Project - Power BI Project Summary: Northwind Data Analysis
Dates: 08.01.2025 – 16.01.2025
Creator: Omri David

Background and Objective

The objective of this project was to create interactive dashboards using Power BI to analyze data from the Northwind database, which describes business operations, including sales, suppliers, customers, employees, and products.

Key Steps in the Project

1. Data Preparation and Modeling:
   - Imported data from the Northwind database.
   - Ensured data quality and completeness.
   - Built relationships between tables such as Orders, Customers, Suppliers, Employees, and Products.
2. Measure Development: Created custom DAX measures, including:
   - Total Sales: Calculating overall sales.
   - Average Sales per Order: Determining average revenue per order.
   - Year-over-Year Growth: Analyzing yearly changes in sales.
3. Dashboard and Page Creation:
   Page 1: General Sales Analysis
   - Sales by product categories
   - Top 10 products by sales.
   - Geographic breakdown of sales.

   Page 2: Customer Analysis
   - Top 10 customers by sales.
   - Geographic distribution of customer sales.
   - Customer segmentation by revenue buckets.

   Page 3: Supplier Analysis
   - Top 10 suppliers by sales.
   - Geographic map of supplier locations.
   - Matrix showing sales by supplier and product.

Page 4: Time Trends Analysis

- Monthly and yearly sales trends.
- Category performance over time.
- Yearly sales comparisons.

4. Design and Interactivity:
    - Integrated dynamic slicers for filtering by year, category, supplier, and more.
    - Applied custom design elements, clear labels, and intuitive color schemes.

Key Results

Insights Gained:

- Identified top-performing product categories and their contribution to revenue.
- Analyzed purchase patterns of key customers and suppliers.
- Detected seasonal and yearly sales trends.

Improved Decision-Making:

- Created interactive reports enabling users to derive insights quickly.
- Performed multidimensional analysis of business data across various sources.

Challenges and Solutions

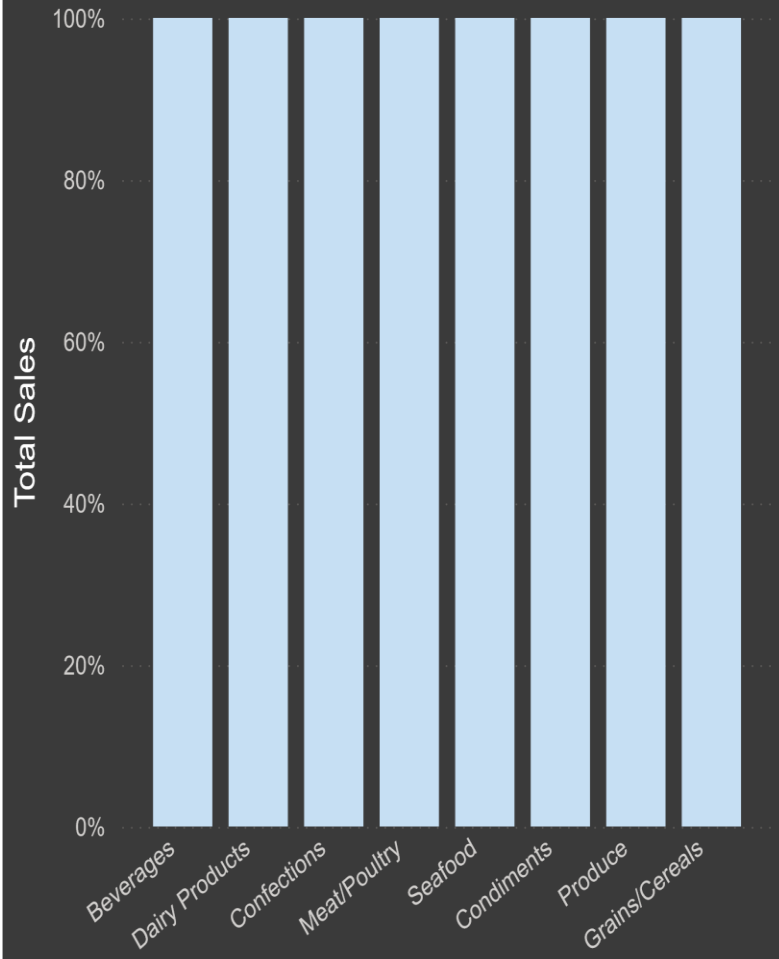
- Managing Complex Data Relationships: Built robust table relationships to ensure accurate calculations.
- Creating Advanced Measures: Used DAX for custom formulas to handle trends and time-based data.

Summary

This project demonstrates the ability to analyze data and build professional dashboards using Power BI. It highlights:

- Strong business understanding.
- Proficiency with advanced BI tools.
- Ability to present data insights clearly and interactively.

Sales by Product Category



Total Sales by OrderDate

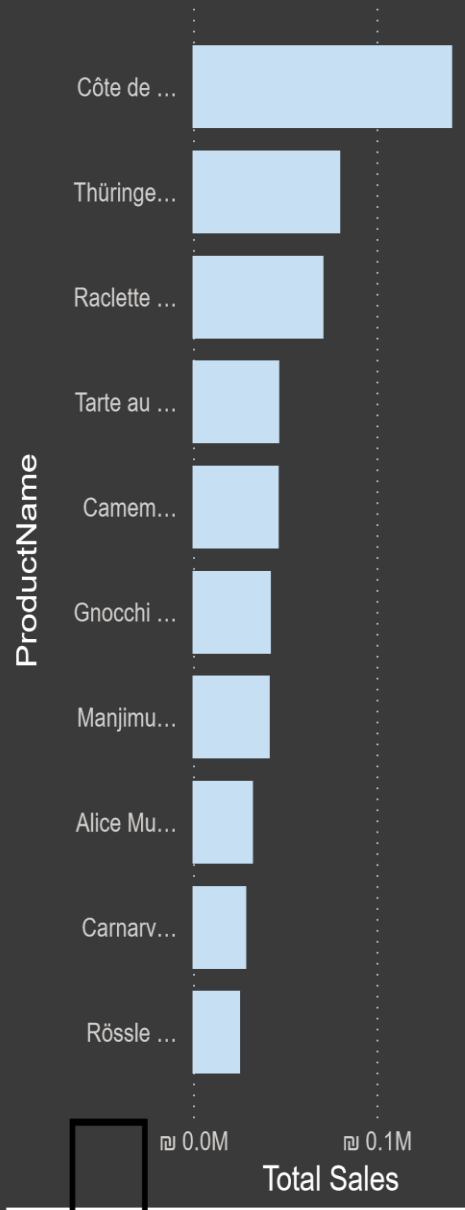
2.78K

Average Sales Per Order by OrderDate

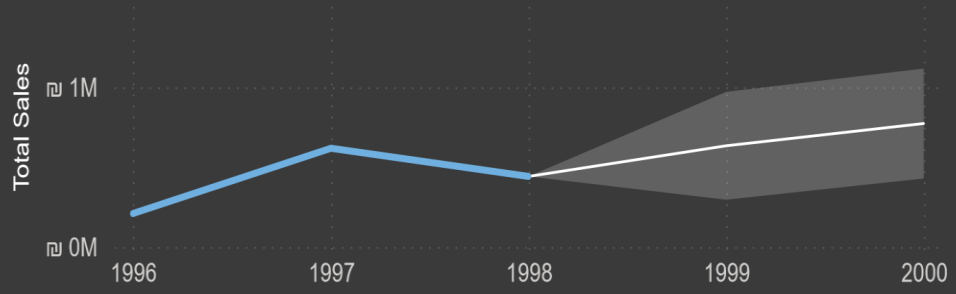
694.66

CategoryName	1996	1997	1998	Total
Beverages	₪ 47,919	₪ 103,924.305	₪ 116,024.875	**₪ 267,868.18**
Dairy Products	₪ 40,980.45	₪ 115,387.64	₪ 78,139.195	**₪ 234,507.285**
Confections	₪ 29,685.55	₪ 82,657.7505	₪ 55,013.9245	**₪ 167,357.225**
Meat/Poultry	₪ 28,813.66	₪ 80,975.108	₪ 53,233.5915	**₪ 163,022.3595**
Seafood	₪ 19,391.225	₪ 66,959.2175	₪ 44,911.295	**₪ 131,261.7375**
Condiments	₪ 17,900.385	₪ 55,368.59	₪ 32,778.11	**₪ 106,047.085**
Produce	₪ 13,885.78	₪ 54,940.7675	₪ 31,158.0325	**₪ 99,984.58**
Grains/Cereals	₪ 9,507.92	₪ 56,871.825	₪ 29,364.8425	**₪ 95,744.5875**
Total	**₪ 208,083.97**	**₪ 617,085.2035**	**₪ 440,623.866**	**₪ 1,265,793.0395**

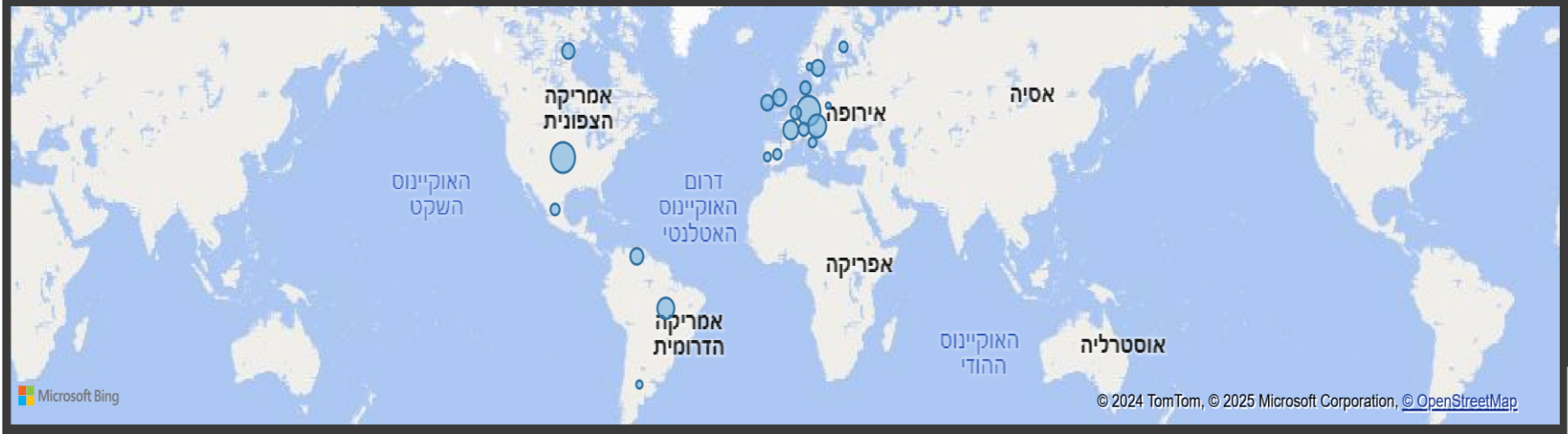
Top 10 Products by Sales



Total Sales by Year



Sales by Geographic Location



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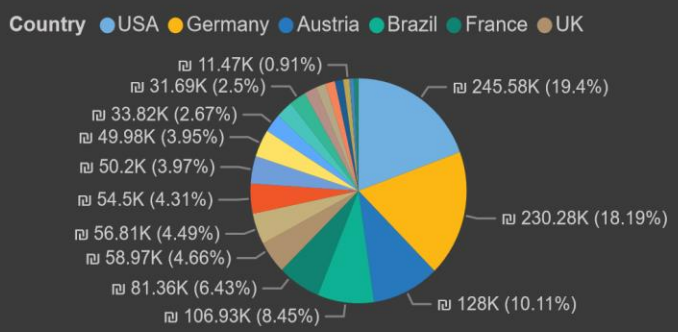
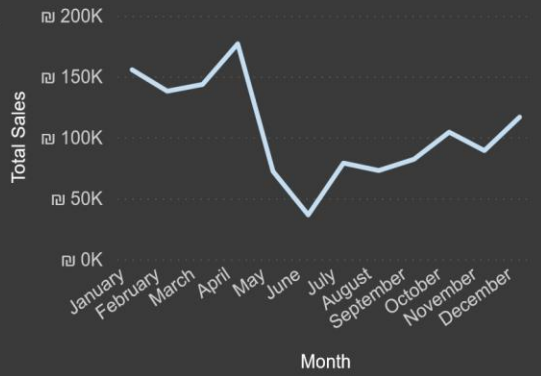
Total Sales	Country	City
₪ 110,277.305	Germany	Cunewalde
₪ 104,874.9785	Austria	Graz
₪ 104,361.95	USA	Boise
₪ 51,097.8005	USA	Albuquerque
₪ 49,979.905	Ireland	Cork
₪ 32,841.37	Brazil	Rio de Janeiro
₪ 30,908.384	Germany	Brandenburg
₪ 29,567.5625	Sweden	Bräcke
₪ 28,872.19	Canada	Montréal
₪ 27,363.605	USA	Seattle
₪ 26,656.5595	Germany	München
₪ 25,717.4975	Brazil	Sao Paulo
₪ 24,927.5775	Sweden	Luleå
₪ 24,088.78	Belgium	Charleroi
₪ 23,128.86	Austria	Salzburg
₪ 22,768.764	Venezuela	San Cristóbal
₪ 21,963.2525	France	Marseille
₪ 20,801.6	Canada	Tsawassen
₪ 19,343.779	Switzerland	Genève
₪ 19,261.41	Germany	Frankfurt a.M.
₪ 18,534.08	France	Strasbourg
₪ 18,507.45	USA	Eugene
₪ 16,817.0975	Denmark	Kobenhavn
₪ 16,476.565	Venezuela	I. de Margarita
₪ 16,215.325	UK	London
₪ 16,076.6	Venezuela	Barquisimeto
₪ 15,843.925	Denmark	Århus
₪ 15,648.7025	Finland	Oulu
₪ 15,177.4625	USA	Anchorage
₪ 14,761.035	UK	London
₪ 13,390.65	UK	London
₪ 12,496.2	Germany	Köln
₪ 12,450.8	Brazil	Rio de Janeiro
₪ 12,348.88	Switzerland	Bern
₪ 1,265,793.0395		

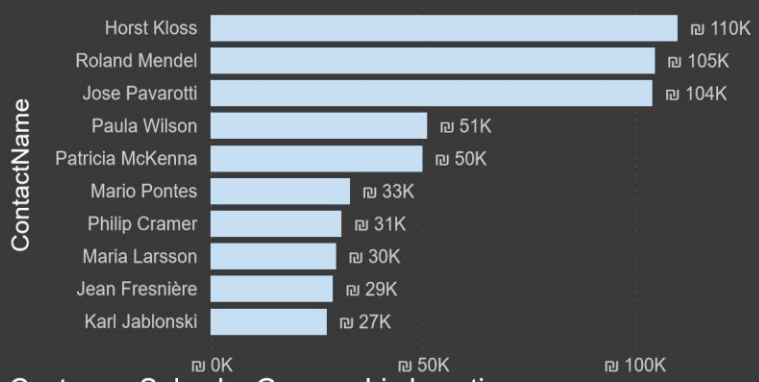
Sales Disturbution by Country



Customer Revenue Trends Over Time



Top 10 Customers by Sales



Year

- [ ] 1996
- [ ] 1997
- [ ] 1998

Country

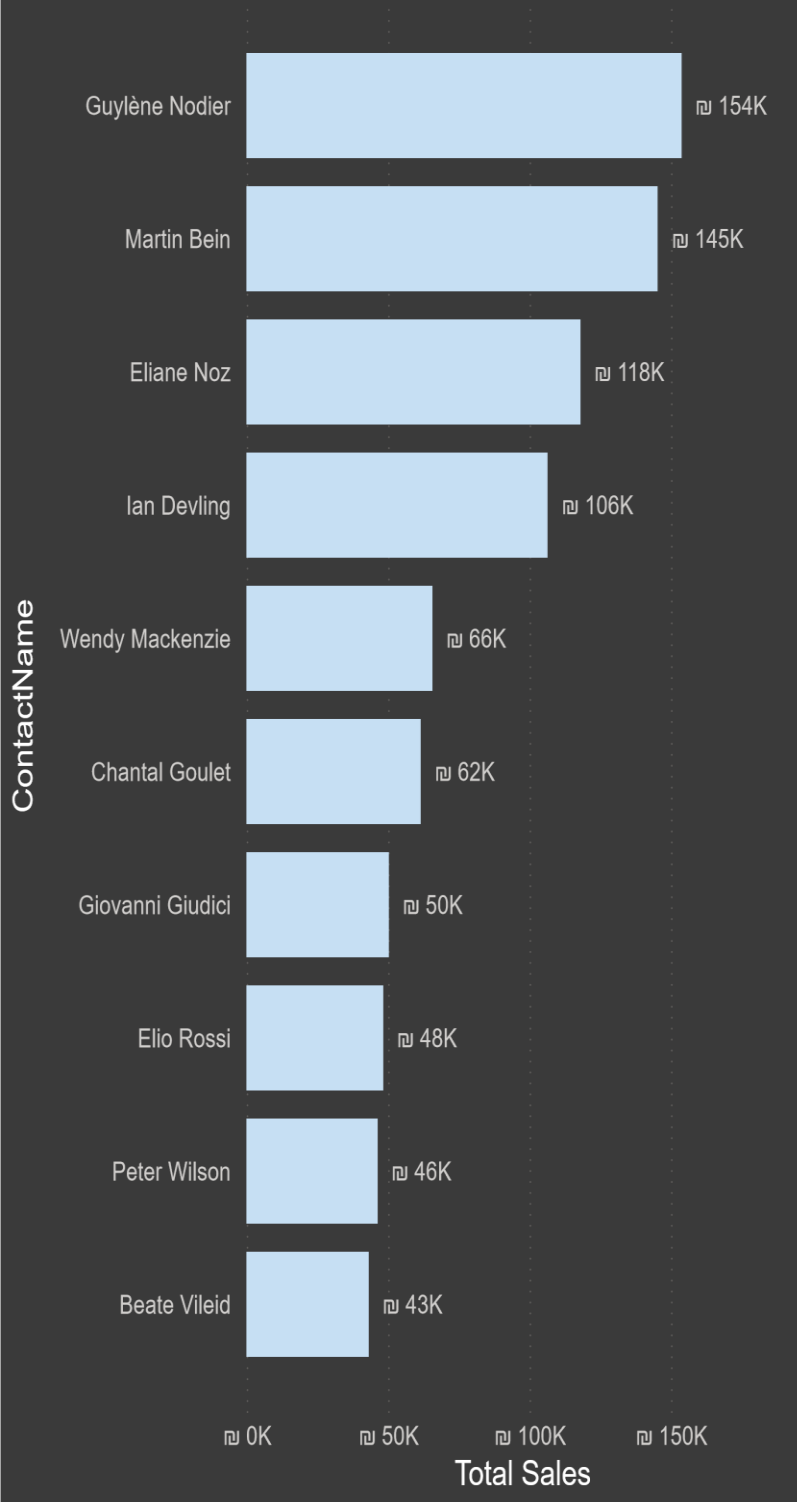
All

TotalAmount

All

Customer Sales by Geographic Location

Top 10 Suppliers by Sales



CategoryName

All

Choose Suppliers

All

Country

All

Year

All

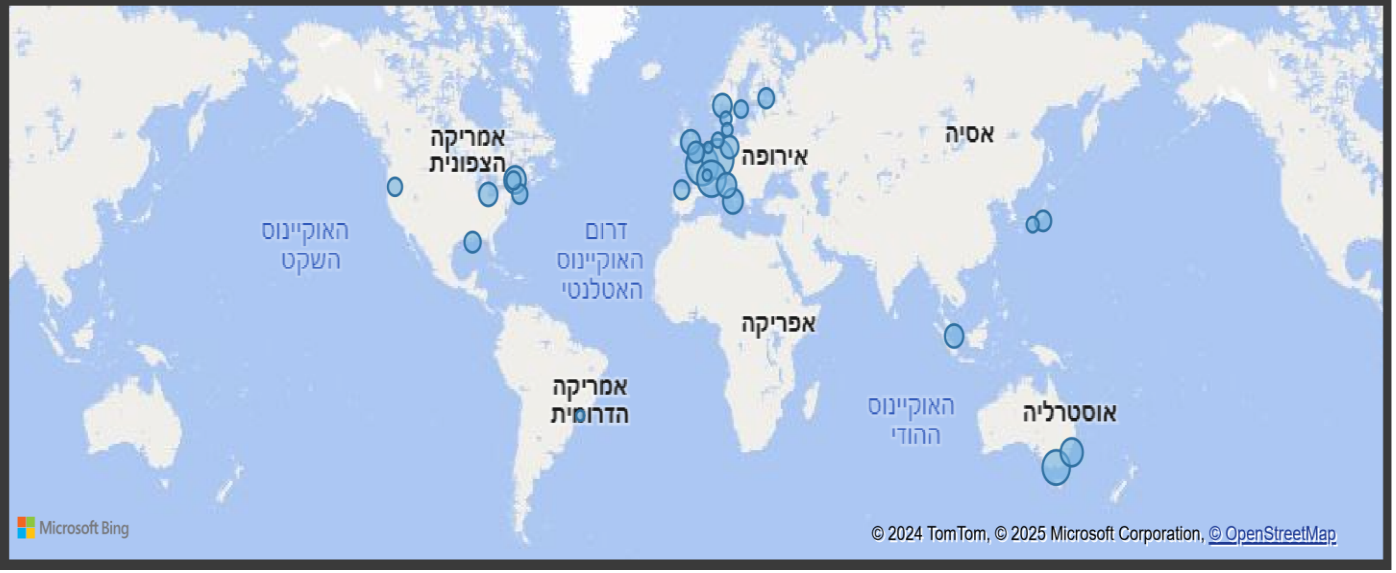
₪ 1.27M

Total Sales

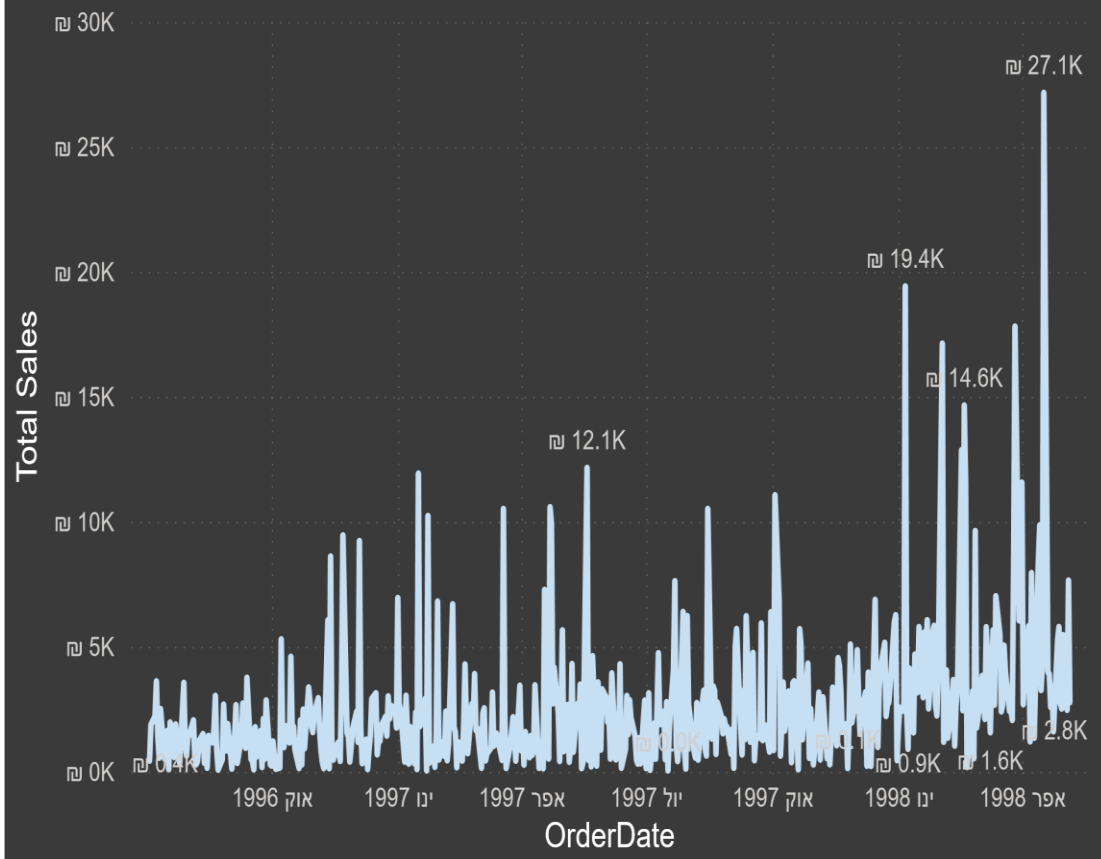
Product Sales by Supplier

ContactName	Beverages	Condiments	Confections	Dairy Products	Grains/Cereals	Meat/Poultry
Anne Heikkonen	₪ 15,760.44		₪ 12,682.2875			
Antonio del Valle Saavedra				₪ 25,159.43		
Beate Vileid				₪ 43,141.51		
Carlos Diaz	₪ 4,504.365					
Chandra Leka	₪ 23,526.7	₪ 9,915.945			₪ 8,575	
Chantal Goulet		₪ 14,352.6	₪ 47,234.97			
Charlotte Cooper	₪ 29,144.06	₪ 3,044				
Cheryl Saylor	₪ 22,391.2					
Dirk Luchte			₪ 5,326.7925			
Total	**₪ 267,868.18**	**₪ 106,047.085**	**₪ 167,357.225**	**₪ 234,507.285**	**₪ 95,744.5875**	**₪ 163,022.3595**

Supplier Sales by Geographic Location



Monthly and Yearly Sales Trends



Year

- 1996
- 1997
- 1998

₪ 1.27M

Total Sales

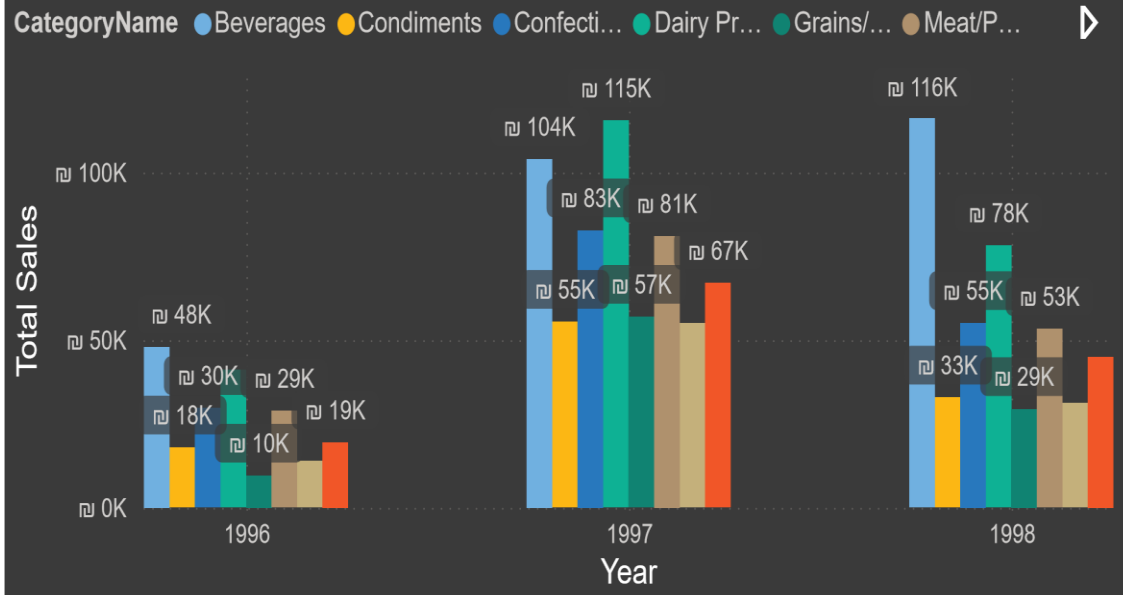
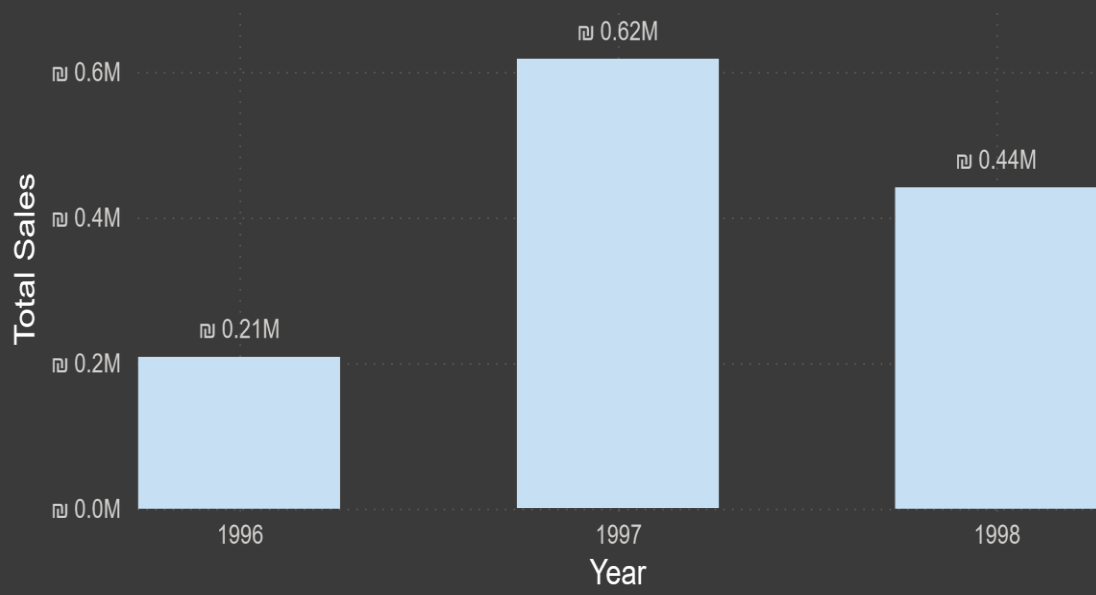
CategoryName

- Beverages
- Condiments
- Confections
- Dairy Products
- Grains/Cereals
- Meat/Poultry
- Produce
- Seafood

ContactName

- Anne Heikkonen
- Antonio del Valle Saavedra
- Beate Vileid
- Carlos Diaz
- Chandra Leka
- Chantal Goulet
- Charlotte Cooper
- Cheryl Saylor
- Dirk Luchte

Category Performance Over Time



Yearly Sales Comparison