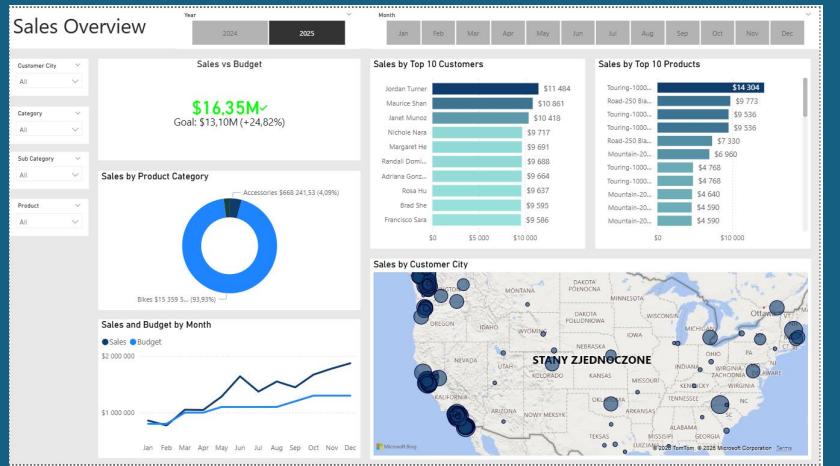


Data Analytics Portfolio

Power BI & SQL

- Business Requirements & User Stories
- Data Cleansing & Transformation (SQL)
- Data Model & Relationships
- DAX Measures
- Final Dashboard & Key Insights



Katarzyna Szczęsna

Business Requirements & User Stories

The business requirement was to create an executive-level sales report tailored to sales managers and sales representatives. Based on this requirement, a set of user stories was defined to guide the development process and ensure that all acceptance criteria were consistently met throughout the project.

		As a	I want	so that	Acceptance criteria
1	Sales Representative	A detailed overview of Internet Sales per Customers	I can follow up my customers that buys the most	A Power BI dashboard which allows me to filter data for each customer	
2	Sales Representative	A detailed overview of Internet Sales per Products	I can follow up my Products that sells the best	A Power BI dashboard which allows me to filter data for each product	
3	Sales Manager	A dashboard overview of internet sales	I can follow sales over time against budget	A Power BI dashboard with graphs and KPIs comparing against budget	

Data Cleansing & Transformation (SQL)

To create the necessary data model for analysis and to fulfill the business requirements, relevant tables were extracted and prepared using SQL.

All SQL scripts were executed in Microsoft SQL Server Express using Microsoft SQL Server Management Studio (SSMS).

```

1  -- Cleansed Dim_DateTable --
2  SELECT
3    [DateKey],
4      [FullDateAlternateKey] AS Date,
5      --[DayNumberOfWeek]
6      [EnglishDayNameOfWeek] AS Day,
7      --,[SpanishDayNameOfWeek]
8      --,[FrenchDayNameOfWeek]
9      --,[DayNumberOfMonth]
10     --,[DayNumberOfYear]
11     --,[WeekNumberOfYear]
12     --,[EnglishMonthName] AS Month,
13     LEFT ([EnglishMonthName], 3) AS MonthShort,
14     --,[SpanishMonthName]
15     --,[FrenchMonthName]
16     --,[MonthNumberOfYear] AS MonthNo,
17     [CalendarQuarter] AS Quarter,
18     [CalendarYear] AS Year,
19     --,[CalendarSemester]
20     --,[FiscalQuarter]
21     --,[FiscalYear]
22     --,[FiscalSemester]
23   FROM [AdventureWorksDW2025].[dbo].[DimDate]
24  WHERE CalendarYear >= 2024
25

```

```

1  -- Cleansed Dim_Product Table --
2  SELECT
3    p.[ProductKey],
4      p.[ProductAlternateKey] AS ProductItemCode,
5      --,[ProductSubcategoryKey]
6      --,[WeightUnitMeasureCode]
7      --,[SizeUnitMeasureCode]
8      p.[EnglishProductName] AS [Product Name],
9      ps.[EnglishProductSubcategoryName] AS [Sub Category], -- Joined from Subcategory Table
10     pc.[EnglishProductCategoryName] AS [Product Category], -- Joined from Category Table
11     --,[SpanishProductName]
12     --,[FrenchProductName]
13     --,[StandardCost]
14     --,[FinishedGoodsFlag]
15     p.[Color] AS [Product Color],
16     --,[SafetyStockLevel]
17     --,[ReorderPoint]
18     --,[ListPrice]
19     p.[Size] AS [Product Size],
20     --,[SizeRange]
21     --,[Weight]
22     --,[Length]
23     p.[ProductLine] AS [Product Line],
24     --,[DealerPrice]
25     --,[Class]
26     --,[Style]
27     p.[ModelName] AS [Product Model Name],
28     --,[UOM]
29     p.[EnglishDescription] AS [Product Description],
30     --,[FrenchDescription]
31     --,[ChineseDescription]
32     --,[ArabicDescription]
33     --,[HebrewDescription]
34     --,[ThaiDescription]
35     --,[GermanDescription]
36     --,[JapaneseDescription]
37     --,[TurkishDescription]
38     --,[StartDate]
39     --,[EndDate]
40     ISNULL(p.Status, 'Outdated') AS [Product Status] -- Status Outdated for blank positions
41
FROM [AdventureWorksDW2025].[dbo].[DimProduct] p
42  LEFT JOIN [AdventureWorksDW2025].[dbo].[DimProductSubcategory] ps ON ps.ProductSubcategoryKey = p.ProductSubcategoryKey
43  LEFT JOIN [AdventureWorksDW2025].[dbo].[DimProductCategory] pc ON ps.ProductCategoryKey = pc.ProductCategoryKey
44
ORDER BY
45   p.[ProductKey] ASC
46

```

Data Cleansing & Transformation (SQL)

```

1  -- Cleansed Dim_CustomerTable --
2  SELECT
3    c.[CustomerKey],
4      --,[GeographyKey]
5      --,[CustomerAlternateKey]
6      --,[Title]
7      c.[FirstName] AS [First Name],
8      --,[MiddleName]
9      c.[LastName] AS [Last Name],
10     c.FirstName + ' ' + c.LastName AS [Full Name], -- Combined First and Last Name
11     --,[NameStyle]
12     --,[BirthDate]
13     --,[MaritalStatus]
14     --,[Suffix]
15     CASE c.[Gender] WHEN 'M' Then 'Male' WHEN 'F' THEN 'Female' END AS Gender,
16     --,[EmailAddress]
17     --,[YearlyIncome]
18     --,[TotalChildren]
19     --,[NumberChildrenAtHome]
20     --,[EnglishEducation]
21     --,[SpanishEducation]
22     --,[FrenchEducation]
23     --,[EnglishOccupation]
24     --,[SpanishOccupation]
25     --,[FrenchOccupation]
26     --,[HouseOwnerFlag]
27     --,[NumberCarsOwned]
28     --,[AddressLine1]
29     --,[AddressLine2]
30     --,[Phone]
31     [DateFirstPurchase],
32     --,[CommuteDistance]
33   g.city AS [Customer City] -- Joined in Customer City from Geography Table
34
FROM [AdventureWorksDW2025].[dbo].[DimCustomer] AS c
35  LEFT JOIN [AdventureWorksDW2025].[dbo].[DimGeography] AS g ON g.GeographyKey = c.GeographyKey
36
ORDER BY CustomerKey ASC -- Ordered by Customer Key
37

```

```

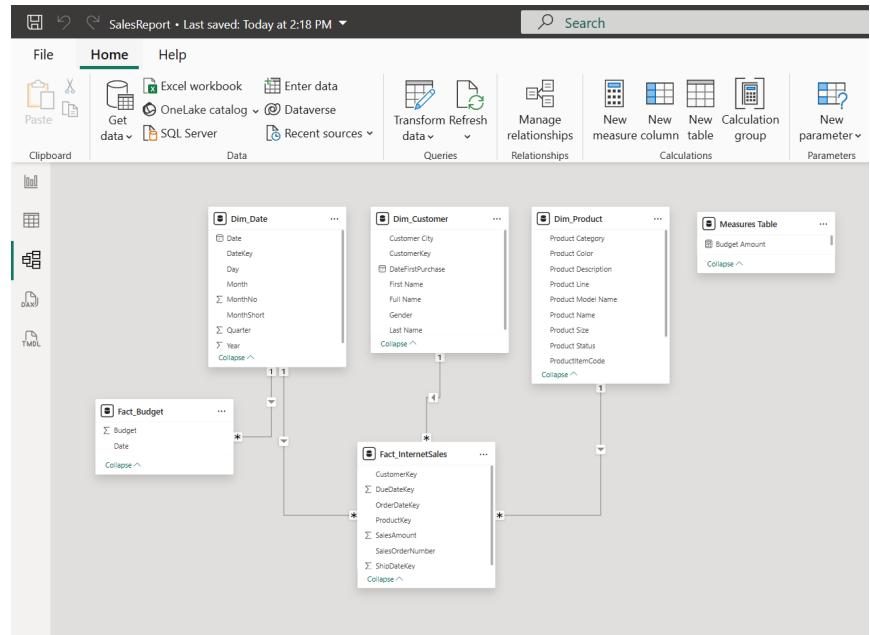
1  -- Cleansed FACT_InternetSales Table --
2  SELECT
3    [ProductKey],
4    [OrderDateKey],
5    [DueDateKey],
6    [ShipDateKey],
7    [CustomerKey],
8    --,[PromotionKey]
9    --,[CurrencyKey]
10   --,[SalesTerritoryKey]
11   [SalesOrderNumber],
12   --,[SalesOrderLineNumber]
13   --,[RevisionNumber]
14   --,[OrderQuantity]
15   --,[UnitPrice]
16   --,[ExtendedAmount]
17   --,[UnitPriceDiscountPct]
18   --,[DiscountAmount]
19   --,[ProductStandardCost]
20   --,[TotalProductCost]
21   [SalesAmount]
22   --,[TaxAmt]
23   --,[Freight]
24   --,[CarrierTrackingNumber]
25   --,[CustomerPONumber]
26   --,[OrderDate]
27   --,[DueDate]
28   --,[ShipDate]
29
FROM [AdventureWorksDW2025].[dbo].[FactInternetSales]
30  WHERE OrderDateKey >= 20240101
31
ORDER BY
32   OrderDateKey ASC

```

Data Model & Relationships

The Power BI model was built after cleansing and transforming the source data. Fact_Budget table was provided as an Excel file and connected directly to the model.

It separates Internet Sales and Budget data into dedicated fact tables and aligns them through conformed Date, Customer, and Product dimensions.



DAX Measures

Data >

Search

- Measures Table ...
 - Budget Amount
 - Sales
 - Sales - Budget
 - Sales / Budget
- Dim_Customer
- Dim_Date
- Dim_Product
- Fact_Budget
- Fact_InternetSales

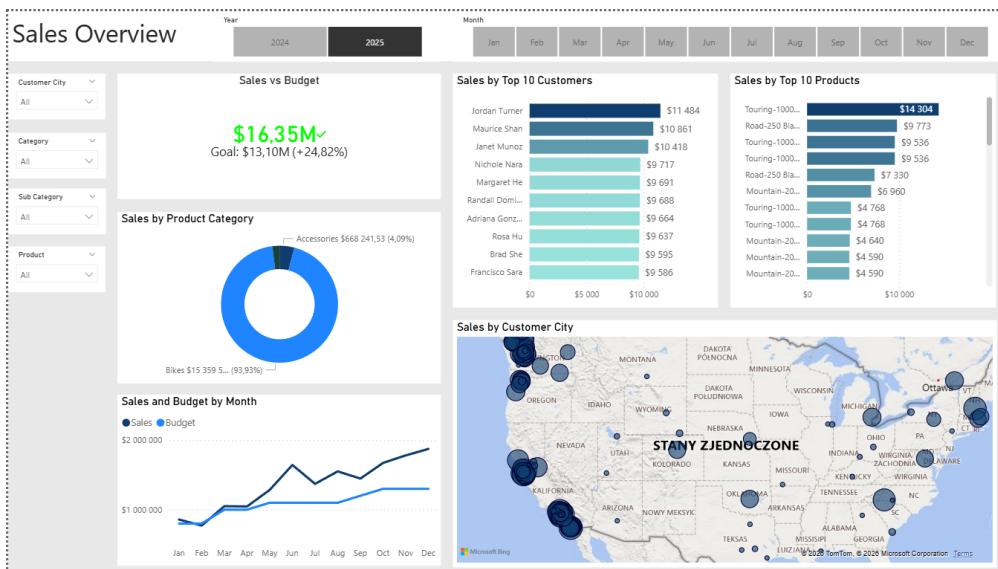
All DAX measures were organized within a dedicated table to separate calculation logic from data storage.

Key measures include Budget Amount and Sales (SUM aggregations), Sales - Budget (variance calculation), and Sales / Budget (performance ratio using DIVIDE).

These measures serve as the core metrics for comprehensive sales vs. budget analysis across multiple dimensions.

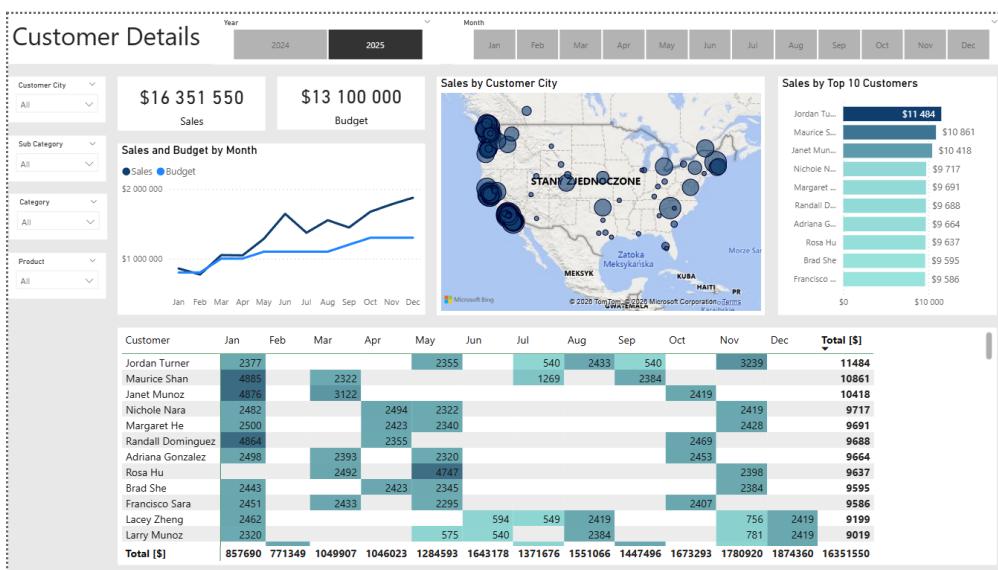
```
Budget Amount = SUM(Fact_Budget[Budget])
Sales = SUM(Fact_InternetSales[SalesAmount])
Sales - Budget = [Sales] - [Budget Amount]
Sales / Budget = DIVIDE([Sales], [Budget Amount])
```

Final Dashboard & Key Insights – Sales Overview



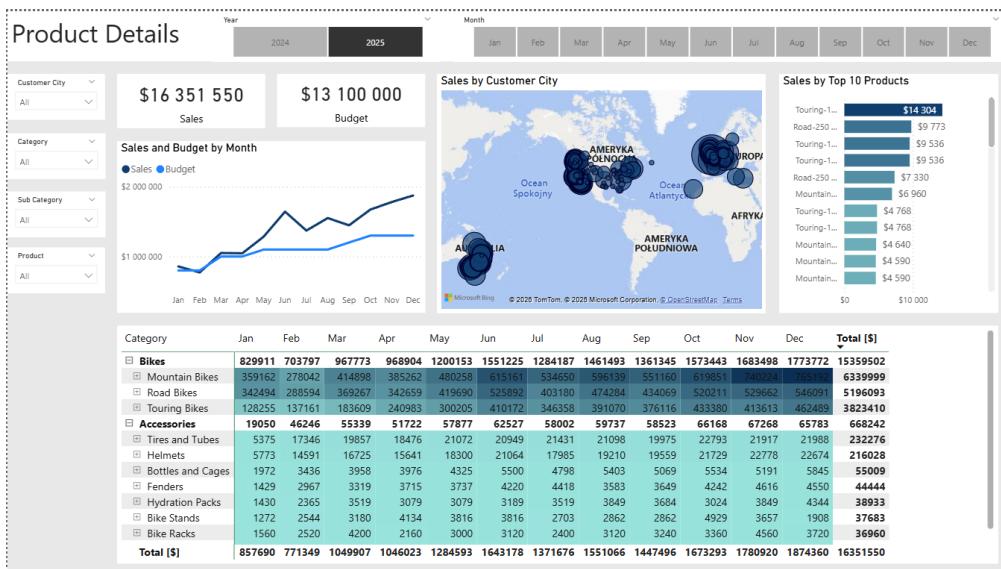
- Sales were 9% below budget in 2024 but nearly 25% above budget in 2025.
- Bikes generate over 94% of total revenue.
- Sales increase noticeably in the second half of the year.
- The dashboard supports filtering across years and individual months.

Final Dashboard & Key Insights – Customer Details



- Year-end months deliver the highest sales.
- Geographic sales patterns highlight a few dominant cities.
- The customer base shows strong repeat-purchase behavior.
- Sales representatives can easily filter results by individual customers.

Final Dashboard & Key Insights – Product Details



- Mountain Bikes are the strongest performing subcategory.
- Introducing Touring Bikes was a strong decision, as they generated nearly 25% of revenue in 2025.
- Product-level filtering enables detailed analysis.