CITY OF DALLAS OPERATING BUDGET

FINAL PROJECT – DATA WIZARDS

ADTA 5240 - Harvesting Retrieving and Storing Data

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PROBLEM STATEMENT

Challenges in City Budget Management:

City administrators try to make the best use of budgets by distributing them evenly among departments so that services are provided well, and the city can stay financially stable. Managing diverse departments, funds, and service categories, on the other hand, can be difficult. To improve budget planning, resource use, and performance evaluation, the city administrator is looking for insights and suggestions based on past financial statistics.

USE CASES

Our data-driven initiative's main objective is to identify important budget management insights for the city. Our approach is guided by three crucial questions:

1) Trends in Fund Utilization for General Fund (GNFD): The primary aim is to analyze patterns in the allocation of funds for the General Fund across various service categories over time. This research aims to offer a thorough comprehension of the allocation and use of financial resources across different domains, facilitating enhanced strategic decision-making.

2) Departmental Budget Performance: The purpose of this study is to reveal insights into the performance of departmental budgets by examining which departments routinely exceeded or fell short of their allocated budgets, and what is the total percentage of deviation for each department. This investigation will detect budgetary gaps and highlight departments that have effectively utilized funds.

3) Key Performance Indicators (KPIs) for EFOP Departments: The Enterprise Operating Fund (EFOP) is essential for maintaining city operations. The purpose of our analysis is to establish and clarify the key performance indicators (KPIs) that will be used to monitor the budget use of EFOP departments. These KPIs will function as standards for evaluating the effectiveness of different departments and informing future decisions on how resources should be allocated.

DATA LIFECYCLE:

We adhere to a systematic data lifecycle methodology, including the phases of data collection, processing, storing, analysis, and visualization.

- **Data Collection:** We used “Dallas open data” and acquired the “Operating budget dataset” to present Historical financial data from various departments, service categories, and funds to form the basis of our analysis.
- **Data Processing:** We utilized “Open-Refine” to clean, organize, and format the data to create a consistent dataset. This stage is essential for error elimination and analysis reliability. Where we converted text to numbers and deleted duplicates and nulls.

➔ **Data Storage:** As we know, BigQuery in GCP provides a serverless and managed solution for storing datasets, we uploaded cleaned data file that we exported from open-refine after data processing.

➔ **Data Analysis:** We analyzed the above-mentioned use cases using the SQL query and obtained the following conclusions as discussed below:

1) The SQL query obtains the average current budget for each service category in the General Fund (GNFD) over time. This data can help city administrators identify funding trends across departments.
2) We calculated the deviation % between allotted budget and actual expenditures for each department across all fund types using a query. City administrators can identify departments with consistent overspending or underspending and act.
3) We created a query using key performance indicators like total budget, total spending, and average utilization rate for each Enterprise Operating Fund (EFOP) department to help city administrators assess budget use efficiency and discover optimization opportunities.

➔ **Data Visualization**: Data representation expresses our results visually. Graphs, charts, and dashboards in Tableau show trends, departmental performance, and critical indicators.

CONCLUSION

In conclusion, our data-driven approach equips city administrators with the tools and insights needed to enhance budget planning, resource utilization, and performance evaluation. The journey from data collection to actionable recommendations marks a crucial step towards fostering financial sustainability and efficient service delivery.