

# NEXT GEN EMPLOYABILITY PROGRAM

CREATING A  
FUTURE-READY  
WORKFORCE



**Student Name : Nithya Santhoshini Kandula**

**Student ID : STU60950b031f8a71620380419**

**College Name: Rishi MS Institute of Engineering and Technology for  
Women Affiliated by JNTUH-HYD-TS**

# CAPSTONE PROJECT SHOWCASE

**PROJECT TITLE : IMPLEMENTATION OF STAR SCHEMA BASED SALES ANALYSIS**

Abstract | Problem Statement | Project Overview | Proposed Solution |  
Technology Used | Modelling & Results | Conclusion | Q&A

# ABSTRACT

## PROJECT OVERVIEW

- The project focuses on leveraging a Star Schema for in-depth sales analysis.
- Objectives: To enhance decision-making through comprehensive sales insights.

## SIGNIFICANCE OF SALES ANALYSIS

- Sales analysis plays a pivotal role in shaping strategic business decisions.
- Understanding customer behavior, product performance, and market trends is crucial for sustained success.



## PROBLEM STATEMENT

The current state of sales data management poses significant challenges:

- Managing diverse datasets from sources such as sales, stores, and personnel, creates a tangled web of information that is difficult to navigate.
- The absence of a cohesive data integration framework results in disjointed insights, hindering the ability to draw meaningful correlations.

## IMPORTANCE OF SALES ANALYSIS

Effective sales analysis is imperative for:

- **Strategic Decision-Making:**

A lack of insightful sales data undermines the ability to make informed strategic decisions.

- **Revenue Optimization:**

Identifying and capitalizing on sales patterns is crucial for optimizing revenue streams.

# PROJECT OVERVIEW

## SCOPE AND OBJECTIVES

**Comprehensive Sales Analysis:** The project's primary goal is to establish a robust framework for comprehensive sales analysis, encompassing data from diverse sources such as dates, products, stores, salespeople, and sales queries

## KEY COMPONENTS

**Dates:** Essential for time-based analysis, understanding seasonal trends, and planning promotions.

**Products:** Analyzing product performance, identifying top-sellers, and optimizing the product portfolio.

**Sales:** Examining overall sales trends, identifying patterns, and understanding revenue streams.

**Salespeople:** Evaluating individual and team performance to enhance sales strategies.

**Stores:** Analyzing store-specific data for targeted improvements and resource allocation.

## PROPOSED SOLUTION

### STAR SCHEMA IMPLEMENTATION

- **Architecture Choice:** We opted for a Star Schema to facilitate efficient data modeling and analytics.
- **Unified View:** Connecting data from dates, products, sales, stores, and salespeople tables creates a unified and easily navigable structure.

### POWER BI INTEGRATION

- **Visualization Tool:** Power BI was selected for its intuitive interface and robust visualization capabilities.
- **Data Connection:** All Excel sheets, including dates, products, sales, sales query, stores, and salespeople, are seamlessly integrated into Power BI.

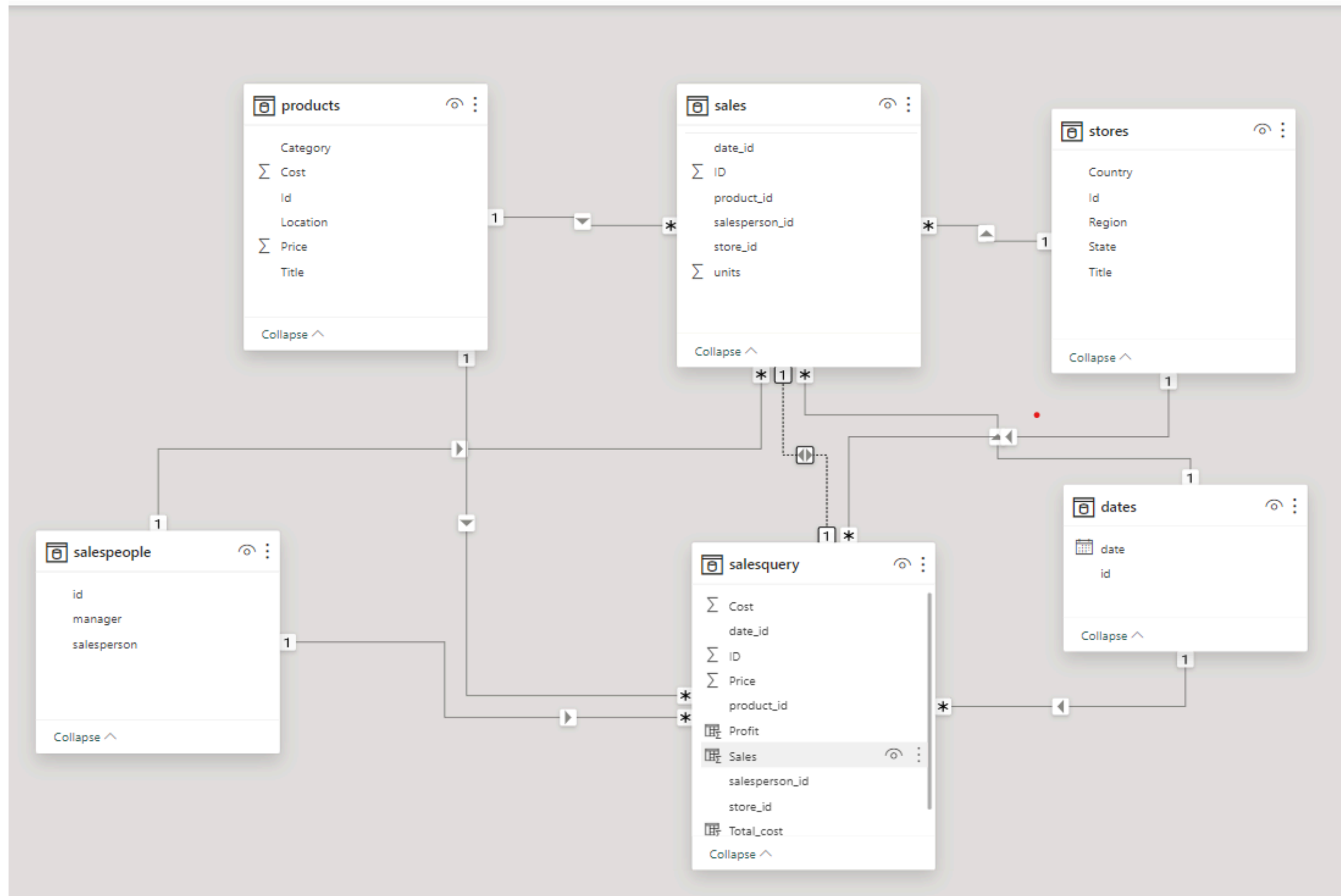
## TECHNOLOGY USED

### POWER BI

1. **Visualization and Reporting:** Power BI serves as the primary tool for visualizing and reporting sales data.
2. **User-Friendly Interface:** Its intuitive interface enables users to interact with and derive insights from the data effortlessly.
3. **Data Source Integration:** Excel sheets (dates, products, sales, sales query, stores, salespeople) serve as the initial data sources, seamlessly integrated into Power BI.
4. **Data Modeling:** The Star Schema architecture enhances data modeling, providing a structured framework for efficient analysis.
5. **Relationships:** Establishing relationships between the central fact table and dimension tables ensures coherent insights.



# MODELLING & RESULTS



- Visual representation of intricate relationships among products, sales, and related data.
- Utilizes a star schema to illustrate the diverse touchpoints within the system.
- Highlights key elements such as products, sales, and additional data.

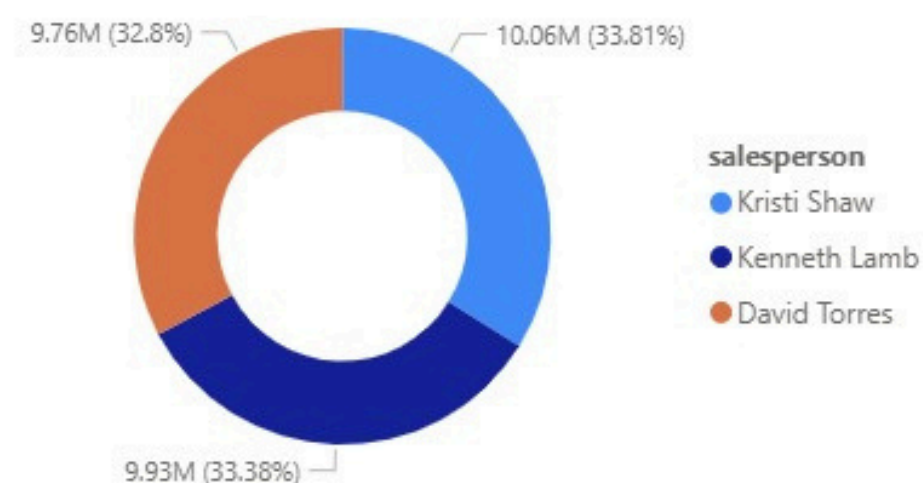
# MODELLING & RESULTS

## STAR SCHEMA BASED SALES ANALYSIS

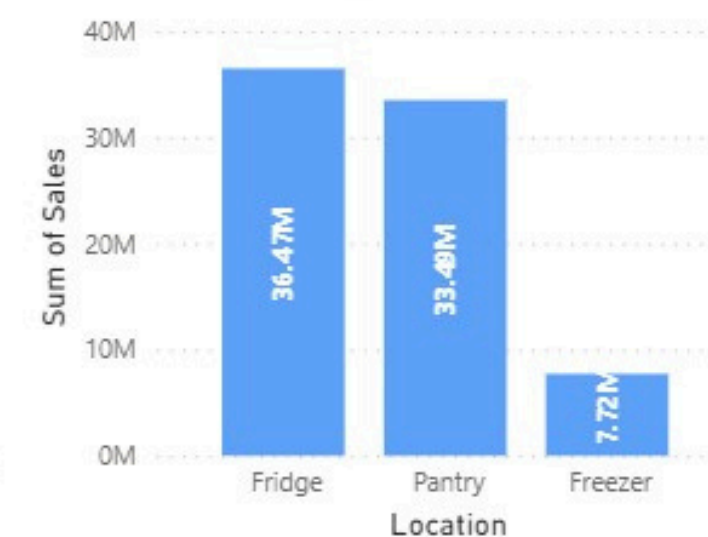
Profit by Country



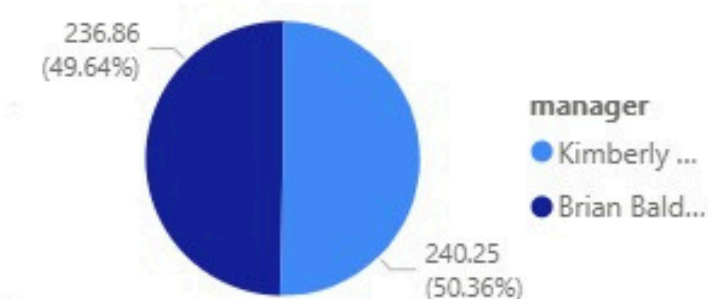
Top 3 Sales Persons



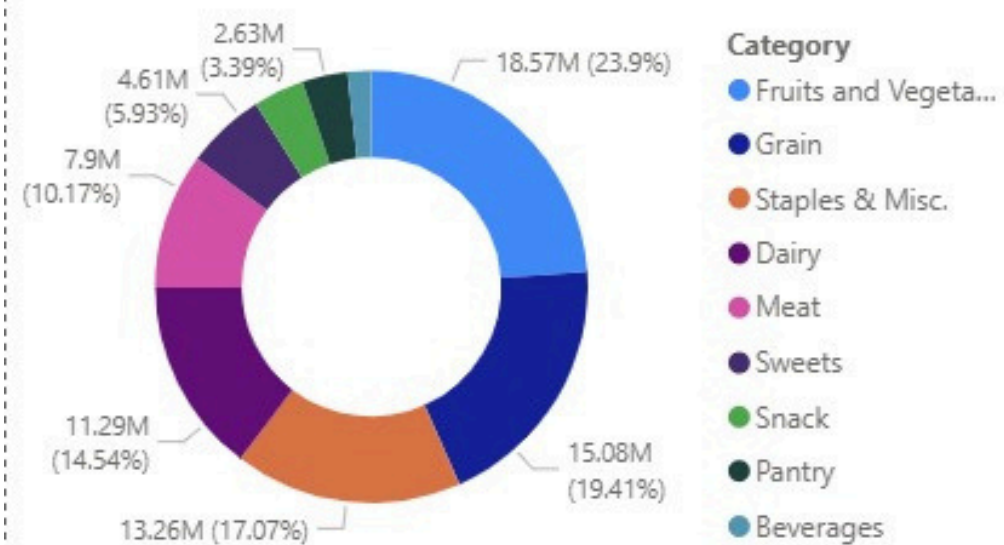
Sales by Location



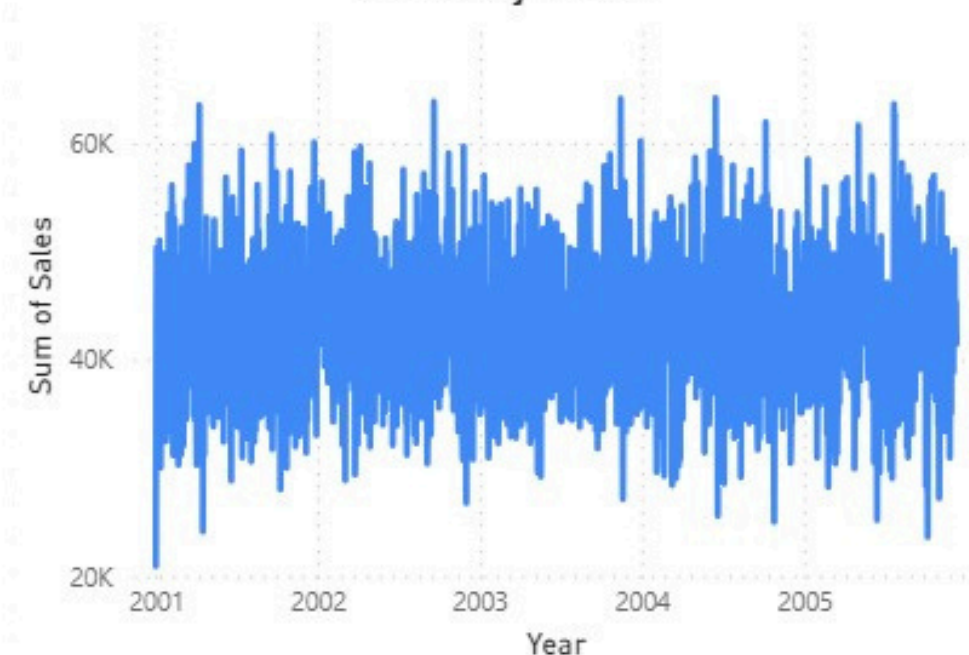
Average Sales by manager



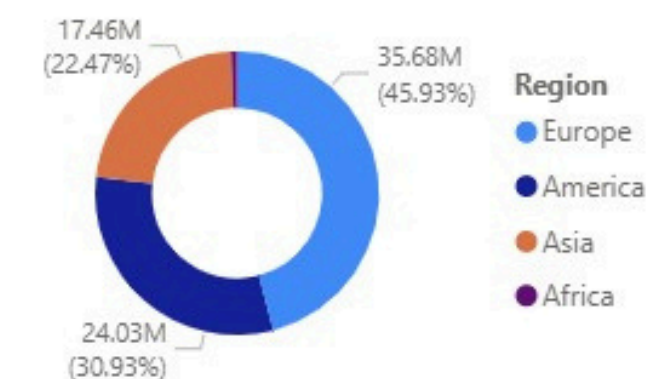
Sales by Category



Sales by Date

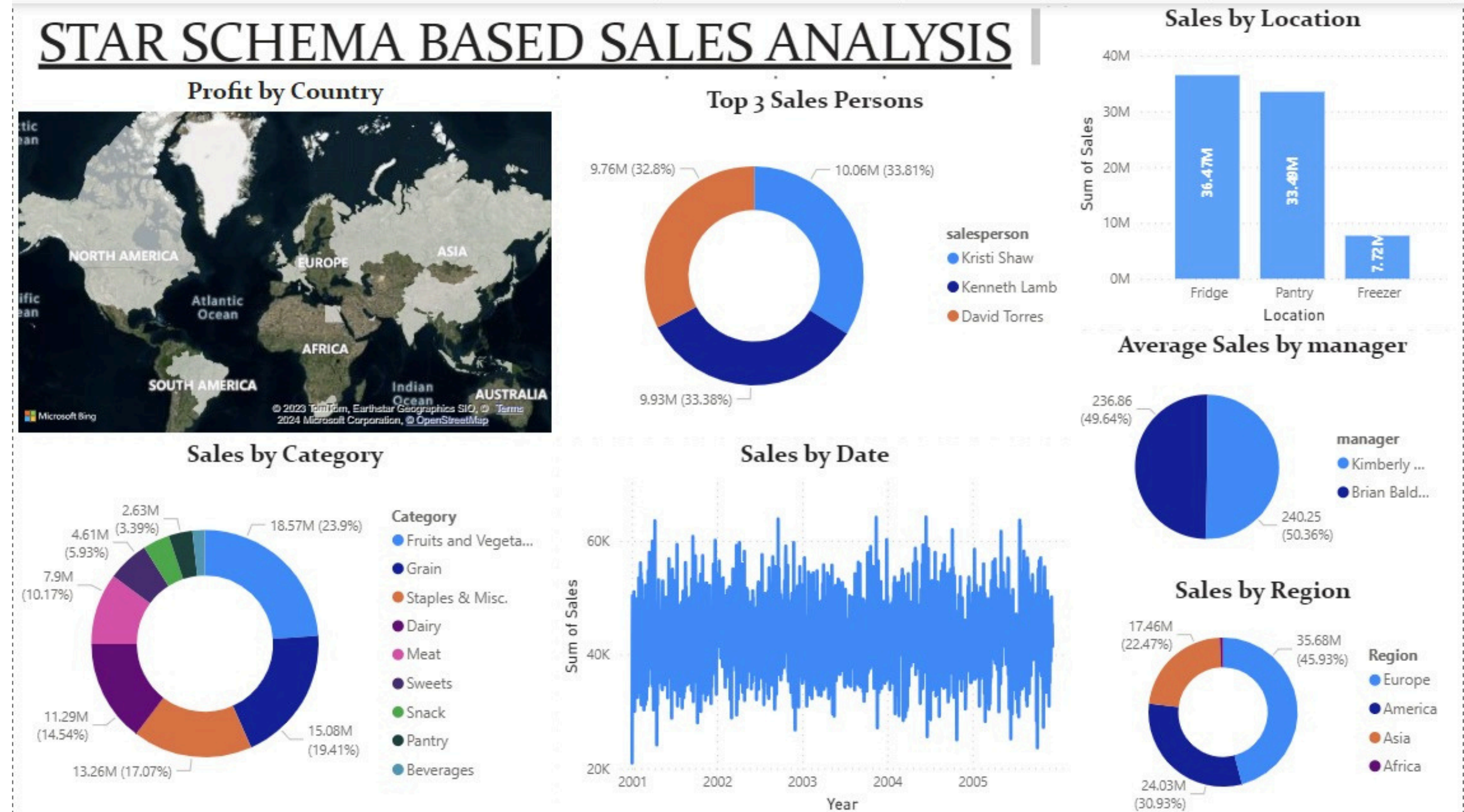


Sales by Region





- **Overall sales:** The top of the image shows that total sales were \$36.47 million.
- **Sales by country:** The United States, United Kingdom, and Canada have the highest sales by country.
- **Sales by region:** North America has the highest sales by region, followed by Europe and Asia.
- **Sales by category:** Beverages is the top-selling category, followed by Grains and Dairy.

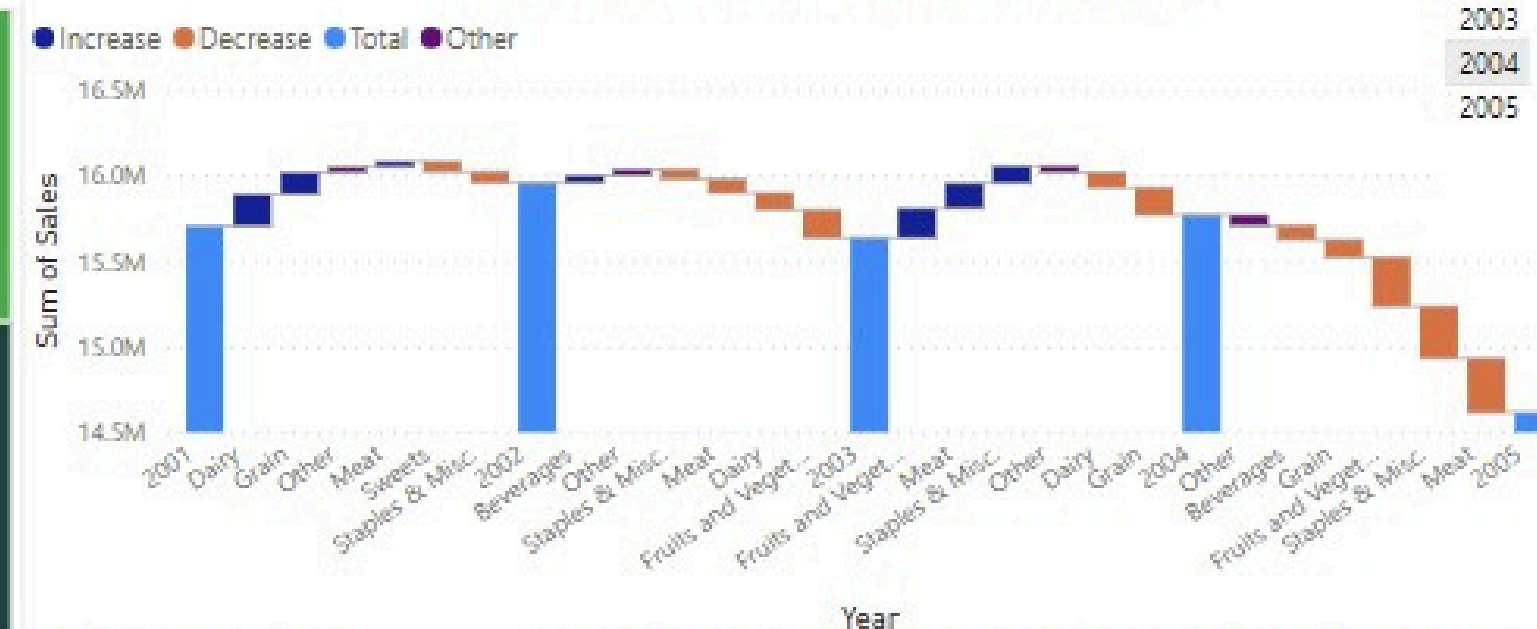


# STAR SCHEMA BASED SALES ANALYSIS

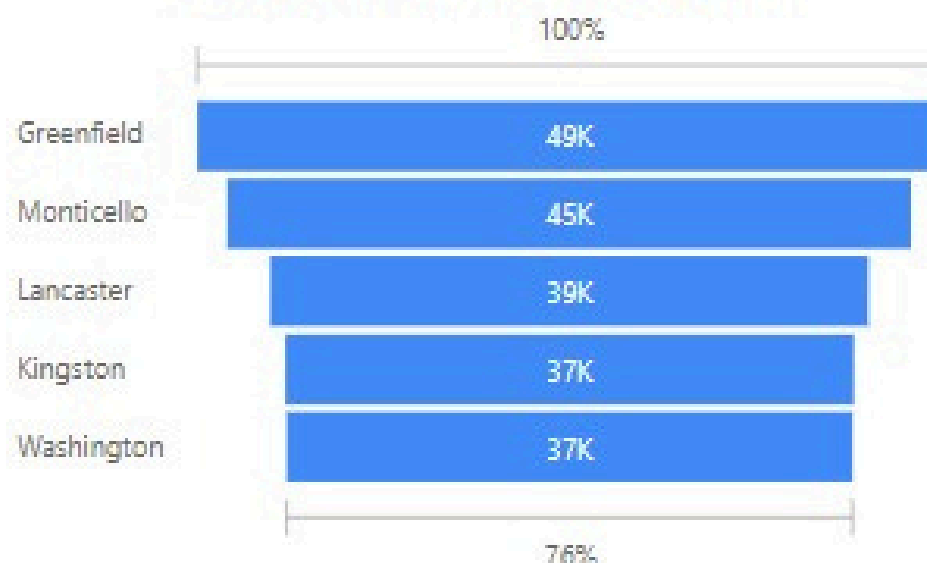
Sum of Sales by salesperson



Sum of Sales by Year and Category



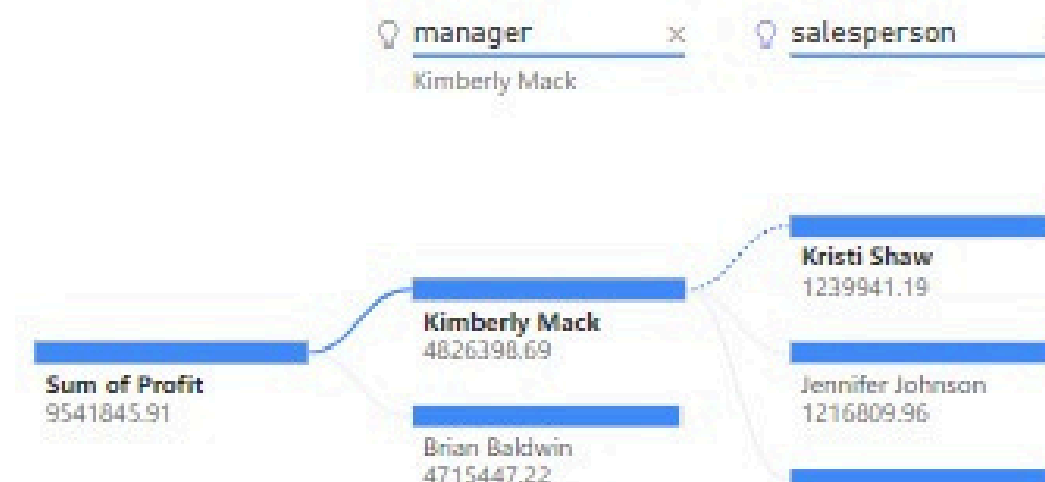
Top 5 Stores by Total\_cost



Top 5 Countries by Sum of Sales

Country	Sum of Sales
United States	1,311,549.99
Texas	1,311,549.99
United Kingdom	3,953,628.62
England	3,953,628.62
Italy	3,459,014.05
Piedmont	1,448,173.83
Lombardy	2,010,840.22
Germany	2,291,053.48
Bavaria	2,291,053.48
<b>Total</b>	<b>11,015,246.14</b>

Decomposition tree of Sum Of Profits by Managers and Salesperson

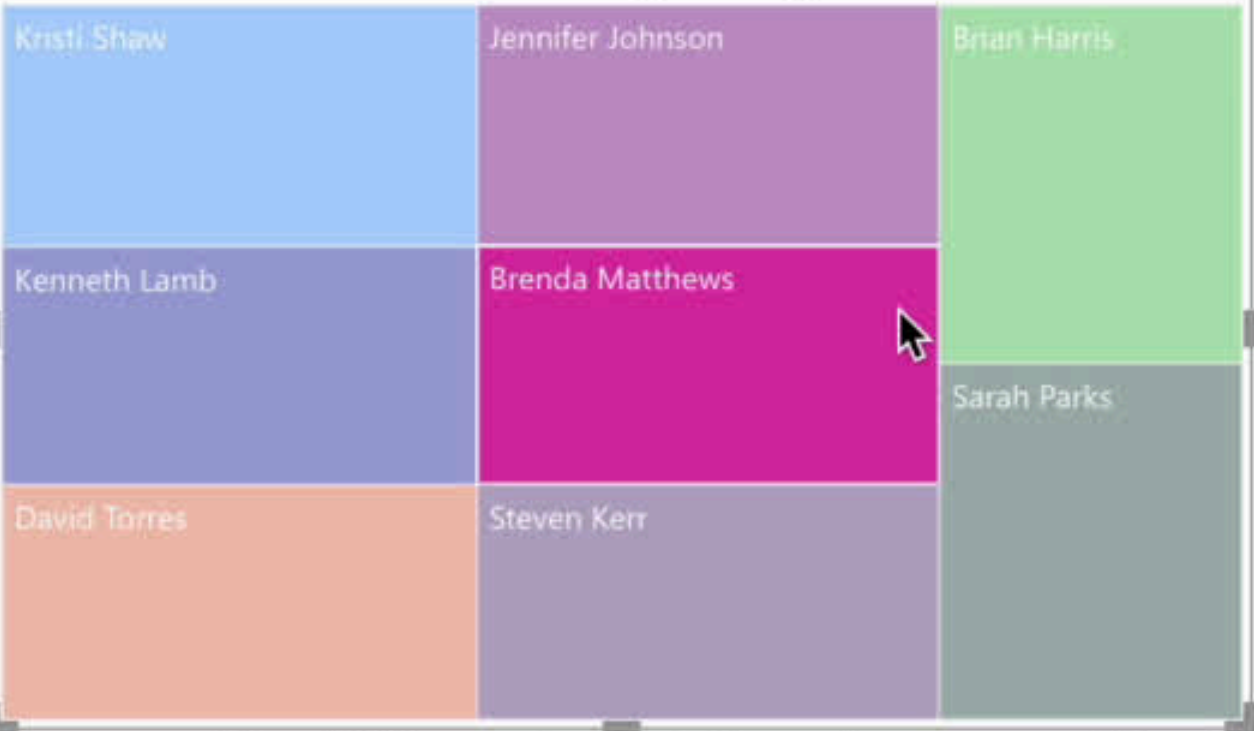


- **Store Costs:** Greenfield leads with \$49k, top 5 are US-based.
- **Sales:** US dominates with \$1.3m, followed by UK & Canada.
- **Profits:** Kimberly Mack is the top salesperson, raking in \$1.2m.



# STAR SCHEMA BASED SALES ANALYSIS

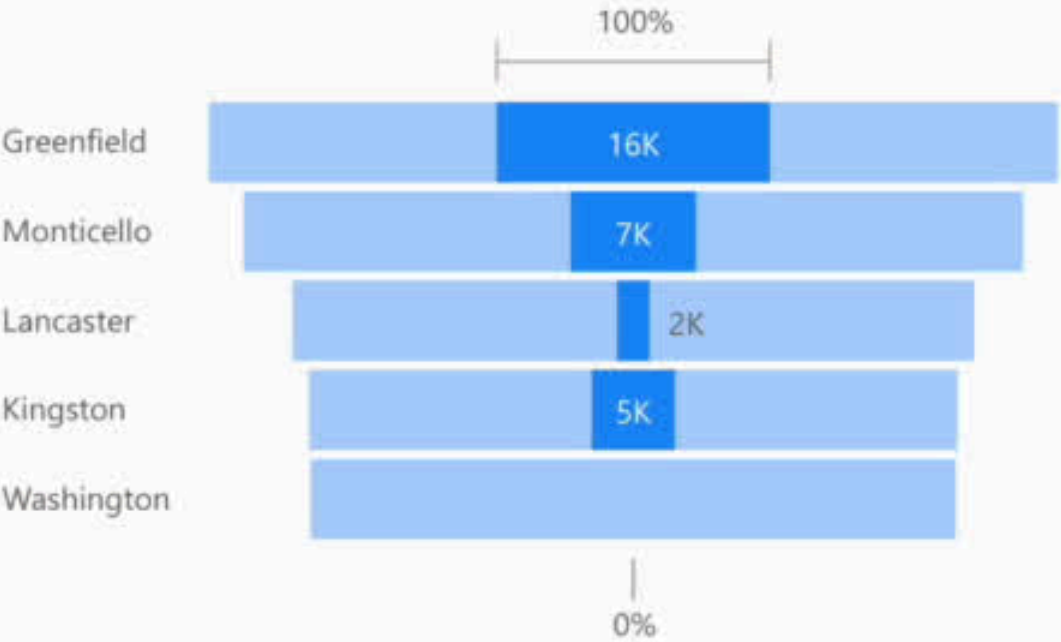
Sum of Sales by salesperson



Sum of Sales by Year and Category



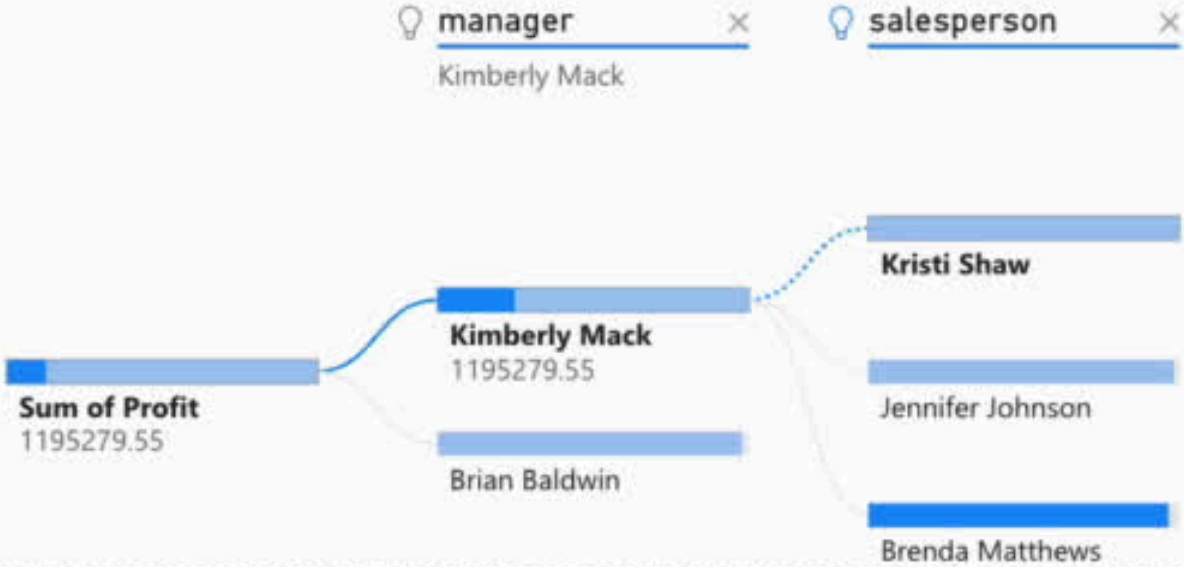
Top 5 Stores by Total\_cost



Top 5 Countries by Sum of Sales

Country	Sum of Sales
United States	177,878.58
Texas	177,878.58
United Kingdom	535,174.35
England	535,174.35
Italy	464,489.41
Piedmont	206,931.38
Lombardy	257,558.03
Germany	296,875.56
Bavaria	296,875.56
Total	1,474,417.90

Decomposition tree of Sum Of Profits by Managers and Salesperson



Click here

[Reference link](#)





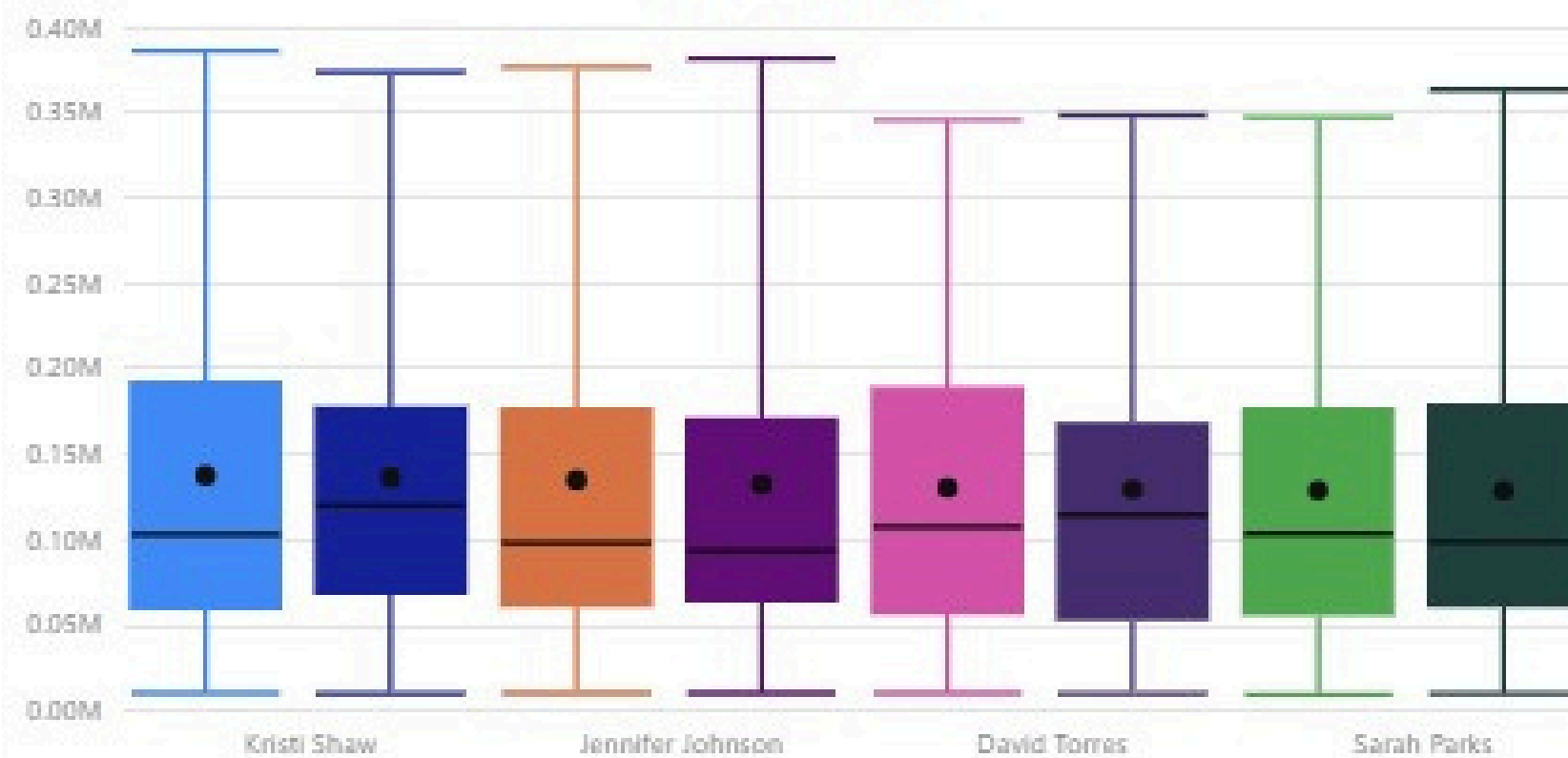
2003 Kimberly Mack Sum of Sales	7,772,684.21
2004 Kimberly Mack Sum of Sales	8,049,583.88
Sum of Sales Change	276,899.67 (3.56%)
2003 Kimberly Mack Rank	2
2004 Kimberly Mack Rank	1
Rank Change	▲1

Sum of Price	Sum of Sales	First manager	First salesperson
120.83	77.68M	Brian...	Brenda...

Click here

[Reference link](#)

**Box Plot of Sum of Profit by salesperson and Category**



628,567.29  
Sum of Sales

628,083.79  
Sum of Sales

624,096.34  
Sum of Sales

581,454.68  
Sum of Sales

579,344.64  
Sum of Sales

578,891.27

**Multirow Card**

United States  
Country

Brian Harris  
salesperson

Fruits and Vegetables  
Category

United States  
Country

Kenneth Lamb  
salesperson

Fruits and Vegetables  
Category

United States  
Country

Kristi Shaw  
salesperson

Fruits and Vegetables  
Category

United States  
Country

Steven Kerr  
salesperson

Fruits and Vegetables  
Category

United States  
Country

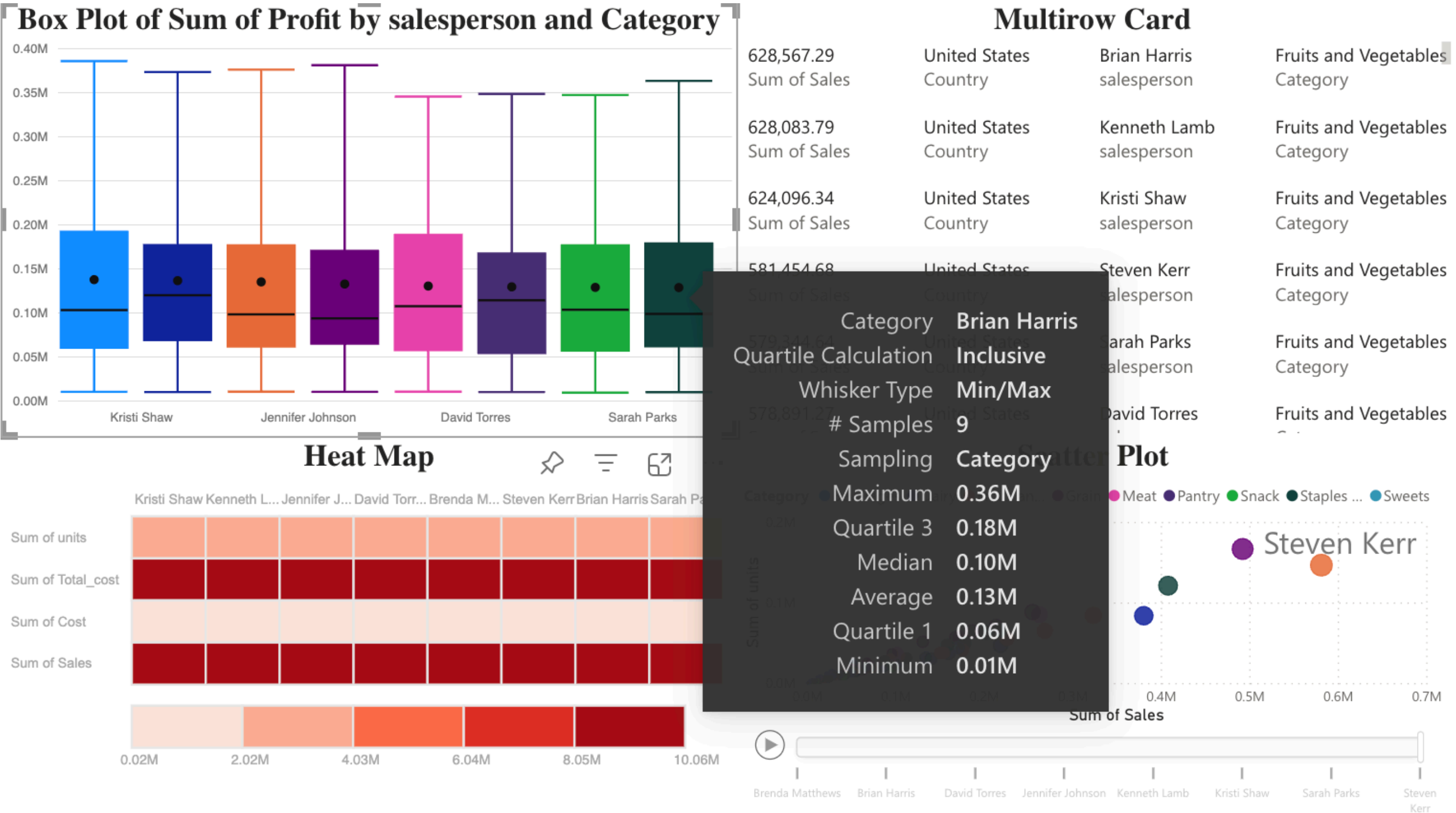
Sarah Parks  
salesperson

Fruits and Vegetables  
Category

United States

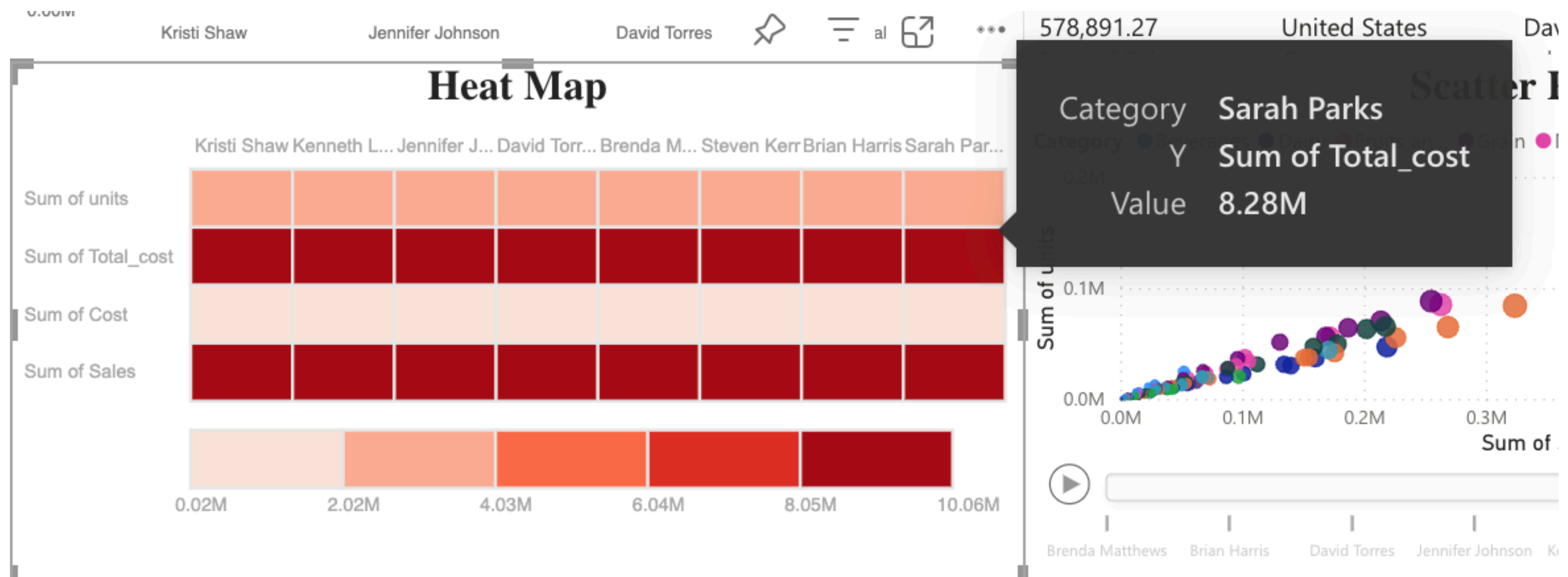
David Torres

Fruits and Vegetables



• "Beverages" has the highest median sales, followed by "Dairy" and "Fruits and Vegetables."

[Click here](#)  
[Reference link](#)



- Sarah Parks and Brian Harris have high sales in "Fruits and Vegetables," while Steven Kerr leads in "Beverages."

## Key Influencers of Category by Sales

Key influencers Top segments

What influences Sales to Increase ?

When...

...the average of Sales increases by

Category is Snack

617.8

Category is Dairy

525.2

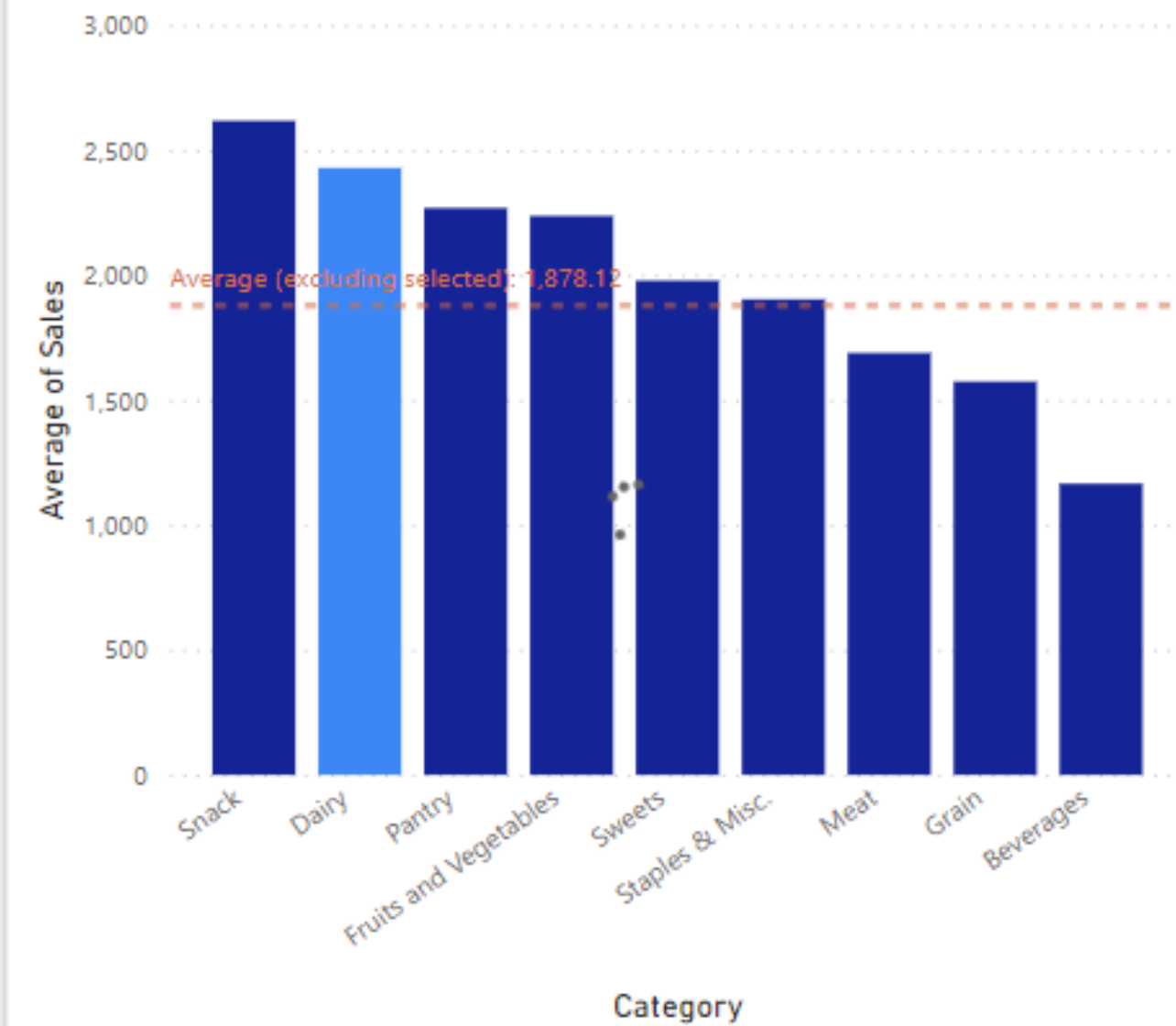
Category is Pantry

408.5

Category is Fruits and Vegetables

405.6

← Sales is more likely to increase when Category is Snack than otherwise (on average).



☐ Only show values that are influencers



## CONCLUSION

### ENHANCED ANALYSIS:

- The Star Schema structure facilitates in-depth analysis across different dimensions, enabling identification of trends, top-sellers, and performance variations.

### KEY FINDINGS:

- **Strong sales:** Total sales were \$36.47 million, with consistent growth over five years.
- **Top performers:** North America, Beverages category, and Kristi Shaw (salesperson) lead in their respective areas.
- **Specific opportunities:** Snack category holds high potential for increased sales with average sales rise.

### ACTIONABLE INSIGHTS:

- Focus on promoting Snack category and Monitor profitability and popularity differences across product categories
- Power BI visualizations make data readily accessible and understandable, empowering informed decision-making for optimizing sales strategies.

**THANK YOU!**