Data-Driven Evaluation of Blinkit's Outlet and Sales Performance with Power BI

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Abstract: *This project analyzes Blinkit's operational data using Power BI, giving the business insights into customer behavior, sales patterns, and delivery effectiveness. Power BI is a tool made by Microsoft that helps people see and understand data easily. It converts data into charts, graphs, and reports so that information becomes clear and easy to analyze. The project makes use of data visualization techniques to identify significant patterns that can influence choices and influence business results. Gathering, cleaning, modeling, and processing data in order to create DAX calculations that produce interactive dashboards. Key performance indicators (KPIs) such as total sales, average sales, number of items sold, and customer ratings are analyzed. You can observe how sales vary by product type (e.g., coffee, melons), native/foreign outlet size, outlet location, and facility establishment year by looking at different charts (bar, donut, and line). The findings indicated that the most important factors influencing urban consumers' use of Blinkit content were convenience and time savings. Service quality analysis offers practical insights that enhance user experience and loyalty by highlighting your strengths and areas for improvement. In addition to providing fresh insights that Blinkit and other platforms could use to customize their strategies in order to deliver better customer experiences and maintain relevance in a constantly changing landscape, the study plays a crucial role in expanding our understanding of q-commerce consumer behavior. .*

Keywords*: Power BI*

I. INTRODUCTION

The Indian quick-commerce sector, where platforms must balance historically high delivery speed demands with long-term retention economics, is a unique laboratory for studying modern consumer behavior. This study examines how Swiggy Instamart, Zepto, and Blinkit produce essentially different value propositions that go beyond operational data and appeal to different client psychographics.[5] Blinkit is a top online grocery delivery service that guarantees prompt and effective delivery of necessities to clients. Understanding consumer preferences, enhancing delivery efficiency, and optimizing sales tactics are critical for business growth in today's data-driven world.

The rapid advancement of technology has significantly altered consumer behavior in the digital age, particularly in the retail and e-commerce sectors.[2]

II. LITERATURE REVIEW

Business intelligence (BI) systems are essential for supporting data-driven decision making in the retail and e-commerce industries. Many researchers and professionals have studied the use of Power BI dashboards for data analysis and visualization. According to different studies, Power BI helps users convert large amounts of raw data into meaningful information using charts, graphs, and interactive dashboards. This makes it easier for organizations to understand their data and make better decisions[6].Microsoft Power BI has gained popularity as a BI tool due to its strong data integration, transformation, and visualization capabilities. Studies show that Power BI increases analytical flexibility through features like slicers, drill-down analysis, and real-time reporting, which enhances user engagement and decision accuracy. Better forecasting and operational planning have been made possible by the effective use of

Power BI dashboards in retail analytics to analyze regional contributions, product performance, and sales trends. Because of the high transaction volumes and rapidly changing demand patterns on fast commerce platforms like Blinkit, dashboards become even more crucial. Current applied studies and project implementations show that Power BI dashboards can provide insights into sales distribution, outlet performance, and customer ratings. Peer-reviewed studies on the effectiveness of BI dashboards in fast commerce environments, however, are scarce. This discrepancy highlights the need for methodical assessment of dashboard-driven decision support systems in new digital retail models.[4]

III. OBJECTIVES

The primary objectives of this study are:

1. To use business intelligence methods to examine Blinkit's sales data in order to find trends in revenue performance.
2. To create an interactive Power BI dashboard for displaying important metrics like customer ratings, average sales, and total sales.
3. To assess outlet performance according to establishment year, location tier, and outlet size.
4. To recognize product categories that are performing well and comprehend consumer purchasing patterns.
5. To help users or businesses make better decisions based on the data.[6]

IV. METHODOLOGY

The empirical approach, study design, data collection procedure, and analysis methods used to comprehend customer behavior toward Blinkit are described in the research methodology section. This study uses an empirical research design and collects primary data using a structured questionnaire that highlights consumer perceptions of various aspects of consumer quality.

4.1 Collecting Requirements

To identify the essential Key, we collected business requirements from Blinkit's operational data. insights and performance indicators (KPIs) required for analysis.

4.2 Data Tour

The structure, format, and important characteristics of Blinkit's dataset that were pertinent to our analysis were thoroughly examined.

4.3 Data Link

Several data sources were used to connect the dataset to Power BI, guaranteeing smooth integration for analysis.

4.4 Data Cleaning and Quality Assessment

carried out data cleaning to handle missing values, eliminate inconsistencies, and standardize data for precise analysis.

4.5 Data Modeling

Create connections between various data tables to maximize data analysis and guarantee precise Power BI computations.

4.6 Information Processing

used DAX calculations and transformations to extract insightful information from unprocessed-data.

4.7 DAX Calculation

To calculate essential KPIs like total sales, average sales, and customer ratings, custom measures were created and columns were computed using DAX.

4.8 Design of the Dashboard Layout

created an engaging and user-friendly dashboard design to efficiently display important insights.

4.9 Development and Formatting of Charts

To improve data interpretation, aesthetically pleasing charts with suitable formatting were created.

4.10 Development of Reports

created the final Power BI dashboards and reports to provide useful information about the proposed system.[2]

V. PROPOSED FRAMEWORK

The proposed framework explains how the dashboard is created and used to analyze the data.

First, the dataset related to Blinkit is collected. This data may include information like sales, product categories, outlet size, and item types.

After collecting the data, it is checked and cleaned to remove errors or missing values. Then the data is imported into Power BI.

Next, different charts and graphs are created to show the data in a clear way. These visuals help to understand sales performance, product demand, and other important details.

Finally, all the visuals are arranged together to create a dashboard. This dashboard helps users easily view the data, compare information, and understand the overall performance.

5.1 Donut Chart Representing Fat Content-Based Sales Distribution

A Donut Chart is a type of chart that looks like a circle with a hole in the center (like a donut). It is used to show how different parts make up a whole.The sales distribution according to product fat content categories is depicted in the donut chart. When compared to low-fat products, it is evident that regular-fat products make up a larger portion of overall revenue. Quick comparative analysis is made possible by the visualization, which displays both revenue values and percentage contributions. In addition to helping with inventory and category-level sales optimization, this graphical representation aids management in comprehending customer purchase preferences.
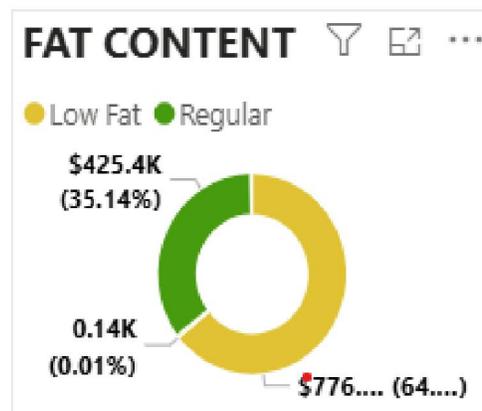

Figure 1- Fat content chart

5.2 Category-wise Sales Analysis using Horizontal Bar Chart

A Horizontal Chart is a chart where the bars go from left to right (horizontally) instead of going up and down. The revenue distribution among different product categories is shown in the horizontal bar chart. According to the analysis, the highest revenue-generating segments are fruits and snacks, indicating high consumer demand in these areas. While a number of other categories exhibit relatively poor performance, mid-performing categories like household and frozen goods contribute somewhat to overall sales. In addition to supporting strategic inventory planning and marketing focus, this visualization helps identify high-demand product segments.
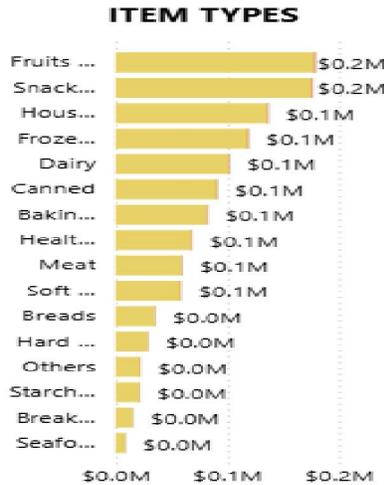
Figure 2- Item chart

5.3 Sales Distribution by Outlet Location Tier -

The chart illustrates sales performance across different outlet location tiers. The analysis reveals that Tier 3 outlets contribute the highest revenue, followed by Tier 2 and Tier 1 outlets. This indicates stronger demand and sales volume in semi-urban or emerging markets compared to metropolitan regions. The visualization supports strategic decisions related to expansion planning, inventory allocation, and regional marketing strategies.
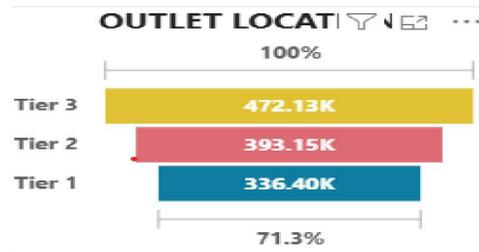

Figure 3 -Outlet location

5.4 Outlet Establishment Year-wise Sales Trend Analysis –

The line graph shows how sales performance and the year of outlet establishment are related. According to the data, early years revenue grew steadily before reaching a notable peak in 2018. This implies that stores opened during that time did remarkably well. Performance was steady even though sales slightly decreased after the peak. The trend analysis supports strategic planning for future expansion and aids in identifying high-performing establishment periods.
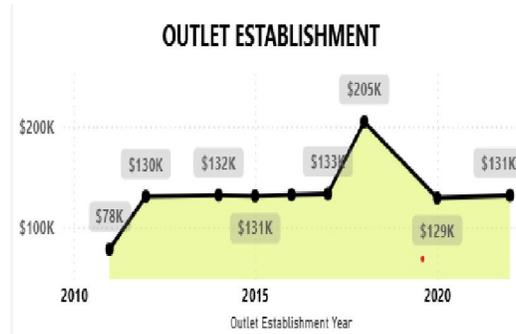
OUTLET ESTABLISHMENT

Figure 4 - Line chart

5.5 Sales Performance Comparison by Outlet Type

The sales performance of various outlet types, such as grocery stores and supermarket types 1, 2, and 3, is compared in this chart. Supermarket Type 1 has the highest total sales ($787.55K) and the most items sold (5,577) of any category, suggesting that its strong performance is mostly due to higher sales volume rather than higher pricing. All outlet types have comparatively constant average sales per transaction (roughly $140), indicating comparable consumer spending patterns. With average ratings of roughly 3.9 across all outlet types, customer satisfaction levels are likewise steady. Overall, the data shows that transaction volume and item sales, rather than differences in pricing or customer experience, are the primary factors influencing variations in total revenue.

OUTLET TYPE

Outlet Type	Total Sales	Avg Sales	No of Items	Avg Rating	Avg Items
Grocery Store	$151.94K	140.29	1083	3.93	0.10
Supermarket Type1	$787.55K	141.21	5577	3.92	0.06
Supermarket Type2	$131.48K	141.68	928	3.93	0.06
Supermarket Type3	$130.71K	139.80	935	3.91	0.06

Figure 5 – Table Visual Chart

5.6 Sales Distribution by Outlet Size

This donut chart displays the distribution of total sales across three outlet sizes: Medium, Small, and High. At $507.9K (42.27%), medium-sized outlets account for the largest portion of total sales, suggesting that they are the main sources of income. With $444.8K (approximately 37%), small outlets make a substantial but secondary contribution. At $249.0K (20.72%), high-size stores make the least amount of money overall. Overall, the graph shows that high-size outlets contribute relatively little to overall sales performance, whereas medium-sized outlets are the most important.

OUTLET SI

Figure 6 – Donut Chart

5.7 Dashboard Filter & Navigation Panel

Contributions of the Dashboard Filter and Navigation Panel to Power BI Dashboard usability and interactivity It enables users to apply specific conditions through filtering and analyzing data without changing the initial dataset.

Users can choose from a variety of parameters on the filter panel, which include Outlet Location, Outlet Size, Item Type, Fat Content and Outlet Establishment Year in this case. Users can filter and view a specific slice of the data and see how sales performance and other dimensions dynamically change through filtering.

A Navigation Panel helps users move from one section of the dashboard to another easily. It provides buttons or options that allow users to open different pages or reports in the dashboard.

The dashboard is made more interactive, adaptable, and user-friendly by utilizing filters and navigation tools. This facilitates the rapid extraction of insights, performance comparison across various categories, and data-driven decision-making for enhancing business performance by business managers and decision-makers.

VI. RESULTS AND DISCUSSION

6.1 Better Sales Information Blinkit can efficiently evaluate revenue performance by displaying average and total sales.

6.2 Analysis of Customer Preferences Blinkit was able to improve stock management by identifying best-selling products and product categories.

6.3 Optimization of Delivery Efficiency helped optimize logistics for quicker service by analyzing average delivery times.

6.4 Comparison of Outlet Performance Strategies for enhancing underperforming locations can be created by monitoring sales performance across various outlets.

6.5 Forecasting Power for Business Growth Future sales trends can be predicted with the aid of BI's predictive analytics, which aids in strategy planning.

This approach offers a solid framework for examining Blinkit's service quality and how it affects customer behavior. The study's empirical findings are intended to support strategic suggestions for improving Blinkit's service offerings in the cutthroat q-commerce sector.[2]

VII. FUTURE SCOPE

Real-Time Data Updates: Automating data refresh procedures to give stakeholders the most recent information. putting in place live data feeds so that performance metrics are instantly accessible.

• Extended Metrics: Using operational metrics to evaluate productivity and efficiency. measuring user experience and feedback by incorporating customer satisfaction metrics.

Improved User Experience:

Adding more customizable filters and visualizations to increase the dashboard's interactivity. ensuring an interface that is easy to use and meets the needs of different stakeholders.

Cross-Departmental Insights:

Combining information from several departments (suchas marketing and finance) to provide a comprehensive picture. promoting teamwork by exchanging dashboard-derived insights.[1]

VIII. CONCLUSION

By using Power BI to analyze Blinkit's operational data, this project successfully demonstrates the power of business intelligence. We provide useful information about sales performance, customer behavior, and delivery efficacy through the use of interactive dashboards, advanced visualizations, and data modeling. This approach guarantees improved client operational excellence and satisfaction by enhancing Blinkit's business and decision-making processes. [2]

This dashboard also helps to understand which products are selling more and which areas have better performance. By using visual charts and filters, users can quickly explore the data and find useful insights. The Power BI dashboard

makes the data easy to read and saves time in analyzing large amounts of information. Overall, this project shows how data visualization can help businesses understand their operations and improve their services.

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