

Power BI Sales Dashboard Project – Step-by-Step Documentation

Step 1: Setup – SQL Server & SSMS

- Install **SQL Server Express** (choose "Basic" option). Remember your instance name (e.g., localhost\SQLEXPRESS).
 - Install **SQL Server Management Studio (SSMS)** via "Install SSMS".
 - Launch SSMS and connect to server using: localhost\SQLEXPRESS.
 - Restore the AdventureWorksDW2022.bak database:
 - Right-click on **Databases > Restore Database**
 - Select the .bak file from your drive and complete the restore.
 - Verify that the tables appear in **Object Explorer**.
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Step 2: Connect SQL Server to Power BI

- Open **Power BI Desktop** > Get Data > Choose **SQL Server**.
 - Enter localhost\SQLEXPRESS as Server Name.
 - Choose either:
 - **Import Mode** (better performance, offline use)
 - **DirectQuery Mode** (live connection, real-time data)
 - Select desired tables from AdventureWorksDW2022.
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Step 3: Dimensional Modeling (Star Schema)

- Design a **Star Schema**:
 - Central Fact Table: FactResellerSales
 - Dimension Tables: DimProduct, DimReseller, DimEmployee, DimDate, DimSalesTerritory
 - Remove unused tables (e.g., DimCurrency, DimPromotion).
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✖ Step 4: Data Transformation (Power Query)

➤ DimProduct:

- Select columns: ProductKey, EnglishProductName, Class, Style, ModelName, EnglishDescription
- Expand related tables:
 - DimProductSubcategory → Product Subcategory
 - DimProductCategory → Product Category

➤ DimEmployee:

- Select: Name, Hire Date, Email, Phone, Photo, Department
- Expand supervisor info: ParentEmployeeKey, Supervisor Name, Title, Email
- Create columns:
 - Name = First + Last Name
 - SortName = LastName, FirstName
 - SupervisorName = Supervisor First + Last Name
- Filter only **Sales Department**

➤ DimReseller:

- Select: ResellerKey, ResellerName, BusinessType, Address
- Expand DimGeography for: City, State, Country, Postal Code

➤ DimDate:

- Extract: DateKey, FullDate, Day, Month, Year
- Transform Day/Month to 3-letter format (e.g., Mon, Jan)
- Apply dynamic filtering using List.Min() & List.Max() from Fact table

➤ FactResellerSales:

- Keep necessary keys & SalesAmount
 - Remove unnecessary columns (e.g., promotion, currency)
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Step 5: Data Modeling

- Create a **_Measures** table using “Enter Data” for centralizing DAX measures.
 - Disable load for unnecessary queries (e.g., Year lists).
 - Create relationships:
 - EmployeeKey → DimEmployee
 - ProductKey → DimProduct
 - ResellerKey → DimReseller
 - SalesTerritoryKey → DimSalesTerritory
 - OrderDateKey → DimDate
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Step 6: Role-Playing Date Dimensions

- FactResellerSales contains:
 - OrderDate, ShipDate, DueDate
 - Create three referenced copies of DimDate:
 - Rename to: Order Date, Ship Date, Due Date
 - Add prefix to all columns (e.g., Order Year, Ship Month)
 - Connect keys in model view.
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Step 7: Time Intelligence DAX Measures

- Mark each Date table as "Date Table".
- Key measures:
 - Total Sales
 - YTD Sales using TOTALYTD()
 - QTD Sales using TOTALQTD()
 - Previous Year Sales using SAMEPERIODLASTYEAR()
 - Previous Year YTD

- YoY Growth % using DATEADD() + DIVIDE()
 - Format currency and percentages properly.
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Step 8: Row-Level Security (RLS)

- Create roles:
 - **VP** → sees all data
 - **Manager** → sees their own and their team's data
 - **Sales Rep** → sees only own data
 - Use DAX filters:
 - Rep: [Email] = USERPRINCIPALNAME()
 - Manager: [SupervisorEmail] = USERPRINCIPALNAME() || [Email] = USERPRINCIPALNAME()
 - Use "View As" to test each role.
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Step 9: UI Enhancements – Photos & Email

- Email:
 - Add mailto: prefix to email field
 - Set data category to Web URL
 - Photo:
 - Add data:image/jpeg;base64, prefix to photo field
 - Set data category to Image URL
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Step 10: Homepage & Drill-through Dashboard

➤ **Home Page**

- Add logo, background
- Slicers: Year, Sales Country, Sales Group

- Visuals: Salesperson summary table
- Drill-through button to detail page
- DAX for Total Lifetime Sales ignoring filters

► Drill-Through Page

- Visuals:
 - Cards: Name, Title, Hire Date, Sales Summary
 - Bullet Chart: YoY
 - Matrix: Monthly Sales Summary, Top Products, Top Resellers
 - Area Chart: Monthly Cumulative Sales Comparison
 - Dynamic Titles using SELECTEDVALUE()
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📌 Step 11: Interactive Slicer Panel

- Use Bookmarks + Selection Pane
 - Toggle between visible/hidden states for slicers
 - Add “Menu” and “Close” buttons with bookmark actions
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📌 Final Outcome

- Fully interactive, secure, and insightful dashboard
- Built-in DAX logic, optimized model, and professional visuals
- Supports real business scenarios like dynamic filtering, RLS, time-based analysis, and drill-through views