

GOVERNMENT ARTS COLLEGE (AUTONOMOUS)
COIMBATORE -641 018
DEPARTMENT OF MATHEMATICS
NAANMUDHALVAN COURSE: DATA ANALYTICS WITH TABLEAU
CLASS : III YEAR B.Sc Mathematics -SEMESTER : 5
PROJECT REPORT
(PROJECT DOCUMENTATION)

NM TEAM NUMBER : 2

NM TEAM ID : NM2023TMID23700

NM PROJECT TITLE: *Estimation of Business Expenses*

Mentor : Dr. MALATHY THANGAVELU M.Sc., M.Phil., B.Ed., Ph.D
Associate Professor

Submitted by

MANIMEGALAI .G

MAHALAKSHMI .P

NADHIYA .M

NANDHINI .S

Submitted to
SmartBridge Educational Services Pvt. Ltd.



INTRODUCTION

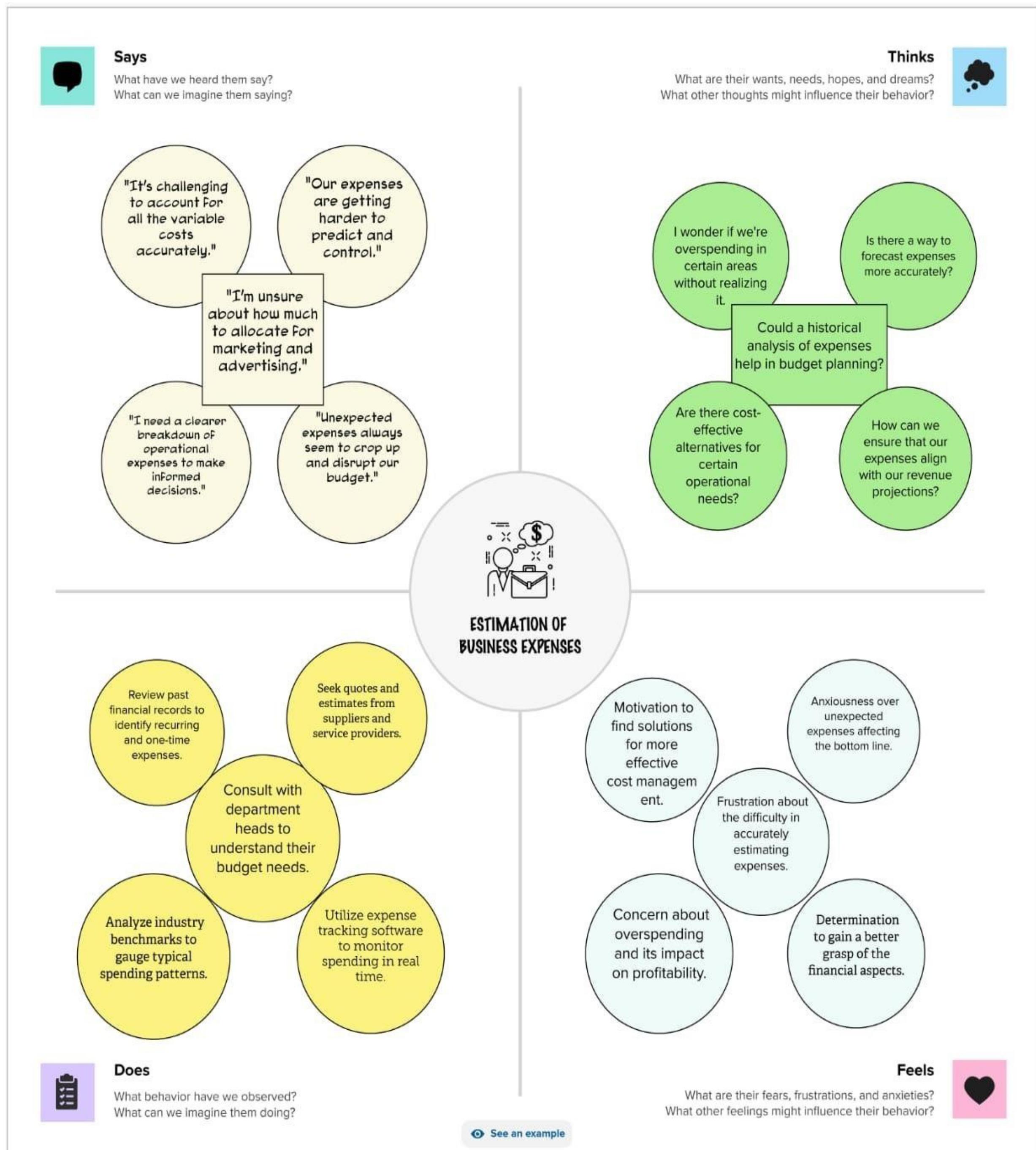
Tableau is a powerful data visualization and business intelligence tool that can be leveraged to estimate and analyze business expenses effectively. While Tableau is primarily known for its data visualization capabilities, it can also be used for budgeting, forecasting, and expense estimation by connecting to relevant data sources and creating interactive dashboards. We start by gathering and organizing the financial data, including historical expense data and any relevant budget information. Ensure that the data is clean and structured appropriately, with columns for expense categories, dates, and amounts. Launch Tableau and connect it to that data source. Tableau supports various data sources, including spreadsheets, databases, and cloud-based storage. Build data visualizations to explore that historical expenses. Common visualizations include bar charts, line graphs, and pie charts. Use Tableau's drag-and-drop interface to map that data columns to visual elements like rows, columns, and filters. To estimate future expenses, that can create calculated fields in Tableau. For example, that might calculate projected expenses by applying growth rates or trends to historical data. Utilize Tableau's formulas and functions to perform calculations, such as SUM, AVG, and IF statements, as needed. Design interactive dashboards that display both historical and estimated expenses. Dashboards allow that to visualize that budgeting and forecasting process. Include filters, parameters, and action

elements to enable users to adjust assumptions and see how they affect expense estimates. If that have historical data and want to create more advanced expense estimates, that can use Tableau's forecasting capabilities. Tableau can automatically generate forecasts based on historical patterns. Publish that Tableau dashboards to Tableau Server, Tableau Online, or Tableau Public, depending on that organization's needs and security considerations. Collaborate with team members by giving them access to the dashboards, allowing them to interact with the data and make informed decisions. As that business progresses, update that data source and dashboards regularly to reflect actual expenses and adjust that estimates accordingly. Set up alerts or notifications in Tableau to track significant deviations from that expense estimates. Tableau offers advanced features such as what-if analysis, scenario modeling, and integration with external forecasting tools that can enhance that expense estimation process. Consider providing Tableau training for that team to ensure they can use the tool effectively for expense estimation and financial analysis.

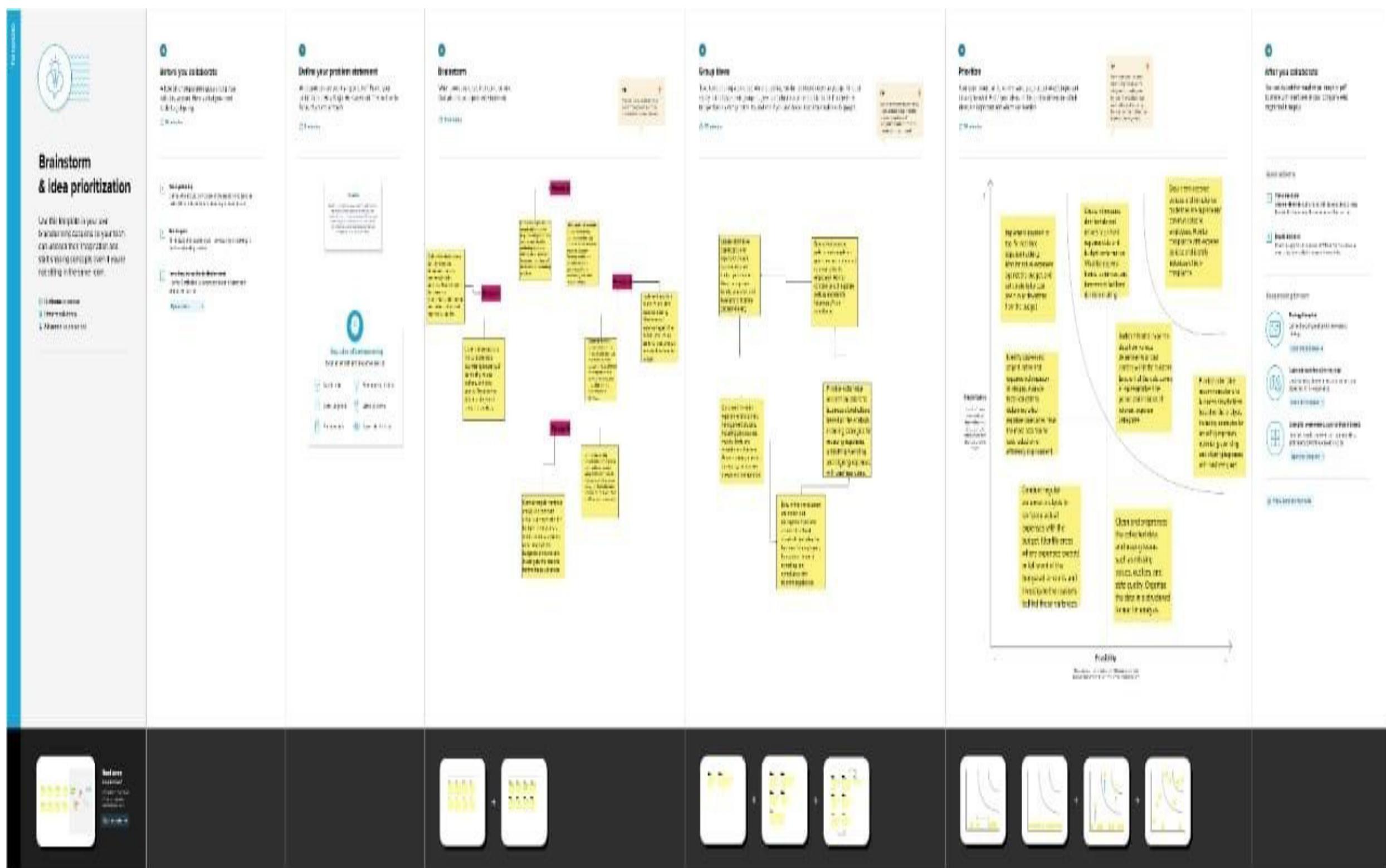
Tableau can be a valuable tool for estimating business expenses because it allows that to visualize and interact with that financial data in a user-friendly way. It also enables us to create dynamic reports and forecasts that can help in making informed financial decisions and managing that budget effectively.

EMPATHY MAP & BRAINSTORMING:

EMPATHY MAP:

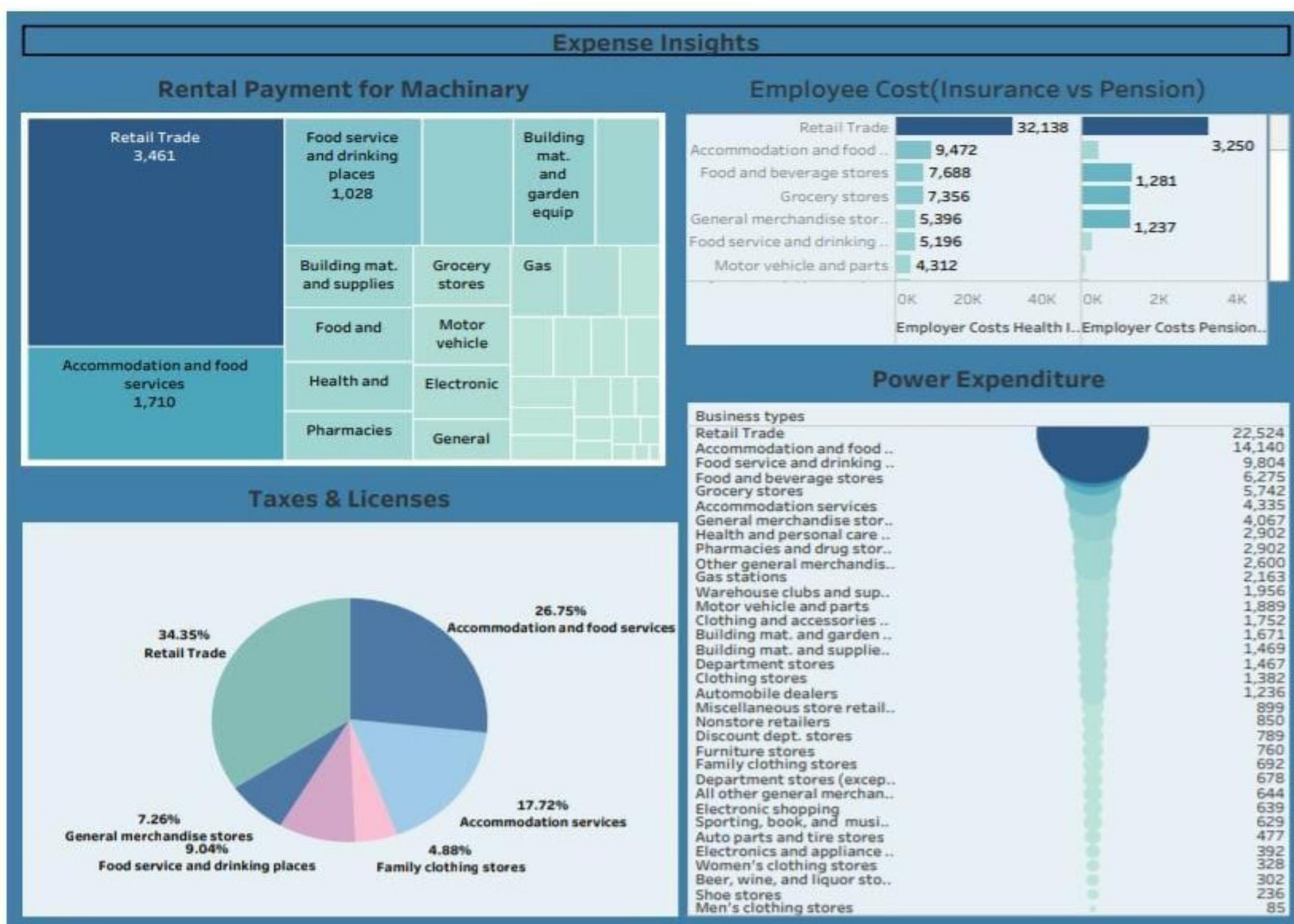


Brainstroming

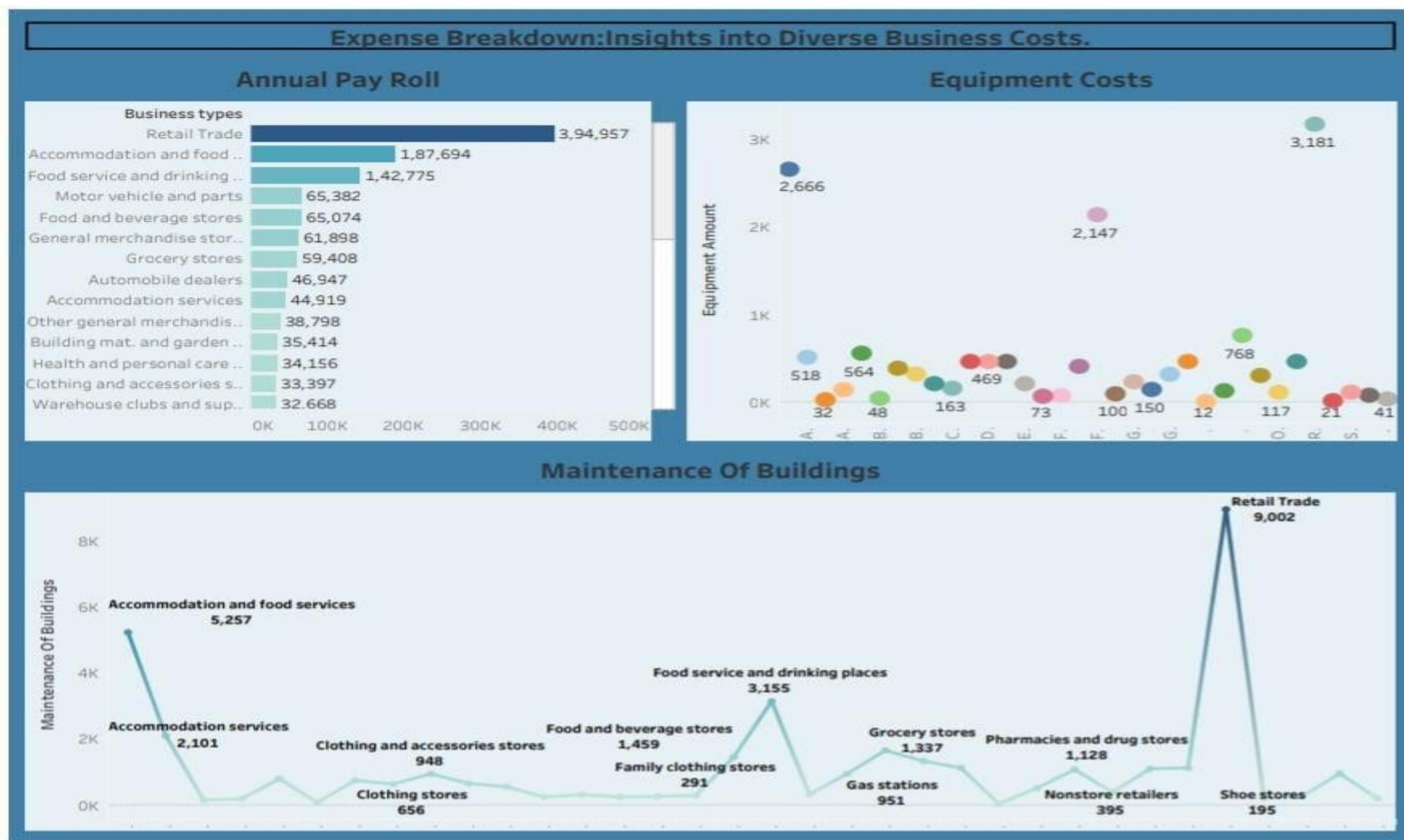


Result

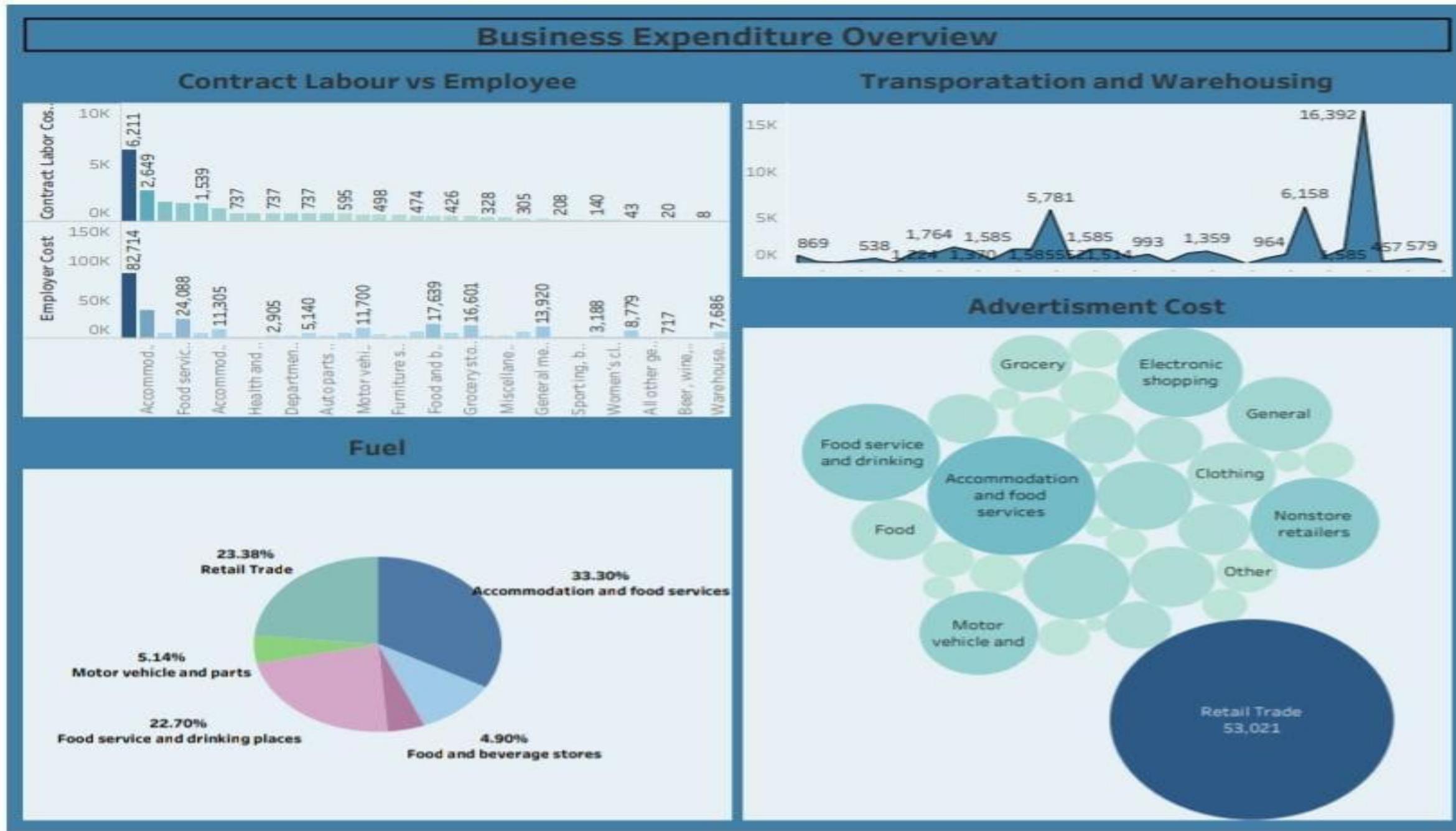
Dashboard 1



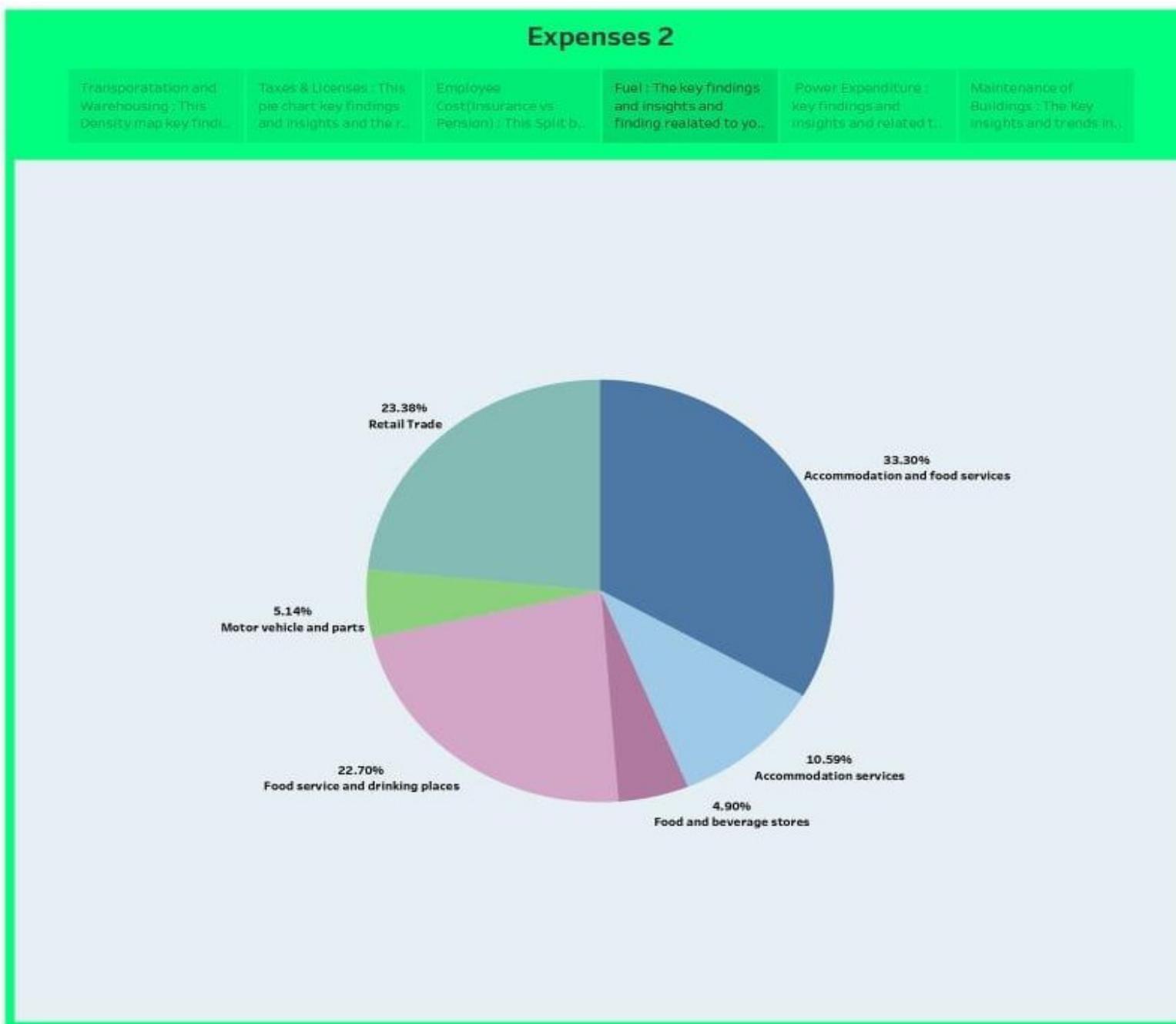
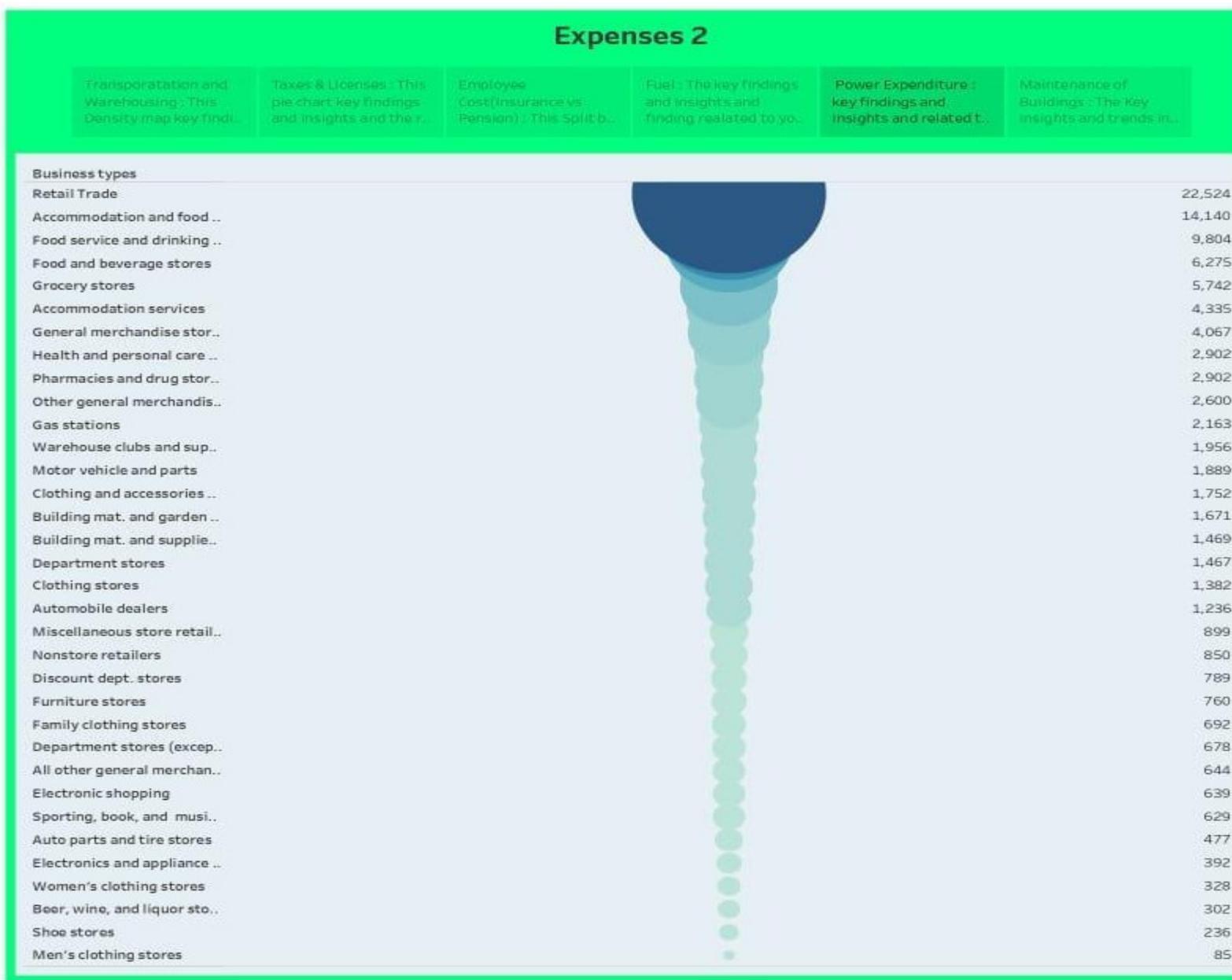
Dashboard 2

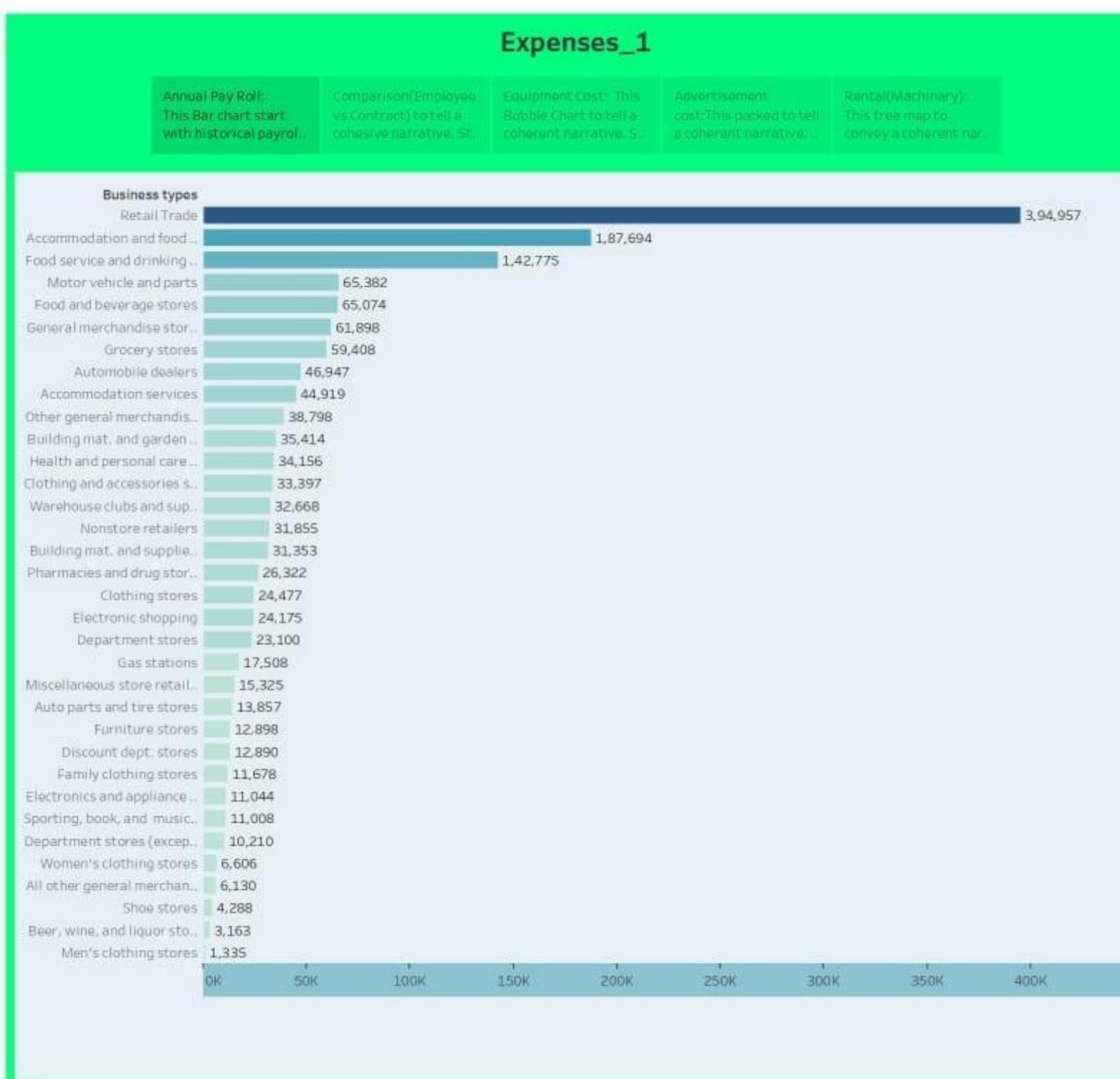
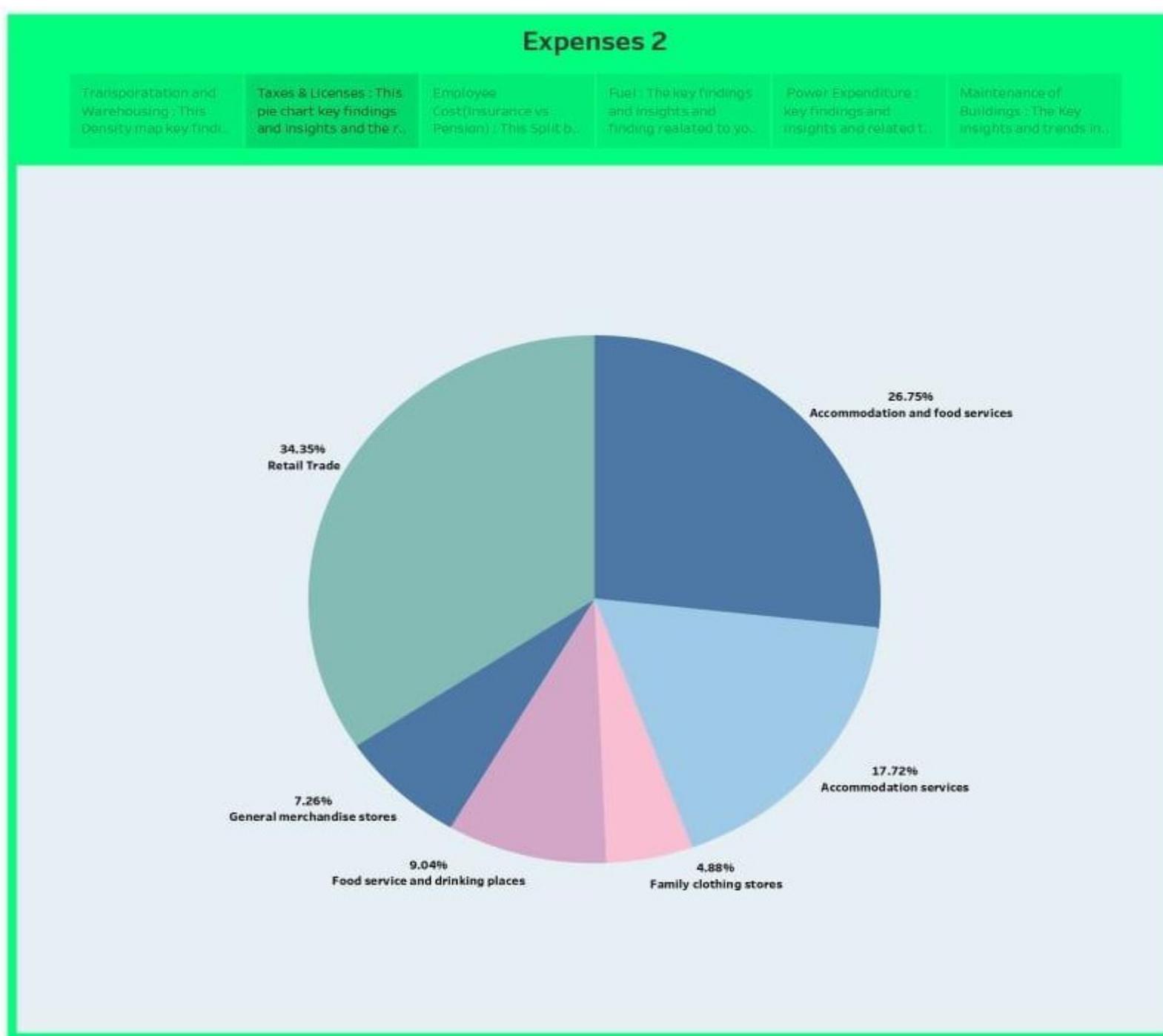


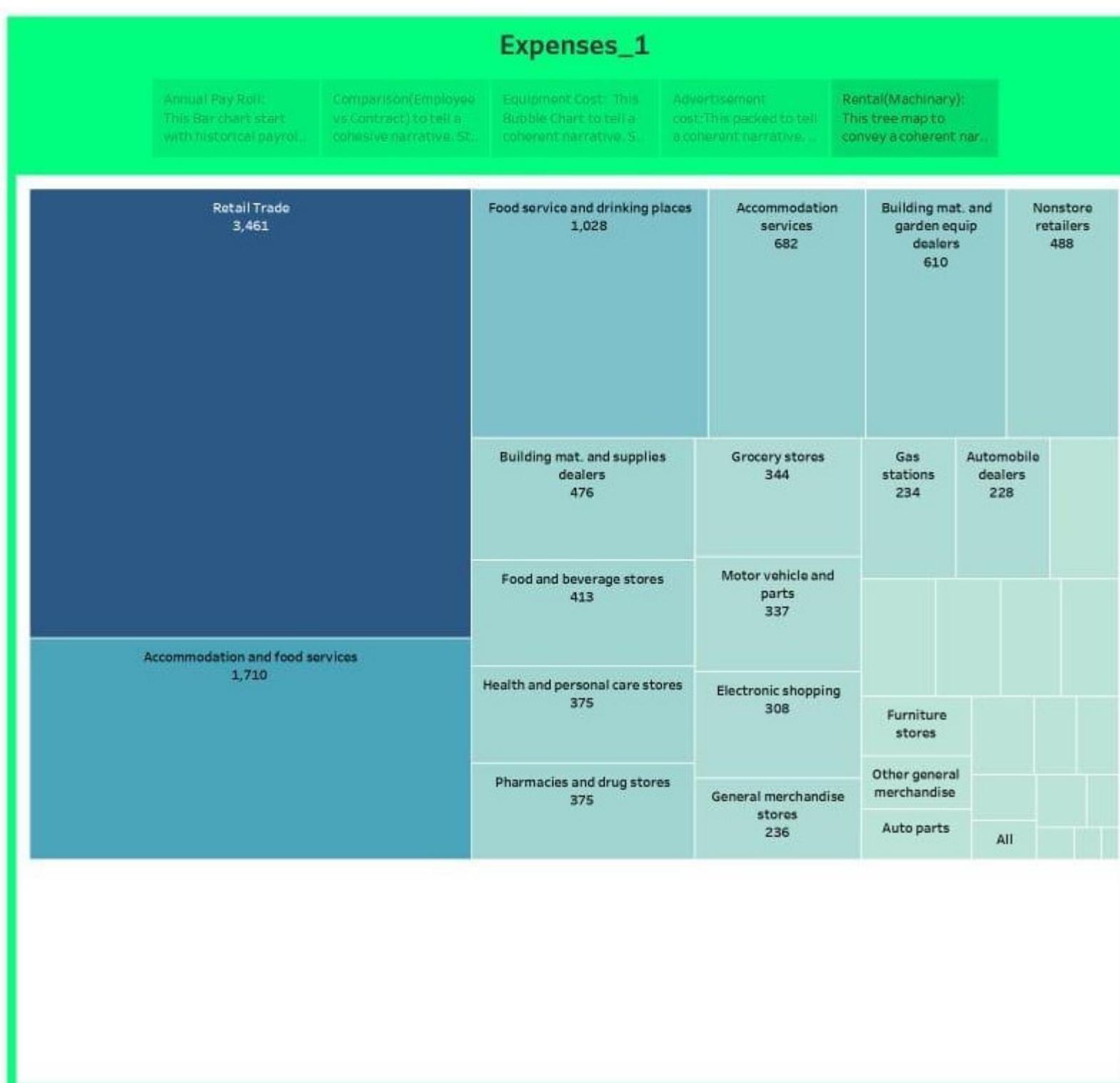
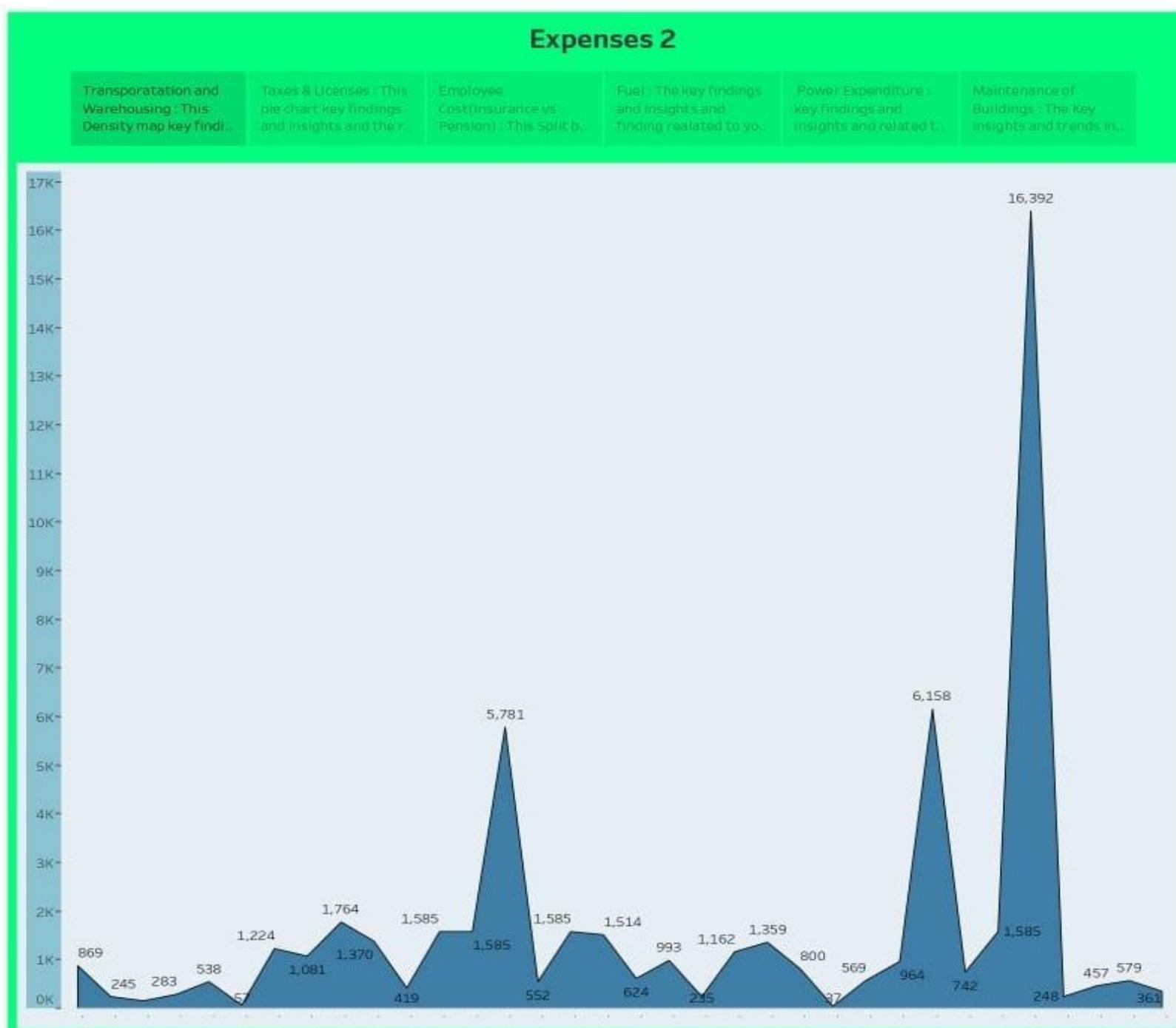
Dashboard 3

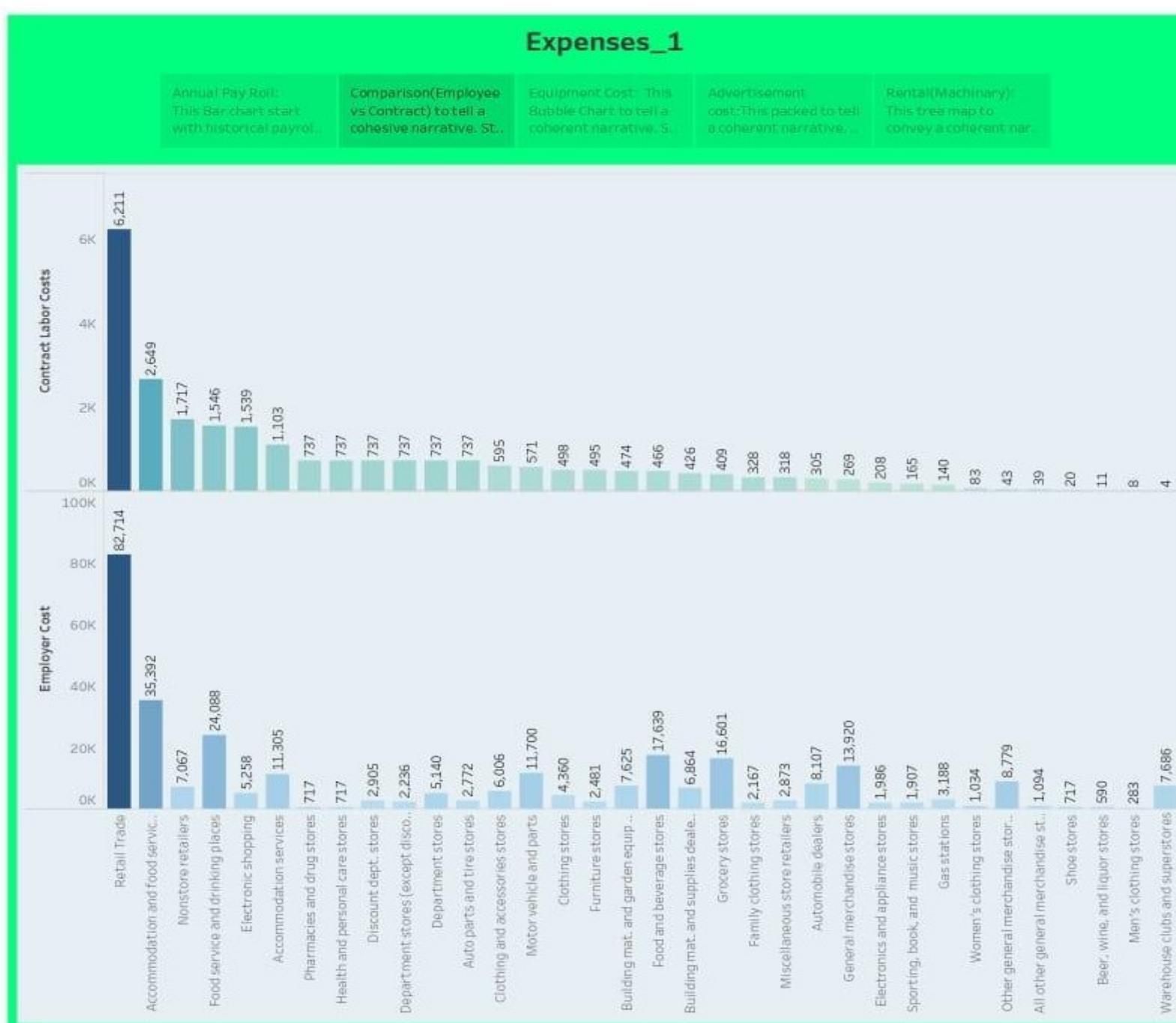
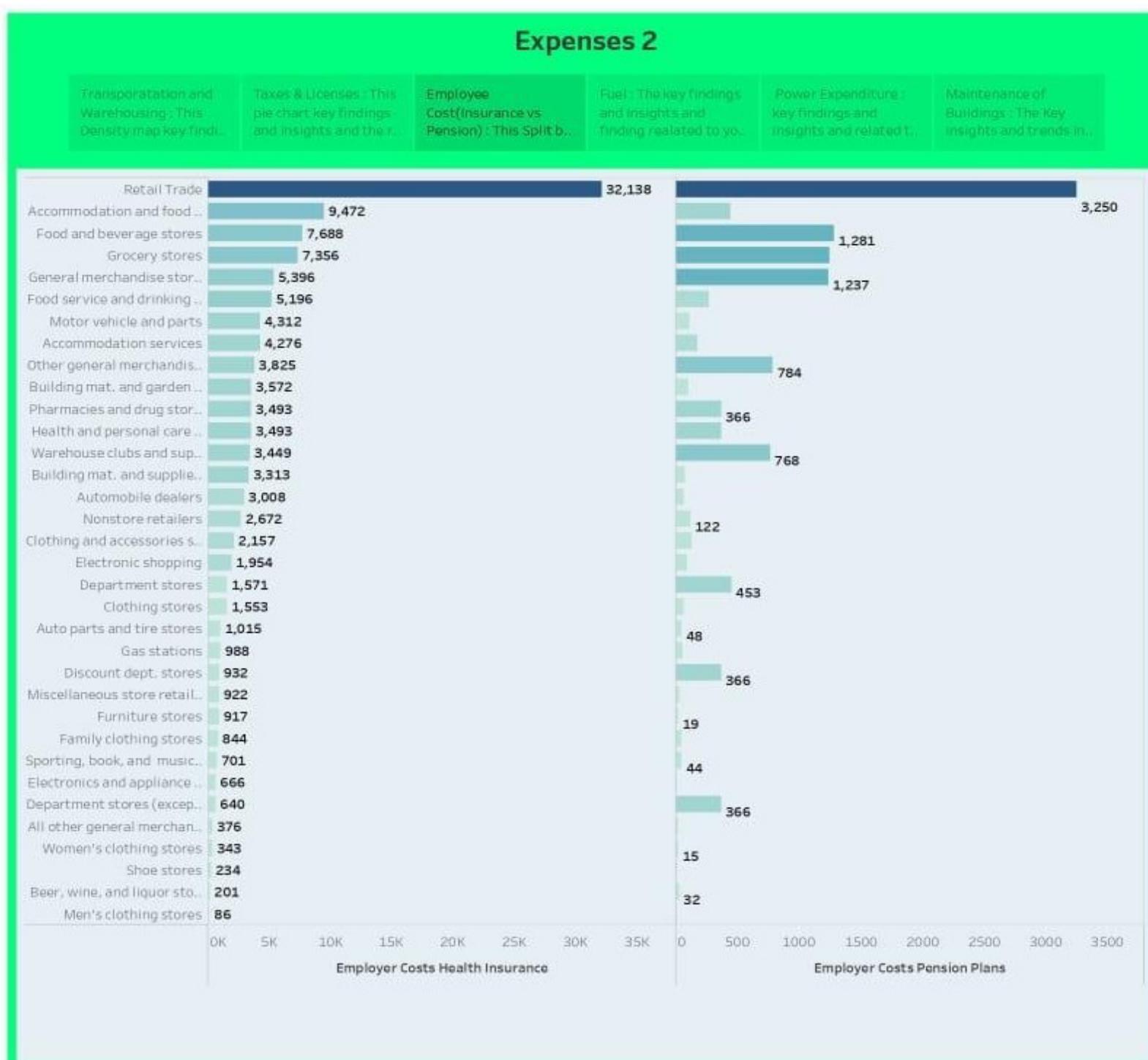


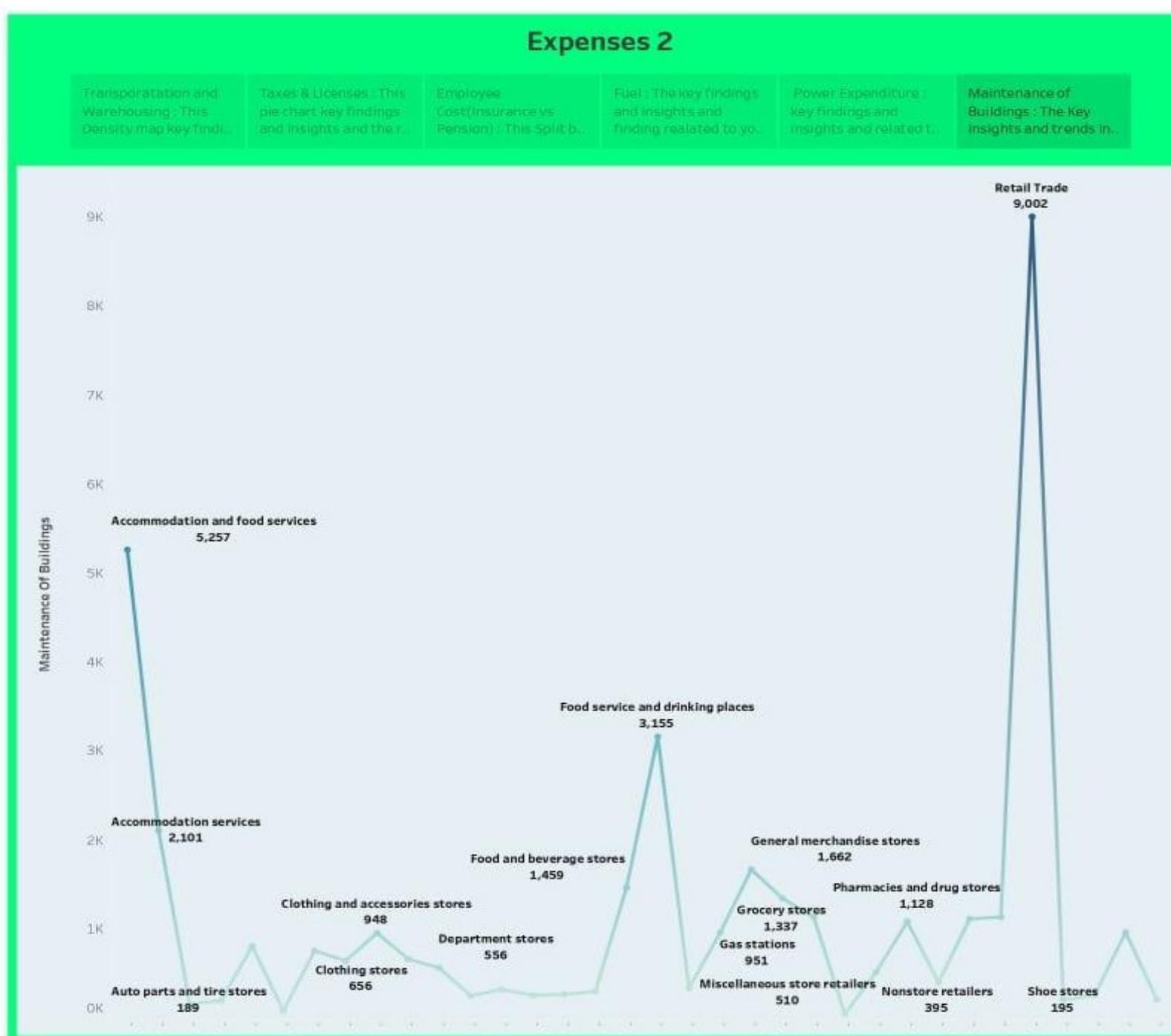
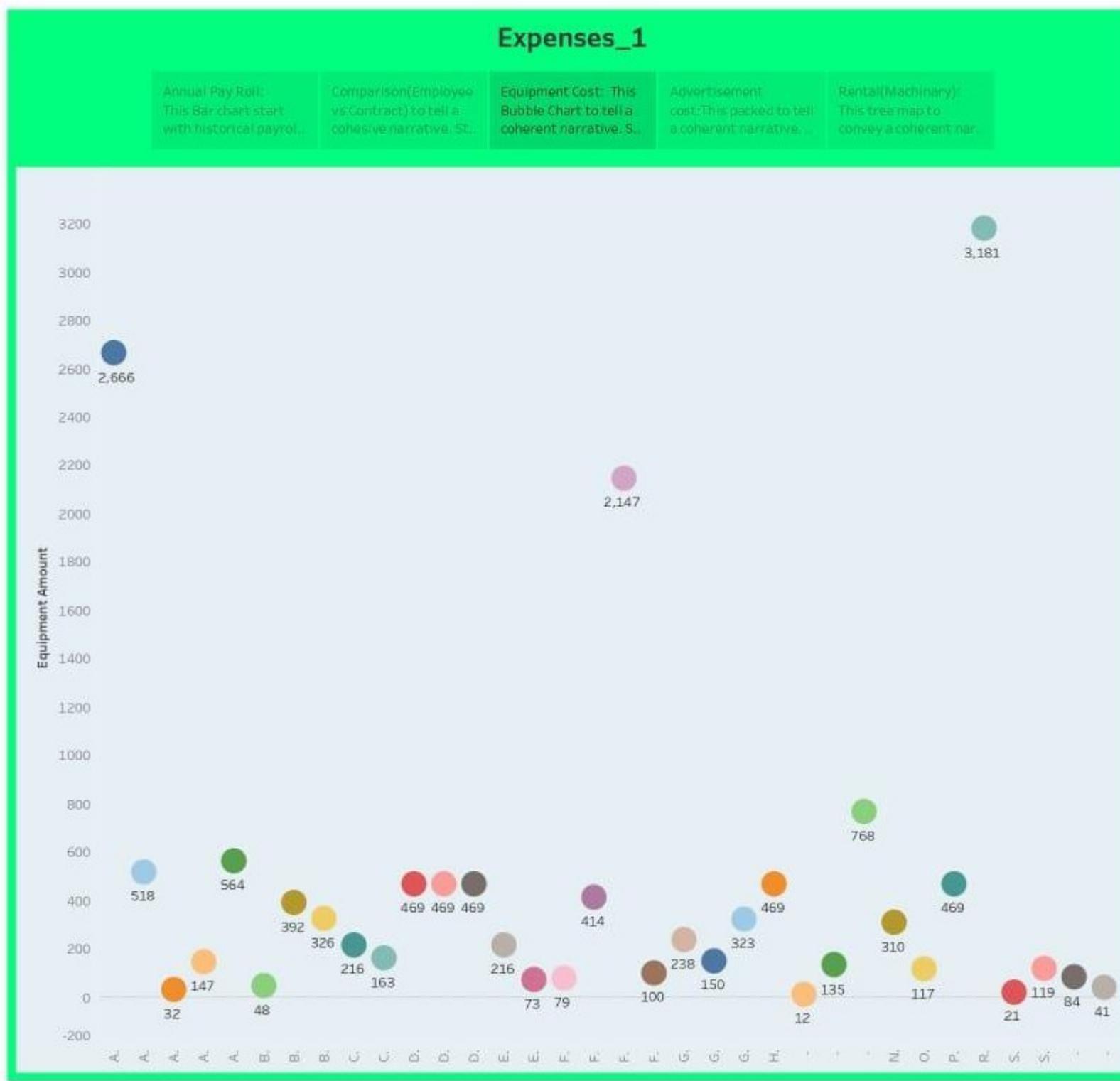
Estimation of Business Expenses

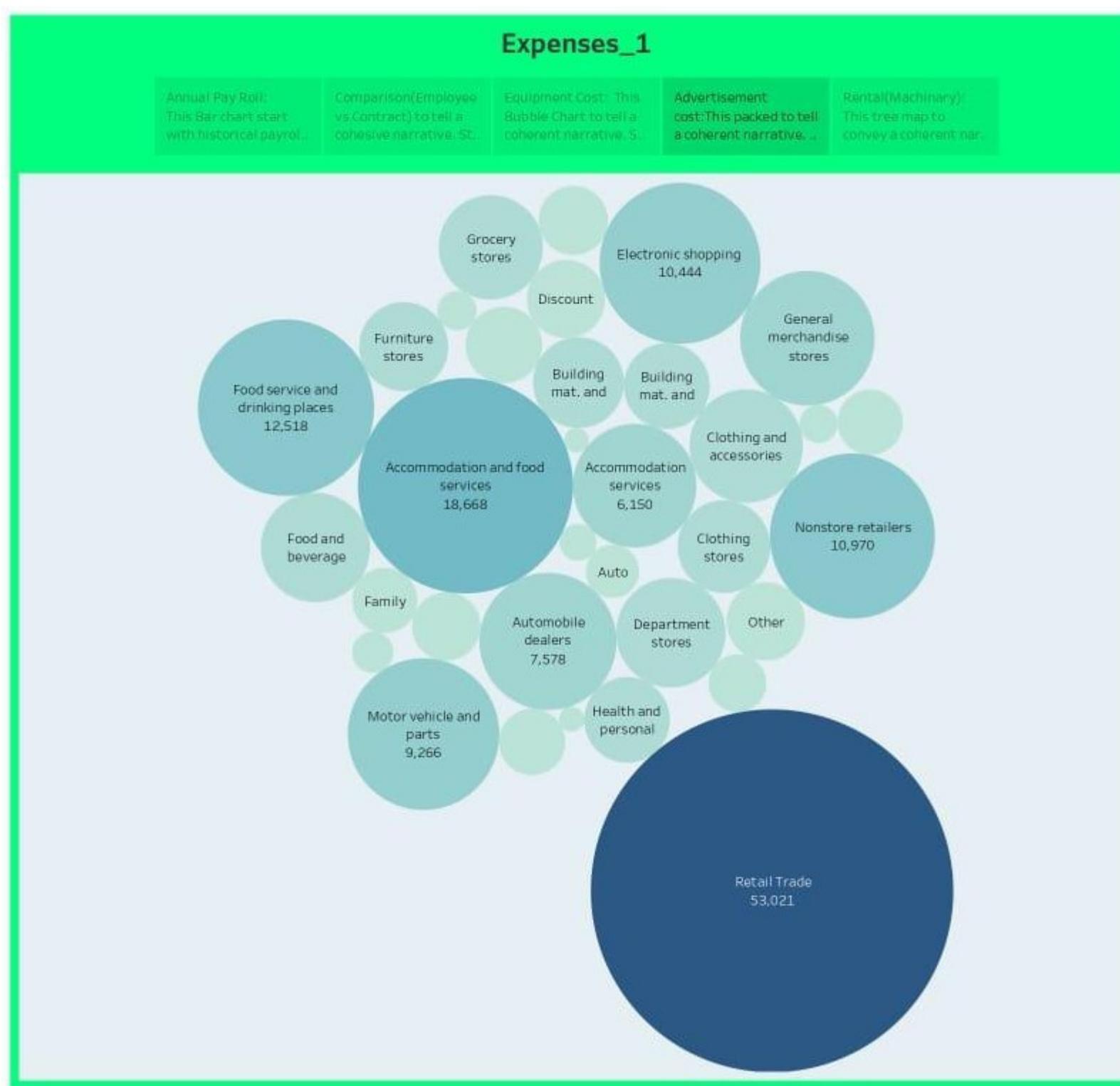












Story for Estimation of Business Expenses

Advantages & Disadvantages

Advantages

✓ **Data Visualization:** Tableau provides powerful data visualization tools that can help that make sense of complex business data. It allows that to create interactive and easy-

to-understand visualizations that can aid in identifying growth opportunities.

- ✓ **Real-time Analytics:** Tableau allows that to connect to live data sources, enabling that to analyze real-time data and make informed decisions quickly. This is crucial for businesses looking to expand rapidly and adapt to changing market conditions.
- ✓ **Data Integration:** Tableau can integrate with various data sources, including databases, spreadsheets, cloud services, and more. This enables that to consolidate and analyze data from different departments and systems, providing a holistic view of that business operations.
- ✓ **Scalability:** Tableau is scalable, meaning it can accommodate the growing data needs of that expanding business. That can add more data sources and users as that business expands without major disruptions.
- ✓ **Predictive Analytics:** Tableau offers advanced analytics capabilities that allow that to build predictive models. This can help that forecast future trends and make data-driven decisions about that expansion strategy.
- ✓ **Data Security:** Tableau provides robust security features to protect that sensitive business data. That can control user access, encrypt data, and ensure compliance with data protection regulations.

Disadvantages

- ✓ **Cost:** Tableau can be expensive, especially for small businesses. Licensing fees, training costs, and the need for dedicated hardware can add up quickly.
- ✓ **Learning Curve:** While Tableau is user-friendly, it still has a learning curve, particularly for more advanced features. Employees may need time to become proficient in using the tool effectively.
- ✓ **Data Preparation:** Data preparation is a critical step before using Tableau, and it can be time-consuming. Cleaning, transforming, and structuring data for analysis can be challenging, especially with large datasets.
- ✓ **Hardware Requirements:** Handling extensive data and complex visualizations may require robust hardware, leading to additional costs.
- ✓ **Limited Predictive Analytics:** While Tableau offers predictive analytics capabilities, it may not be as advanced as specialized predictive modeling tools. For complex predictive modeling, that might need to integrate other tools or platforms.
- ✓ **Dependency on Data Sources:** Tableau's effectiveness depends on the quality and availability of that data sources. If that data is incomplete or inaccurate, it can lead to flawed insights.
- ✓ **Scalability Challenges:** While Tableau is scalable, large-scale deployments can face performance challenges. That may need to invest in infrastructure and optimize configurations to maintain performance.

Applications

- **Data Collection and Integration:**
 - *Gather data from various sources relevant to that business expansion plans. This can include sales data, customer demographics, market trends, and operational data.*
 - *Integrate and prepare the data for analysis within Tableau. Ensure that that data is clean, well-structured, and up-to-date.*
- **Define Business Objectives:**
 - *Clearly define the goals and objectives of that business expansion. Are they looking to enter new markets, launch new products, or expand that customer base?*
- **Data Exploration and Visualization:**
 - *Create data visualizations in Tableau to explore that data. Use charts, graphs, and dashboards to identify patterns, trends, and insights that can inform that expansion strategy.*
 - *Visualizations can include geographic maps to identify potential target locations, trend charts to analyze market growth, and customer segmentation for targeted marketing strategies.*
- **Market Analysis:**
 - *Use Tableau to conduct a thorough market analysis. Compare different markets or regions, assess competition, and evaluate market potential.*

- *Analyze customer behavior, preferences, and buying patterns to tailor that expansion strategy.*
 - **Financial Analysis:**
 - *Utilize Tableau to perform financial analysis, including cost projections, revenue forecasts, and ROI calculations for potential expansion initiatives.*
 - *Create financial dashboards that provide a clear overview of the financial implications of different expansion scenarios.*
 - **Scenario Planning:**
 - *Use Tableau to build scenarios that simulate various expansion strategies. This can help that evaluate the potential outcomes and risks associated with each option.*
 - *Consider different variables such as marketing budgets, sales targets, and resource allocation.*
 - **Predictive Analytics:**
 - *If applicable, leverage Tableau's predictive analytics capabilities to forecast future trends and customer behavior. This can assist in making informed decisions about product development and market entry timing.*

CONCLUSION

Tableau for estimating business expansion can be a powerful and strategic approach to making informed decisions. Tableau offers a robust set of data visualization and analytics tools that enable organizations to analyze data, identify growth opportunities, and create data-driven expansion strategies. Tableau's intuitive visualizations help in understanding complex data quickly. It can integrate data from various sources, providing a comprehensive view of business operations. Tableau enables analysis of live data, crucial for adapting to changing market conditions. Large-scale deployments may require optimization for performance. The effectiveness of Tableau relies on the quality and availability of data sources. Handling extensive data may require additional hardware resources. Robust security features protect sensitive business data and ensure compliance. Its user-friendly interface makes it accessible to a wide range of team members. Tableau for business expansion estimation, it's essential to have a well-defined strategy, invest in training, and continually manage and refine that data. By doing so, Tableau can be a valuable asset in that journey towards successful business expansion, helping that make data-informed decisions and adapt to changing market dynamics.

Future scope:

- *Tableau for business expansion estimation is promising, given the ongoing advancements in data analytics and visualization technologies. Here are some key areas where Tableau is likely to play a significant role in the future of business expansion:*
- ***Enhanced Integration with AI and Machine Learning.***
 - *Tableau is likely to incorporate more advanced AI and machine learning capabilities. This will enable businesses to perform more sophisticated predictive analytics, anomaly detection, and automated data-driven decision-making for expansion strategies.*
- ***Augmented Analytics:***
 - *Augmented analytics, which combines machine learning and natural language processing, can help users without strong technical backgrounds derive insights from data. Tableau is likely to integrate such features, making data analysis even more accessible.*
- ***Cloud-Based Solutions:***
 - *The adoption of cloud-based Tableau solutions is expected to grow. This will allow businesses to scale their analytics infrastructure more easily, collaborate in real-time, and access their data from anywhere.*
- ***IoT Integration:***
 - *As the Internet of Things (IoT) continues to expand, Tableau will likely offer improved capabilities for analyzing IoT data. This will be crucial for businesses looking to expand in industries like manufacturing,*

healthcare, and logistics.

► ***Data Governance and Compliance:***

- *With increasing data privacy regulations, Tableau is likely to provide more robust data governance and compliance features. This will help businesses ensure that their expansion strategies align with legal requirements.*

Thank that!!

