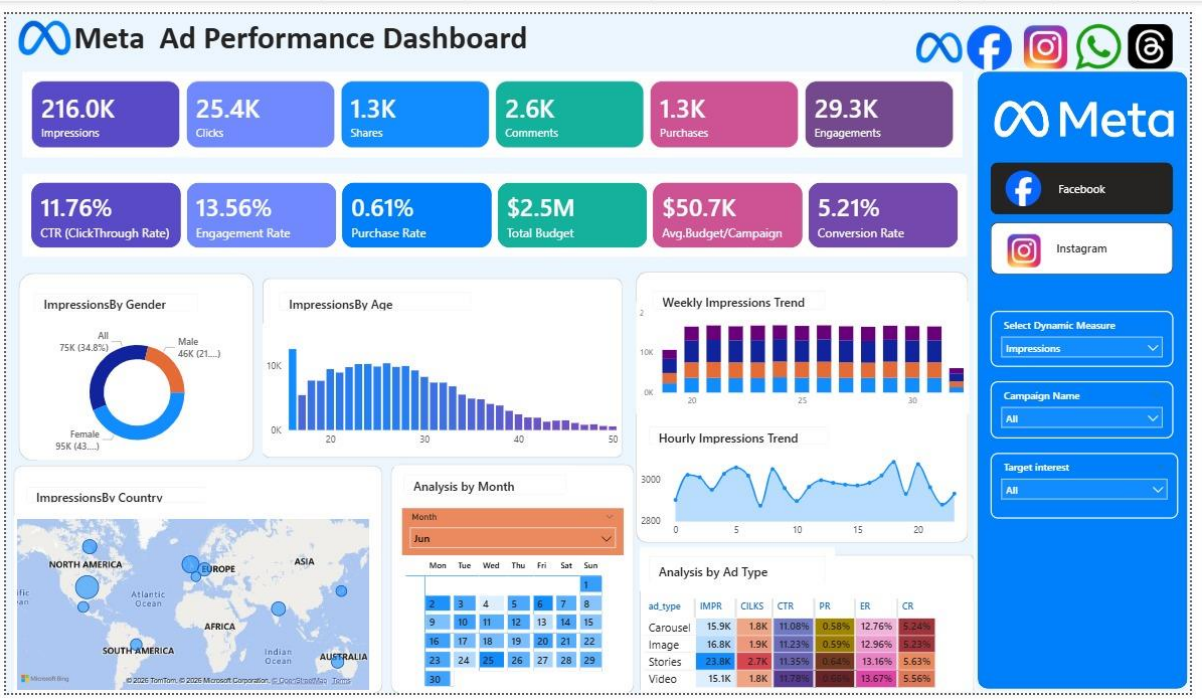
7. Dashboard Design

The dashboard is designed to provide a consolidated view of ad performance.



Sections:

1. KPI Cards
    - Total Impressions
    - Total Clicks
    - Total Engagements
    - Total Purchases
    - CTR
    - Conversion Rate
    - Total Budget
2. Demographic Analysis
    - Gender-wise Donut Chart
    - Age-wise Bar Chart
3. Geographic Analysis
    - Country-wise Map Visualization
4. Time-Based Analysis
    - Monthly Heatmap
    - Weekly Trend Chart
    - Hourly Area Chart
5. Ad Format Analysis

    - Ad Type Performance Matrix
6. Filters
    - Campaign Name
    - Platform
    - Interest Type
    - Dynamic Measure Selector

The dashboard allows users to interactively explore campaign performance.

8. Key Insights

Based on analysis, the following insights were observed:

1. Video and story ads show higher engagement and conversion rates.
2. Young users (18–30) generate maximum interactions.
3. Some campaigns have high clicks but low purchases, indicating funnel leakage.
4. Evening and late afternoon hours record peak engagement.
5. Certain regions contribute higher ROI than others.
6. Instagram campaigns show stronger engagement compared to Facebook in some segments.

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9. Challenges Faced

- Handling missing and inconsistent data
- Creating accurate KPI measures using DAX
- Managing large datasets
- Designing a balanced dashboard layout
- Ensuring filter logic consistency
- Optimizing performance of visuals

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10. Real-Life Applications

This dashboard can be used by:

- Digital Marketing Teams: To optimize campaigns
- Performance Analysts: To track KPIs
- Business Managers: To evaluate ROI
- Media Planners: To allocate budgets
- Executives: To monitor overall marketing performance

11. Conclusion

This project demonstrates how raw Meta advertising data can be transformed into meaningful insights using Power BI. The interactive dashboard enables effective campaign monitoring, performance evaluation, and strategic decision-making.

The project highlights practical skills in data cleaning, modeling, visualization, and business analysis.

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12. Future Scope

1. Integration with Meta Ads API for live data
2. Real-time dashboard refresh
3. Predictive modeling for conversions
4. Automated budget optimization
5. Advanced audience segmentation
6. Mobile dashboard deployment
7. Campaign recommendation system

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13. References

- Meta Ads Documentation
- Digital Marketing Analytics Resources