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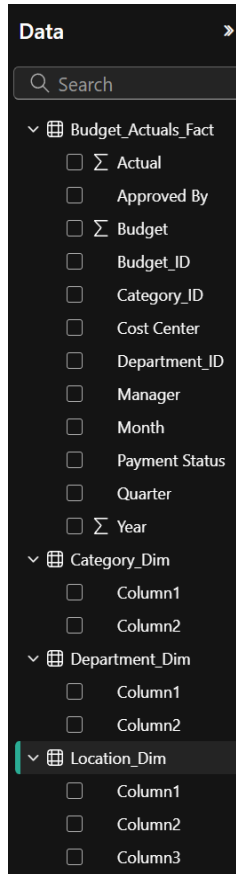
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# Capstone Walkthrough Part 2

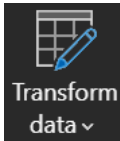
## Functional Requirement 1.1

Begin by loading four csv files into Power BI.

**Budget\_Actuals\_Fact.csv**  
**Department\_Dim.csv**  
**Category\_Dim.csv**  
**Location\_Dim.csv**



As the data shows, **Category\_Dim**, **Department\_Dim**, and **Location\_Dim** need to have proper headers. To fix this will click



on **Transform data** to open Power Query. In Power Query each of the three tables need to be selected and click

**Use First Row as Headers**

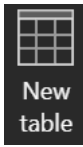
	AB_C Department_ID	AB_C Department
1	D001	Marketing
2	D002	Sales
3	D003	IT
4	D004	HR
5	D005	Operations
6	D006	Finance
7	D007	Logistics
8	D008	Customer Support

	AB_C Category_ID	AB_C Category
1	C001	Salaries
2	C002	Software
3	C003	Travel
4	C004	Supplies
5	C005	Training
6	C006	Consulting
7	C007	Equipment
8	C008	Utilities

	AB_C Budget_ID	AB_C State	AB_C Country
1	B000001	Washington	USA
2	B000002	California	USA
3	B000003	Florida	USA
4	B000004	Illinois	USA
5	B000005	Ohio	USA
6	B000006	Georgia	USA
7	B000007	North Carolina	USA
8	B000008	Massachusetts	USA

To finish up I verified that all data types are consistent and current.

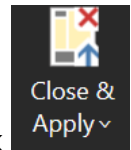
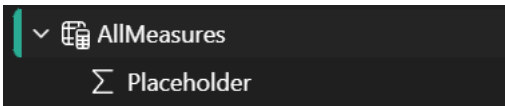
Lastly I want to create a table that will hold all of the measures that I will be using throughout this project. To accomplish this, I



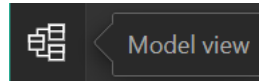
will select and enter the following code:

```
AllMeasures = ROW("Placeholder", 1)
```

This allows the table to be created so all measures will be placed here.



Now that all headers and data types are correct click



to close Power Query and open

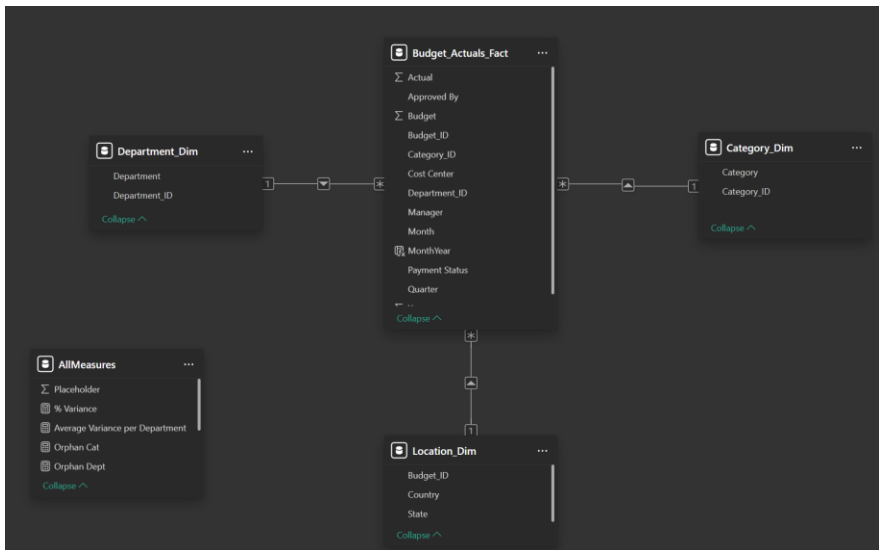
Next, I verified that all four tables were correctly connected in a **star schema**. The **Budget\_Actuals\_Fact** table serves as the central fact table, and the **Department\_Dim**, **Category\_Dim**, and **Location\_Dim** tables serve as dimension tables.

Since the key columns include letters (for example, "D001"), all relationship key fields were kept as **Text** data types in both the fact and dimension tables to ensure data type consistency.

In **Model view**, I created **one-to-many** relationships from each dimension to the fact table:

- **Department\_Dim**[Department\_ID] → **Budget\_Actuals\_Fact**[Department\_ID]
- **Category\_Dim**[Category\_ID] → **Budget\_Actuals\_Fact**[Category\_ID]
- **Location\_Dim**[Budget\_ID] → **Budget\_Actuals\_Fact**[Budget\_ID]

Each relationship uses **Single** cross-filter direction to maintain a clean star schema.



To verify that all relationships were valid and that there were no orphaned records, I created the following measures in Power BI, **Orphan Cat**, **Orphan Dept**, and **Orphan Loc**.

Orphan Cat =

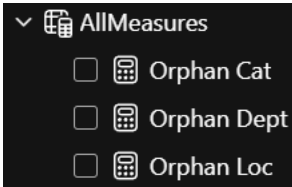
```
VAR Missing = -- store how many Category_IDs are missing a match
COUNTROWS( -- count how many IDs are only in the fact table
  EXCEPT( -- compare Category_IDs in both tables
    VALUES(Budget_Actuals_Fact[Category_ID]), -- get all Category_IDs from
the fact table
    VALUES(Category_Dim[Category_ID]) -- get all Category_IDs from the
category table
  )
)
RETURN COALESCE(Missing, 0) -- return 0 if everything lines up correctly
```

Orphan Dept =

```
VAR Missing = -- store how many Department_IDs don't have a match
COUNTROWS( -- count the number of unmatched Department_IDs
  EXCEPT( -- look for any Department_IDs in the fact table
    VALUES(Budget_Actuals_Fact[Department_ID]), -- list of unique
Department_IDs from the fact table
    VALUES(Department_Dim[Department_ID]) -- list of unique
Department_IDs from the department table
  )
)
RETURN COALESCE(Missing, 0) -- show 0 instead of blank if everything
matches
```

Orphan Loc =

```
VAR Missing = -- store how many Budget_IDs are missing in the location table
COUNTROWS( -- count the number of missing Budget_IDs
  EXCEPT( -- find which Budget_IDs exist in fact but not in location table
    VALUES(Budget_Actuals_Fact[Budget_ID]), -- get Budget_IDs from the
fact table
    VALUES(Location_Dim[Budget_ID]) -- get Budget_IDs from the location
table
  )
)
RETURN COALESCE(Missing, 0) -- return 0 if all Budget_IDs have a match
```



To keep my checks organized, I created a **Validation page** that will be used throughout this project to test all measures and relationships. This page currently holds the three orphan-check cards and will also be used for any future validation steps, so everything can be reviewed in one place.

0

0

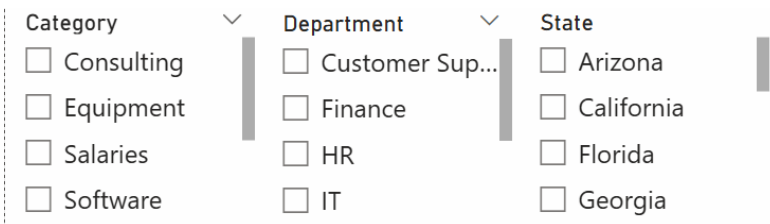
0

Orphan Categories   Orphan Department   Orphan Locations

All three measures returned **0**, confirming that there are **no orphan records** and that the relationships are valid.

To validate that cross-table filtering works correctly I added three slicers using the dimension tables:

- **Department Dim → Department**
- **Category Dim → Category**
- **Location Dim → State**



Below the slicers I added a **Table** visual using fields from **Budget\_Actuals\_Fact** such as **Department\_ID**, **Category\_ID**, **Budget\_ID**, and **Actual**.

Department_ID	Category_ID	Budget_ID	Sum of Actual
D001	C001	B000001	42,973.94
D001	C001	B000065	24,617.38
D001	C001	B000129	31,659.34
Total			125,048,805.32

I then tested each slicer one by one. When selecting a single value for **Department**, **Category**, or **State**, the table instantly adjusted to show only the matching records. This confirmed that each relationship was filtering data from the dimension to the fact table exactly as expected.

Category

☒ Consulting

☐ Equipment

☐ Salaries

☐ Software

Department

☐ Customer Sup...

☒ Finance

☒ HR

☒ IT

State

☐ Arizona

☒ California

☒ Florida

☒ Georgia

Department_ID	Category_ID	Budget_ID	Sum of Actual
D003	C006	B000086	37,120.86
D003	C006	B000278	37,787.59
D003	C006	B000406	30,949.71
Total			1,335,240.94

All slicers successfully filtered the table and totals, confirming that cross-table filtering works correctly.

This process confirmed that all dimension-to-fact relationships were functioning correctly and that the star schema was fully validated.



## Functional Requirement 2

Now that the data model and relationships have been verified, I began creating the main measures that will be used throughout the Power BI report.

Before building the DAX, I decided which items should be **measures** and which should be **calculated columns**.

The decision is based on how Power BI processes each type of calculation:

- **Measures** calculate on the fly and automatically adjust to slicers and filters.
- **Calculated Columns** are stored in the table itself and assign a value to each row.

**Total Budget, measure**, needs to update dynamically when filters are applied.

Total Budget = SUM(Budget\_Actuals\_Fact[Budget]) -- adds up all Budget amounts from the fact table

**Total Actual, measure**, needs to update dynamically when filters are applied.

Total Actual = SUM(Budget\_Actuals\_Fact[Actual]) -- adds up all Actual spending values from the fact table

**Variance, measure**, depends on other measures and must update dynamically.

Variance = [Total Actual] - [Total Budget] -- subtracts budget from actual to show the difference

**% Variance, measure**, must recalculate ratios as filters change.

```
% Variance = DIVIDE([Variance], [Total Budget]) -- divides  
variance by total budget
```

**MonthYear, calculated column**, needs a label per record to group visuals.












```
MonthYear = FORMAT(DATEVALUE( "1 " &  
Budget_Actuals_Fact[Month] & " " &  
Budget_Actuals_Fact[Year] ), -- combine month text and year  
into a real date  
"mmm-yyyy" -- formats as Jan-2019  
)
```

**Average Variance per Department, measure**, must respond to slicers for Category or State.

```
Average Variance per Department =  
CALCULATE( -- ensures the average adjusts correctly when  
filters are applied  
    AVERAGEX( -- averages the variance across all visible  
departments  
        VALUES( Department_Dim[Department] ), -- loops through  
each department  
        [Variance] -- uses the variance measure for each one  
    )  
)
```

Once all the measures and calculated columns are completed I changed to the appropriate formatting:

- **Total Budget** -> **Currency** with 2 decimal places
- **Total Actual** -> **Currency** with 2 decimal places
- **Variance** -> **Currency** with 2 decimal places
- **Percent Variance** -> **Percentage** with 2 decimal places
- **Average Variance per Department** -> **Currency** with 2 decimal places
- **MonthYear** -> **Text** (no change)

▼  AllMeasures	▼  Budget_Actuals_Fact
 % Variance	Σ Actual
 Average Variance per Department	Approved By
 Orphan Cat	Σ Budget
 Orphan Dept	Budget_ID
 Orphan Loc	Category_ID
Σ Placeholder	Cost Center
 Total Actual	Department_ID
 Total Budget	Manager
 Variance	Month
	 MonthYear
	Payment Status
	Quarter
	Σ Year

All measures and the **MonthYear** calculated column worked as expected. Each responded correctly to slicers and filters,

showing that every DAX expression is dynamic, accurate, and properly formatted for visual use.

These measures form the analytical foundation for all visuals throughout the report, ensuring that every dashboard remains dynamic, accurate, and fully responsive to filters.

MonthYear	Total Budget	Total Actual	Variance	% Variance	Average Variance per Department
Apr-2019	\$1,769,108.49	\$1,745,769.49	(\$23,339.00)	-1.32%	(\$2,917.38)
Apr-2020	\$1,799,799.75	\$1,850,176.93	\$50,377.18	2.80%	\$6,297.15
Apr-2021	\$1,853,557.98	\$1,909,096.17	\$55,538.19	3.00%	\$6,942.27
Apr-2022	\$1,669,922.23	\$1,673,432.34	\$3,510.11	0.21%	\$438.76
Apr-2023	\$1,661,547.95	\$1,631,541.84	(\$30,006.11)	-1.81%	(\$3,750.76)
Apr-2024	\$1,688,255.13	\$1,655,742.86	(\$32,512.27)	-1.93%	(\$4,064.03)
Aug-2019	\$1,750,584.27	\$1,807,401.02	\$56,816.75	3.25%	\$6,488.45
Total	\$124,968,824.18	\$125,048,805.32	\$79,981.14	0.06%	\$9,997.64

## Functional Requirement 3.1

To begin Functional Requirement 3, I created a new page in Power BI and renamed it **Executive Overview**. This page serves as the high-level summary of the organization's financial performance, allowing management to quickly compare overall budget versus actual results across departments and over time.

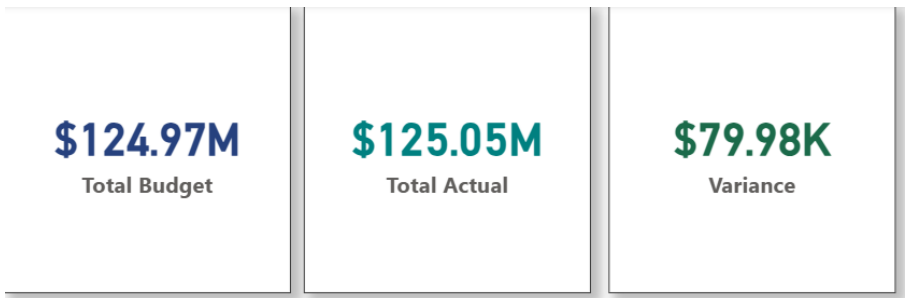
I set the page background to white and applied the executive theme to keep the design consistent. To give myself enough space for all visuals, I changed the canvas size to **Custom: 1200 (height) x 2000 width**. This ensured the full layout would fit cleanly without overlapping visuals.

Before building the visuals for each report page, I created a consistent title and navigation bar that appears at the top of every dashboard page. The title clearly identifies the purpose of the page, while the navigation buttons on the right allow users to move between all sections of the report: **Executive Overview, Department Performance Analysis, Payment & Approval Insights, Financial Analysis, and Variance Summary Table**.

This design creates a professional, easy-to-navigate experience and keeps the overall layout uniform across every page. It also ensures that each page can stand alone while still feeling like part of the same cohesive report.

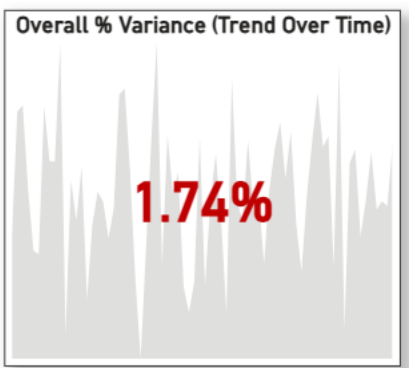
To create the **Executive Overview** Dashboard, I started by adding three **Card** visuals across the top row to display the key financial metrics using the measures that I created:

- **Total Budget**
- **Total Actual**
- **Variance**

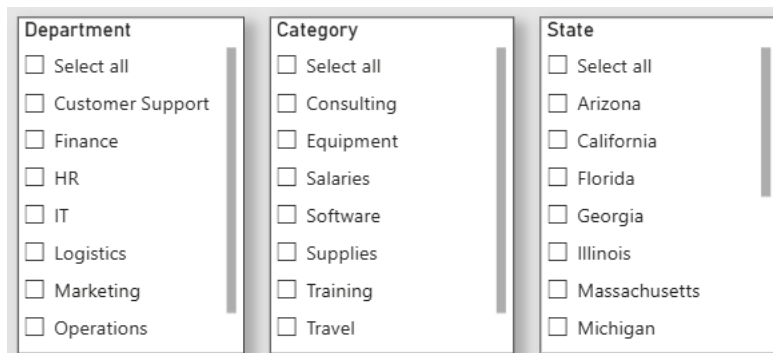


Next, I added a **KPI** visual to show **% Variance** and its trend over time.

- Put **% Variance** into **Value**
- Put **MonthYear** into Trend axis



To make the dashboard fully interactive and take advantage of open space, I added slicers for **Department**, **Category**, and **State**. These slicers allow users to filter the results directly from the Executive Overview page while maintaining the same bordered and shadowed style as the cards and KPI visual for a uniform look.



The image shows three vertical slicer panels with a light gray border and a subtle shadow. Each panel has a title at the top, a 'Select all' checkbox, and a list of items with checkboxes. The 'Department' panel lists: Customer Support, Finance, HR, IT, Logistics, Marketing, and Operations. The 'Category' panel lists: Consulting, Equipment, Salaries, Software, Supplies, Training, and Travel. The 'State' panel lists: Arizona, California, Florida, Georgia, Illinois, Massachusetts, and Michigan. Each panel has a vertical scrollbar on its right side.

Department	Category	State
<input type="checkbox"/> Select all	<input type="checkbox"/> Select all	<input type="checkbox"/> Select all
<input type="checkbox"/> Customer Support	<input type="checkbox"/> Consulting	<input type="checkbox"/> Arizona
<input type="checkbox"/> Finance	<input type="checkbox"/> Equipment	<input type="checkbox"/> California
<input type="checkbox"/> HR	<input type="checkbox"/> Salaries	<input type="checkbox"/> Florida
<input type="checkbox"/> IT	<input type="checkbox"/> Software	<input type="checkbox"/> Georgia
<input type="checkbox"/> Logistics	<input type="checkbox"/> Supplies	<input type="checkbox"/> Illinois
<input type="checkbox"/> Marketing	<input type="checkbox"/> Training	<input type="checkbox"/> Massachusetts
<input type="checkbox"/> Operations	<input type="checkbox"/> Travel	<input type="checkbox"/> Michigan

Below that row I added a **Clustered Column Chart** and a **Line Chart**.

The **Clustered Column Chart** was created the following way:

- In X-axis **Year** was placed.
- In Y-axis **Total Budget** and **Total Actual** were placed.

This compares **Budget** vs **Actual** by **Year**.

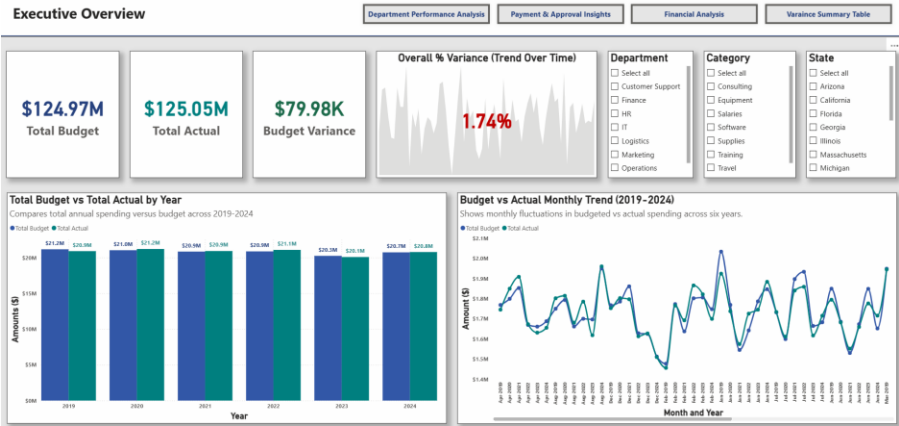
The **Line Chart** was created the following way:

- In X-axis **MonthYear** was placed.
- In Y-axis **Total Budget** and **Total Actual** were placed.

This uses **Budget** and **Actual** to reveal trends over time.

All visuals were tested to ensure they update dynamically when slicers are used. The final layout provides a balanced, professional view of company performance and serves as the main summary page for the entire report.

Together, these visuals provide a clear, high-level summary of company performance and allow executives to quickly assess budget versus actual trends across all departments.





# Functional Requirement 3.2

I began by creating a new page in Power BI named **Department Performance Analysis**. This page focuses on comparing each department’s budget and actual spending in more detail, building on the high-level overview from the first dashboard page.

To maintain a consistent look with the **Executive Overview** page, I applied the same white background, header title, and navigation buttons.

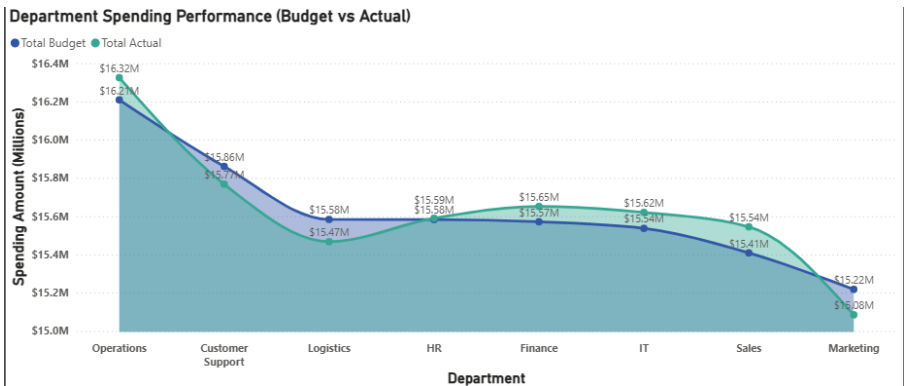
The title and navigation bar were duplicated and updated from the **Executive Overview** page to preserve uniform structure across the report.



I started with a **Matrix** visual that compares the **Total Budget** and **Total Actual** for every department. This layout lets managers see at a glance which departments stayed on target and which went over or under budget.

Department Budget vs Actual Budget		
Shows overall budget performance by department		
Department	Total Budget	Total Actual
Customer Support	\$15,860,390.51	\$15,767,498.79
Finance	\$15,571,066.58	\$15,651,048.44
HR	\$15,582,807.96	\$15,589,464.11
IT	\$15,536,626.19	\$15,620,127.62
Logistics	\$15,583,266.99	\$15,466,953.87
Marketing	\$15,217,866.54	\$15,084,669.99
Operations	\$16,208,458.19	\$16,324,432.65
Sales	\$15,408,341.22	\$15,544,609.85
Total	\$124,968,824.18	\$125,048,805.32

Next, I added an **Area Chart**. It visually shows how each department's spending compares to its budgeted amount.



I next created a **Clustered Bar Chart** to visualize the budget variance for each department. This chart quickly highlights differences in spending, with positive bars showing overspending and negative bars showing savings. Sorting the chart by variance makes it easy to identify the departments with the largest deviations from their budget.

**Conditional formatting** was applied on the **Budget Variance** chart used to distinguish results, using green for over-budget values and red for under-budget values. This consistent color scheme makes it easy to identify significant budget deviations at a glance.

### Color - Categories

Format style

Rules

What field should we base this on?

Variance

Rules

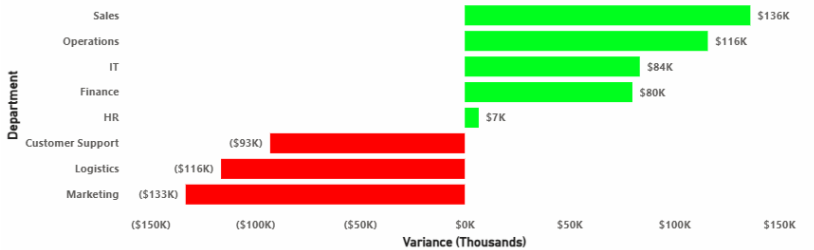
Reverse color order + New rule

If value > 0 Number and <= 10000 Number then Green

If value >= -1000 Number and < 0 Number then Red

### Budget Variance by Department (Over/Under Budget)

Green = Over Budget | Red = Under Budget



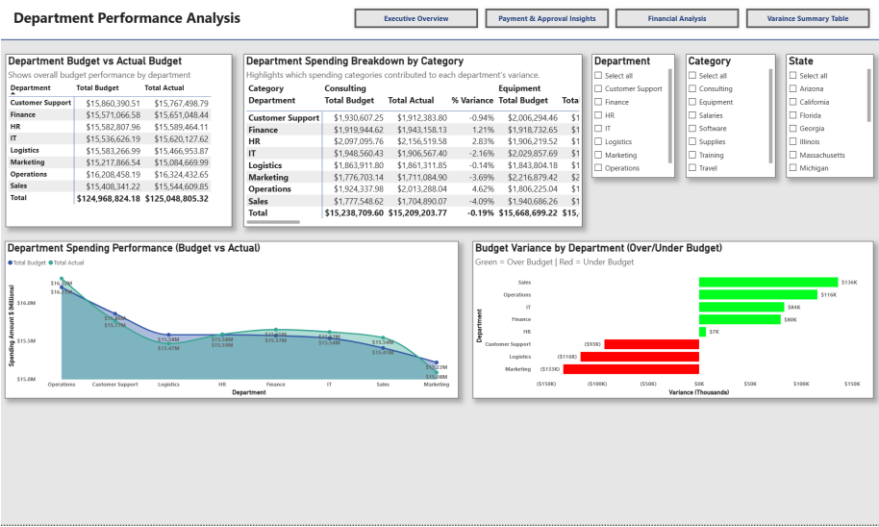
Finally, I added another **Matrix** visual that breaks down each department by category. This makes it easy to see exactly which types of expenses caused a department to be over or under budget.

### Department Spending Breakdown by Category

Highlights which spending categories contributed to each department's variance.

Category	Consulting			Equipment	
Department	Total Budget	Total Actual	% Variance	Total Budget	Total
Customer Support	\$1,930,607.25	\$1,912,383.80	-0.94%	\$2,006,294.46	\$1
Finance	\$1,919,944.62	\$1,943,158.13	1.21%	\$1,918,732.65	\$1
HR	\$2,097,095.76	\$2,156,519.58	2.83%	\$1,906,219.52	\$1
IT	\$1,948,560.43	\$1,906,567.40	-2.16%	\$2,029,857.69	\$1
Logistics	\$1,863,911.80	\$1,861,311.85	-0.14%	\$1,843,804.18	\$1
Marketing	\$1,776,703.14	\$1,711,084.90	-3.69%	\$2,216,879.42	\$2
Operations	\$1,924,337.98	\$2,013,288.04	4.62%	\$1,806,225.04	\$1
Sales	\$1,777,548.62	\$1,704,890.07	-4.09%	\$1,940,686.26	\$1
Total	\$15,238,709.60	\$15,209,203.77	-0.19%	\$15,668,699.22	\$15,

After building all visuals, I arranged them into a balanced layout so each visual complements the others. The slicers for **Department**, **Category**, and **State** were kept the same size and position as the Executive Overview page for consistency. I tested each slicer to confirm that every chart updates dynamically. The final design gives an easy-to-read summary that links department totals with the underlying category details.



As there was a bit of extra space on the dashboard I wanted to fill it with something so I chose to use a **KPI** to show the **Total Company Variance**.

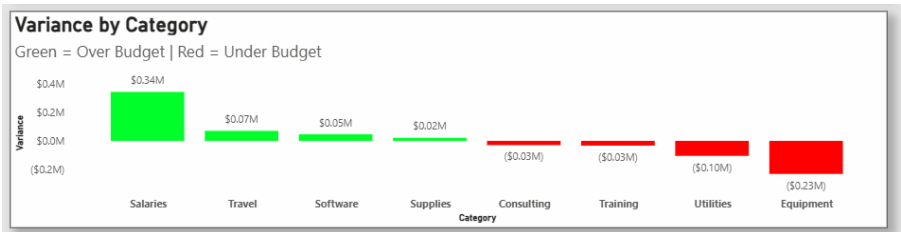
- For **Value**, **Variance** was used.
- For **Trend axis**, **MonthYear** was used.



I also added two **Clustered Column Charts**.

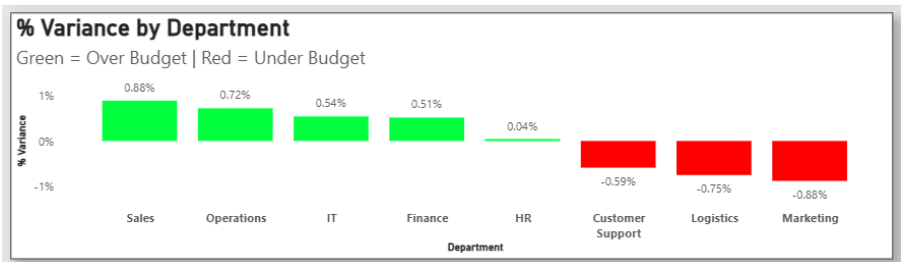
The first looks at **Variance** by **Category**.

- For **X-axis**, **Category** was used.
- For **Y-axis**, **Variance** was used.
- I then applied **conditional formatting** with the same setup to show **Over Budget** in Green and **Under Budget** in Red.

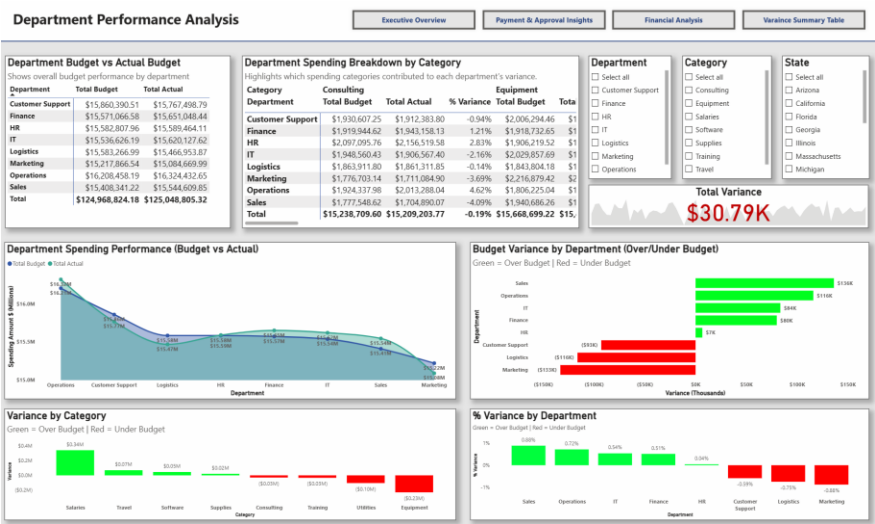


The second looks at **% Variance** by **Department**.

- For **X-axis**, **Department** was used.
- For **Y-axis**, **% Variance** was used.
- I then applied **conditional formatting** with the same setup to show **Over Budget** in Green and **Under Budget** in Red.



Now the dashboard is complete. Together, these visuals provide a comprehensive view of departmental performance, highlighting both successful cost control in categories like **Consulting** and areas requiring financial attention, such as **Salaries**.



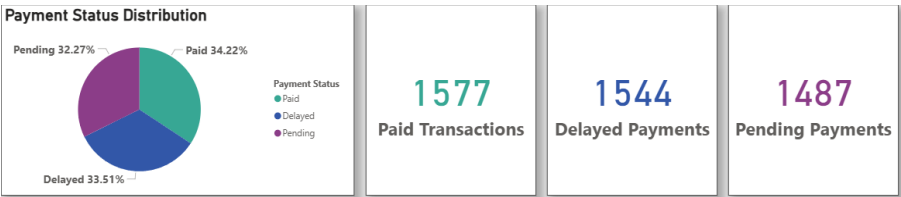
### Functional Requirement 3.3

I began by creating a new page in Power BI named **Payment & Approval Insights**. This page focuses on exploring the company's payment statuses and approval patterns, building on the financial overviews from the previous dashboards.

To maintain a consistent look with the Executive Overview page, I applied the same white background, header title, and navigation buttons. The title and navigation bar were duplicated from the other pages to preserve a uniform structure across the report.

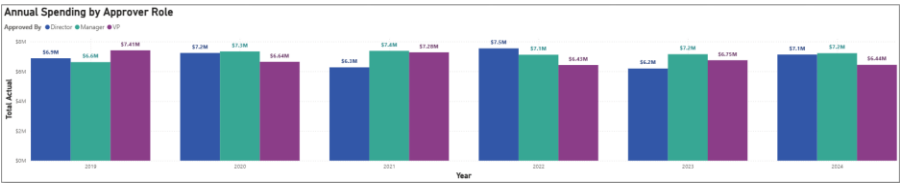


I started by creating a summary section at the top of the page. This begins with a **Pie Chart** that shows the distribution of all payment statuses, making it easy to see the proportion of **Paid**, **Delayed**, and **Pending** transactions. To add more specific detail, I added three **Card** visuals next to it. These cards display the exact counts for **Paid Transactions**, **Delayed Payments**, and **Pending Payments**, providing immediate, actionable numbers that complement the percentages in the pie chart.

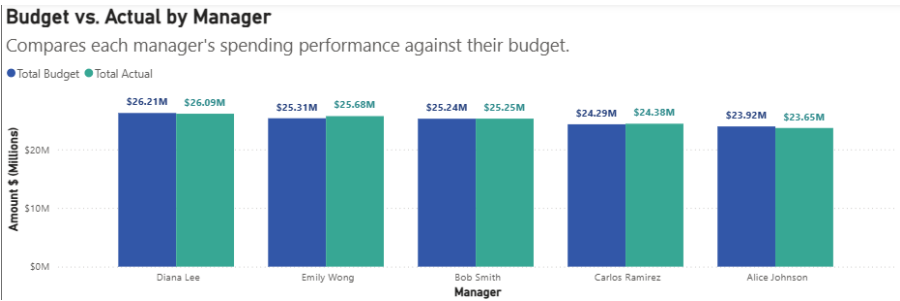


Next, I added a **Clustered Column Chart**. This chart visually shows how the total spending approved by each role (Manager,

Director, and VP) has changed year over year. This helps to identify trends in approval behavior over time.

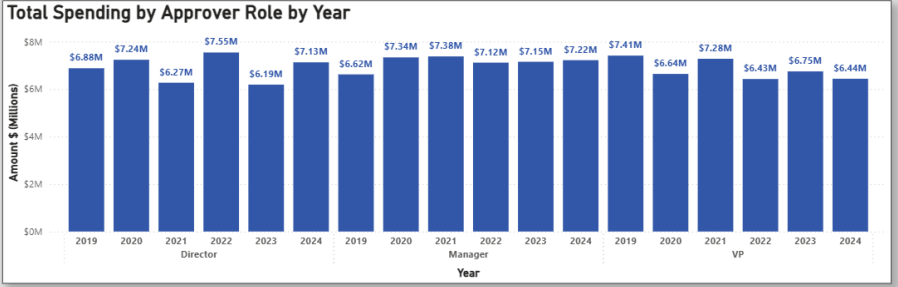


To focus on manager-level performance, I started with a **Clustered Column Chart** that compares the **Total Budget** and **Total Actual** for each individual manager. This layout lets executives see at a glance which managers stayed on target and which went over or under budget, providing a direct measure of their financial oversight.

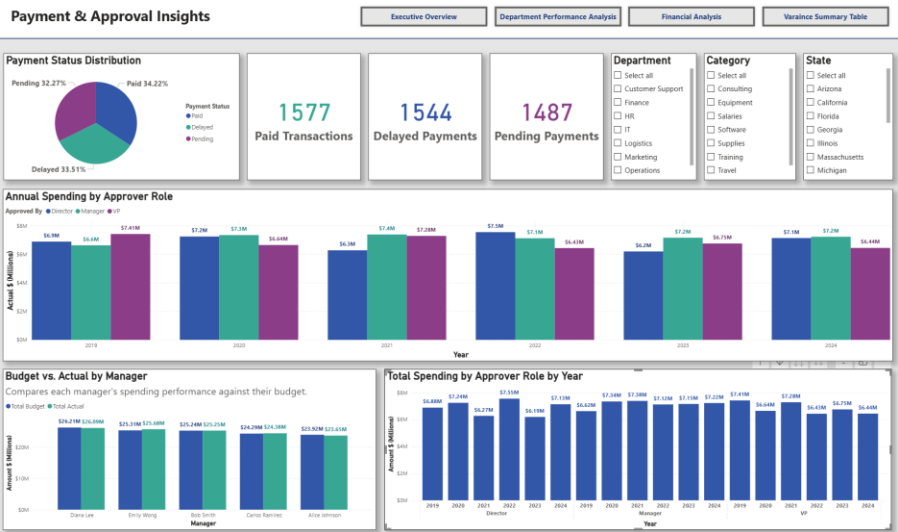


Next to the manager detail, I added another **Clustered Column Chart** to show the **Total Actual** spending grouped by each **Approved By** (Manager, Director, VP) and the **Year**. This visual provides a higher-level summary, making it clear which roles are responsible for approving the most spending overall and complementing the individual manager data.





With the dashboard now complete, these visuals provide clear insight into payment performance trends and approval bottlenecks, helping leadership quickly identify key managers and roles that are driving spending and areas for potential process improvement.



## Functional Requirement 3.4

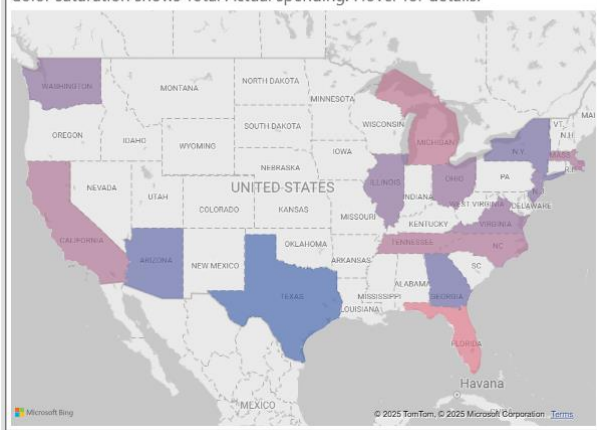
I began by creating a new page in Power BI named **Financial Analysis**. To maintain a consistent and professional look, I duplicated the header, navigation bar, and white background from the previous pages. The canvas size was also kept the same to ensure a uniform layout and user experience across the entire report.

This dashboard will provide a deeper analysis of geographical spending trends across the U.S. The goal of this dashboard is to visually compare budget versus actual performance by state, helping leadership quickly identify key regions for financial review.

I started with a **Filled Map** visual to provide a high-level geographical overview of spending. This map provides an immediate visual representation of which states have the highest spending. The color gradient makes it easy to spot high-volume regions at a glance, while the hover-over tooltip provides the precise budget and actual numbers needed for a quick comparison.

## Geographical Spending Overview

Color saturation shows Total Actual spending. Hover for details.



To complement the map, I added a **Matrix** visual to provide the detailed, raw numbers. While visuals are great for trends, executives often need a table with the exact figures for reports and analysis. This matrix serves as the "source of truth" on the page, allowing for a detailed, side-by-side comparison of **budget**, **actuals**, and **variance** for every **state**.

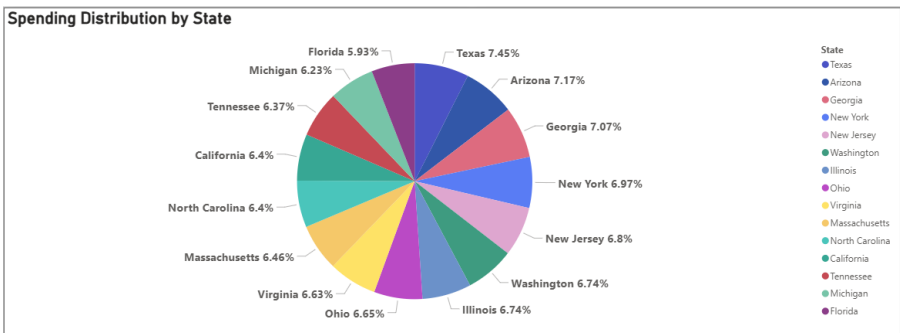
### Financial Summary by State

State	Total Budget	Total Actual	Variance
Arizona	\$8,899,793.76	\$8,962,123.52	\$62,329.76
California	\$7,906,060.72	\$7,997,085.78	\$91,025.06
Florida	\$7,505,637.13	\$7,416,245.52	(\$89,391.61)
Georgia	\$8,839,192.97	\$8,835,707.88	(\$3,485.09)
Illinois	\$8,394,867.34	\$8,425,913.65	\$31,046.31
Massachusetts	\$8,118,783.94	\$8,074,216.20	(\$44,567.74)
Michigan	\$7,782,894.85	\$7,789,784.39	\$6,889.54
New Jersey	\$8,508,702.49	\$8,502,507.35	(\$6,195.14)
New York	\$8,743,285.50	\$8,716,637.48	(\$26,648.02)
North Carolina	\$7,951,687.61	\$7,998,217.90	\$46,530.29
Ohio	\$8,297,454.36	\$8,316,160.40	\$18,706.04
Tennessee	\$7,882,741.92	\$7,968,430.38	\$85,688.46
Texas	\$9,485,610.69	\$9,322,056.07	(\$163,554.62)
Virginia	\$8,247,772.59	\$8,293,909.56	\$46,136.97
Washington	\$8,404,338.31	\$8,429,809.24	\$25,470.93
Total	\$124,968,824.18	\$125,048,805.32	\$79,981.14

The bottom half of the dashboard focuses on two key stories: the proportional distribution of spending and the performance against budget.

To show the proportional breakdown of spending, I created a **Pie Chart**.

The purpose of this chart is to provide a quick, high-level understanding of which states account for the largest portions of the company's total spending. By visualizing the data as parts of a whole, it's easy for executives to see, for example, that **Texas** and **Arizona** make up a significant percentage of the total, which helps to frame the more detailed analysis in the other visuals on the page.



Finally, to highlight performance against the budget, I added a **Clustered Bar Chart**. The most important feature is the use of **conditional formatting** to automatically color the bars.

### Color - Categories

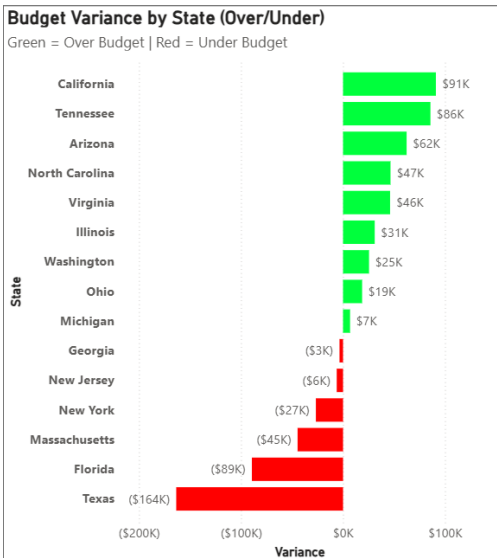
Format style  
Rules

What field should we base this on?  
Variance

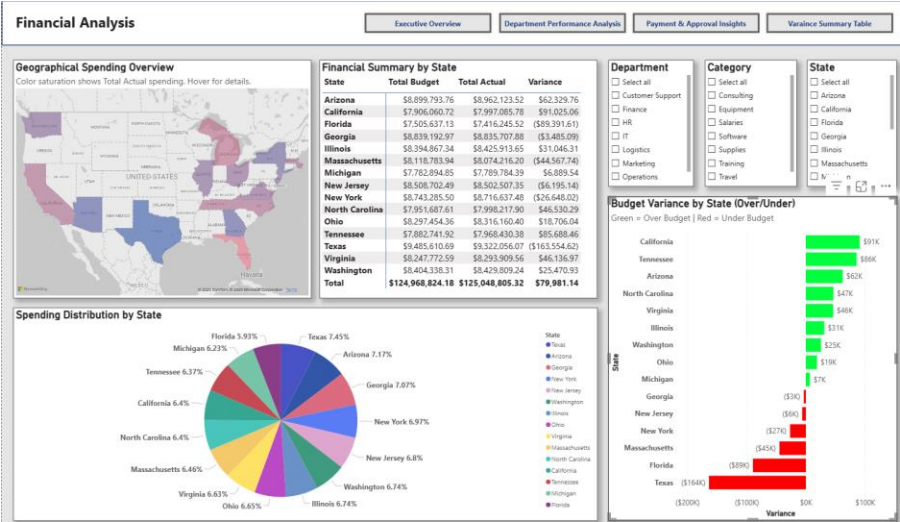
Rules Reverse color order + New rule

If value	>	0	Number	and	<=	10000	Number	then	Green
If value	>=	-10000	Number	and	<	0	Number	then	Red

This visual is arguably the most critical on the dashboard because it moves beyond just showing where money is spent and focuses on performance. It was designed to provide an instant, actionable insight into which states are over or under budget. The use of green for over budget and red for under budget, combined with a clear subtitle, immediately draws an executive's attention to the areas with the most significant financial deviations, making it a powerful tool for decision-making.



With the dashboard now complete, each visual on this page works together to link geographic spending patterns with financial performance. This gives leadership an actionable, at-a-glance view of regional trends, highlighting both top-performing states and those that may require further investigation.



## Functional Requirement 3.5

For the final, optional requirement, I created a calculated summary table using DAX. The purpose of this task was to generate a clean, static summary of financial performance for each department, which could be used for high-level reporting where interactive filters are not needed. This also allowed me to demonstrate a more advanced DAX skill.

To maintain a consistent look with the other dashboards, I began by creating a new page in Power BI named **Variance Summary Table**. I applied the same white background, header title, and navigation buttons that were used across the entire report.

The core of this requirement was to create a new table directly within the Power BI model using DAX. I used the **SUMMARIZECOLUMNS** function to generate a table that grouped all the financial data by the **Department** column. The formula also created three new columns, **Total Budget**, **Total Actual**, and **Variance**. It then populated them with the results of the measures I had already built.

Variance Summary Table = -- names the new calculated table that will be created in your data model

SUMMARIZECOLUMNS( -- creates a summary table based on groups and expressions

'Department\_Dim'[Department], -- specifies the column to group by; it will create one row for each unique department

"Total Budget", -- creates a new column and names it "Total Budget"

[Total Budget], -- fills the "Total Budget" column by calculating the [Total Budget] measure for each department

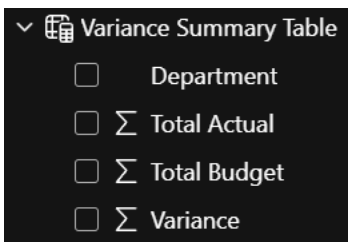
"Total Actual", -- creates a new column and names it "Total Actual"

[Total Actual], -- fills the "Total Actual" column by calculating the [Total Actual] measure for each department

"Variance", -- creates a new column and names it "Variance"

[Variance] -- fills the "Variance" column by calculating your [Variance] measure for each department

) -- Closes the SUMMARIZECOLUMNS function



After creating the table, I confirmed in the **Data view** that it was generated correctly with all the required columns and data. I then changed the formatting of the three new columns to **Currency**.



Department ▾	Total Budget ▾	Total Actual ▾	Variance ▾
Marketing	\$15,217,866.54	\$15,084,669.99	(\$133,196.55)
Sales	\$15,408,341.22	\$15,544,609.85	\$136,268.63
IT	\$15,536,626.19	\$15,620,127.62	\$83,501.43
HR	\$15,582,807.96	\$15,589,464.11	\$6,656.15
Operations	\$16,208,458.19	\$16,324,432.65	\$115,974.46
Finance	\$15,571,066.58	\$15,651,048.44	\$79,981.86
Logistics	\$15,583,266.99	\$15,466,953.87	(\$116,313.12)
Customer Support	\$15,860,390.51	\$15,767,498.79	(\$92,891.72)

Finally, to display the results, I added a single **Matrix** visual to the report page. Since the requirement was for a "static summary," I made sure to not add the slicers to this page as to avoid confusion and keep the design clean.

To provide context, I added a text box above the matrix explaining that the table was generated with DAX and is not affected by slicers. This summary table provides a concise, static overview for leadership use and also demonstrates advanced DAX proficiency in creating custom-calculated tables.

Variance Summary Table

Executive Overview | Department Performance Analysis | Payment & Approval Insights | Financial Analysis

### DAX-Generated Summary Table

This table provides a static, high-level summary of financial performance for each department. It was created as a **Calculated Table** using the **SUMMARIZECOLUMNS** function in DAX.

The table includes the **Total Budget**, **Total Actual**, and the resulting **Variance** for every department, offering a clean and consolidated view for reporting purposes. As this is a static summary, it is not affected by slicers.

Department	Total Budget	Total Actual	Variance
Customer Support	\$15,860,390.51	\$15,767,498.79	(\$92,891.72)
Finance	\$15,571,066.58	\$15,651,048.44	\$79,981.86
HR	\$15,582,807.96	\$15,589,464.11	\$6,656.15
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Sales	\$15,408,341.22	\$15,544,609.85	\$136,268.63
Total	\$124,968,824.18	\$125,048,805.32	\$79,981.14

## Functional Requirement 4

To complete the **Executive Overview**, I added two **Text Boxes** at the bottom of the page to present a high-level summary of the most critical findings from the entire report. This section serves as an executive summary, providing key takeaways for leadership at a glance.

The purpose of this summary is to demonstrate a comprehensive understanding of the data and to guide executives to the most important insights without requiring them to analyze every chart in detail. Each bullet point was intentionally chosen to highlight a key finding from a different dashboard page, telling a cohesive story about the company's performance.

- The first point, on **overall spending**, comes directly from the **% Variance** KPI on the **Executive Overview** page and sets the high-level context.
- The insights on **departmental overspending** are drawn from the **Department Performance Analysis** page, highlighting the top departments that overspend.
- The finding that **Marketing** and **Logistics** consistently operated under budget is also derived from the **Department Performance Analysis** page, showcasing the most successful examples of cost management.

- The **geographical findings** come from the **Financial Analysis** page, pinpointing the specific states with the largest budget overruns.
- Finally, the points on **operational bottlenecks** and **spending by approval role** are derived from the **Payment & Approval Insights** page, providing actionable information about internal processes.

Overall spending was **1.74%** over budget across the entire six-year period.  
The **Operations** and **Sales** departments showed the highest levels of overspending.  
**Marketing** and **Logistics** consistently operated under budget, showing the most significant savings.

**California** and **Tennessee** were the states with the largest budget overruns.  
Over **66%** of all transactions are currently categorized as 'Delayed' or 'Pending', indicating a major operational bottleneck.  
Managers approved the highest total spending by role, accounting for **\$42.84M**.