# CREATING MANAGEMENT DASHBOARDS

## Introduction to workshop

**Using Microsoft Excel to create management dashboards**

**Time:** 2 hours

# Management dashboard

## What is this?

- A management dashboard (also known as a management cockpit or executive dashboard) is an interactive graphical interface that displays data visualizations and key performance indicators.

- These dashboards are inspired by the dashboards in airplanes or cars.

- Visualization types include charts, maps, tables, metrics, and alerts for changes or exceeding specific values. The visualizations and indicators are clear, dynamic, fit within a single screen, and can be updated in real time.

- Management dashboards were developed because traditional reports in table form were ineffective due to their static nature—users often became overwhelmed by the data, leading to important information being overlooked.

# Management dashboard

## Where is it used?

- The primary goal of a dashboard is to present data in a way that is easy to understand.

- Dashboards can be utilized across different organizational levels:

  - **Operational dashboards** (lowest level): used to monitor daily operations and processes.

  - **Tactical dashboards**: designed for analysts and managers, providing summaries to track progress in process execution.

  - **Strategic dashboards**: aimed at top management, offering insights that summarize company-wide activities and strategy implementation.

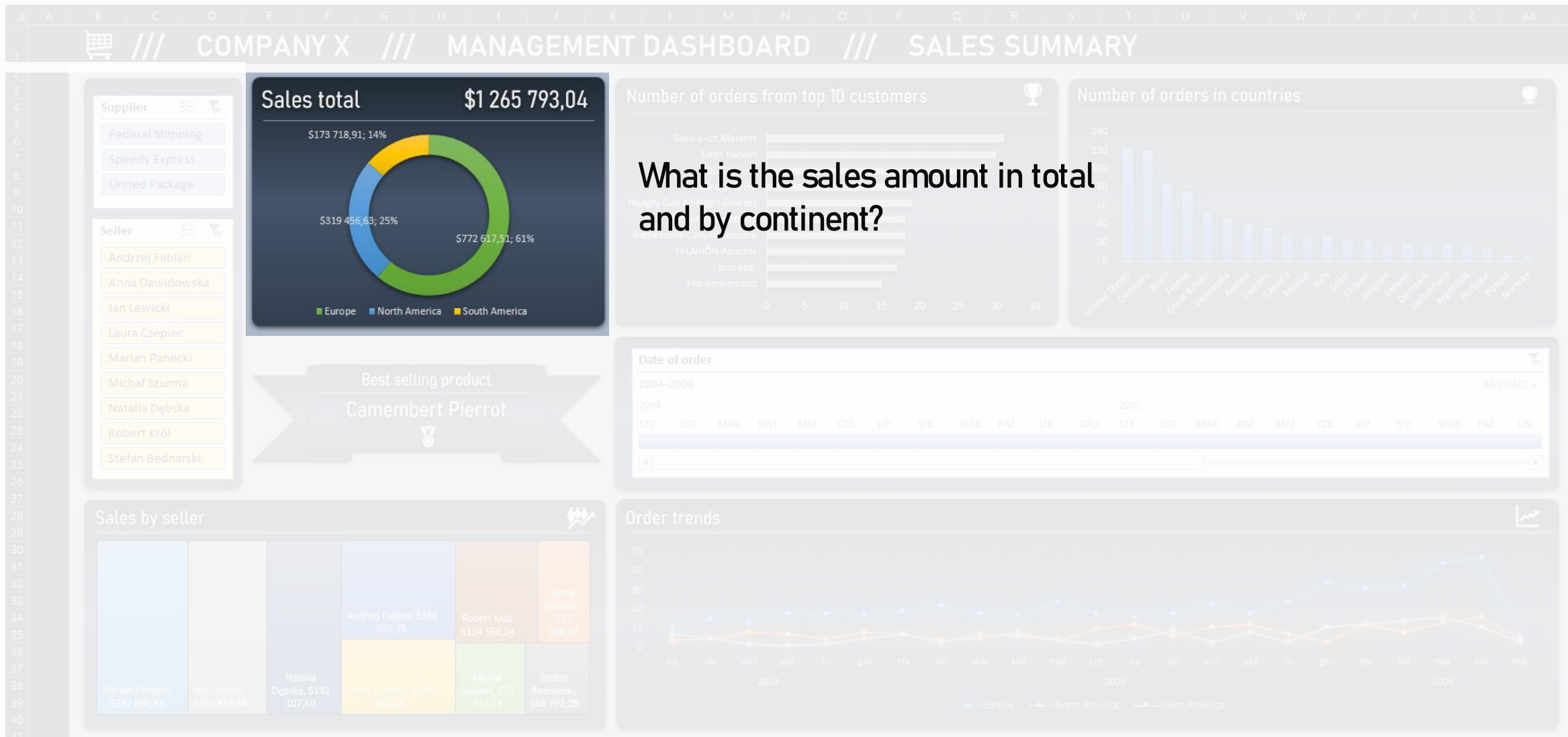- Dashboards are commonly used in departments such as production, finance, sales, and human resources.

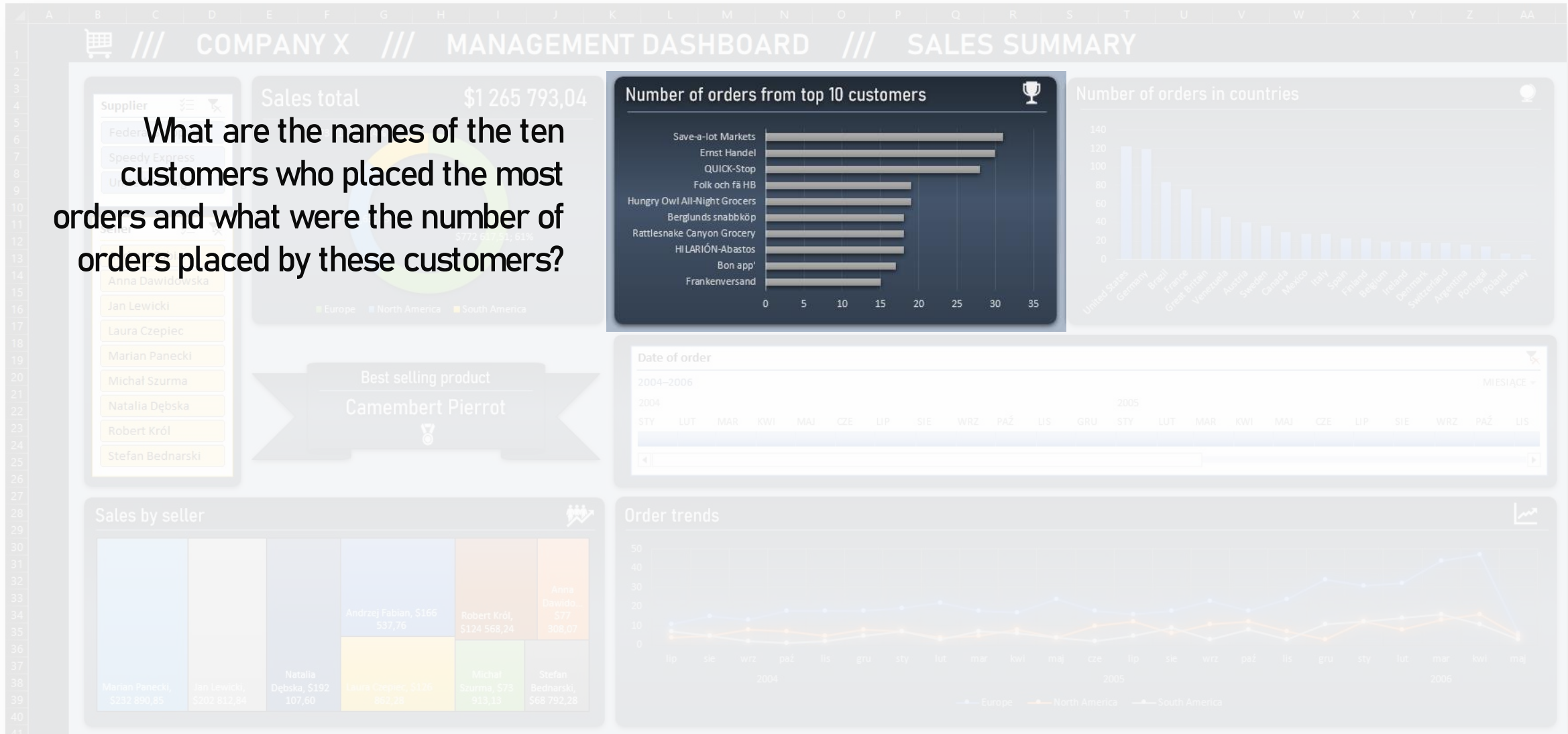# Result of the workshop

# Result of the workshop: using slicers
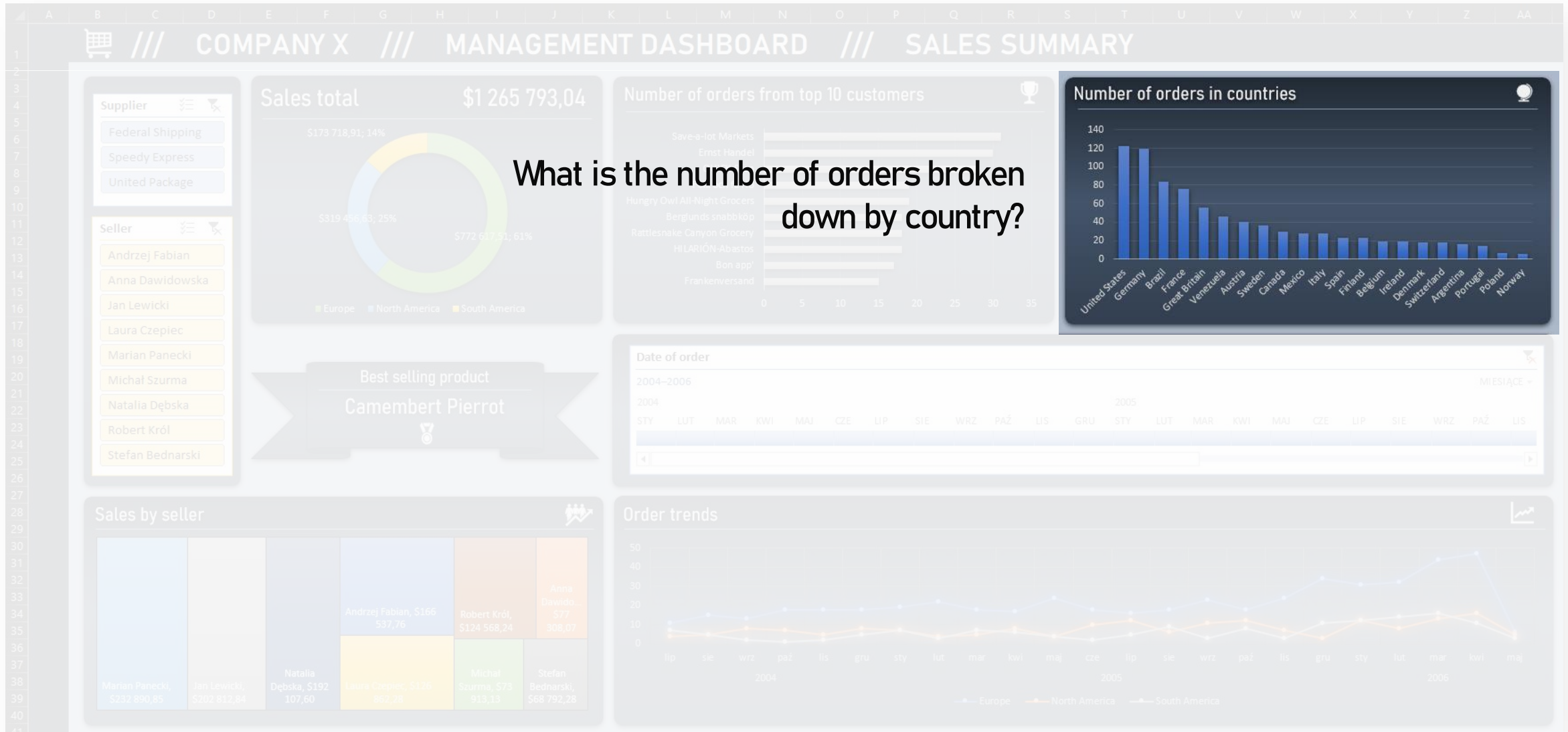
# Questions for the dashboard

**What is the sales amount in total and by continent?**

# Questions for the dashboard

COMPANY X /// MANAGEMENT DASHBOARD /// SALES SUMMARY

What are the names of the ten customers who placed the most orders and what were the number of orders placed by these customers?

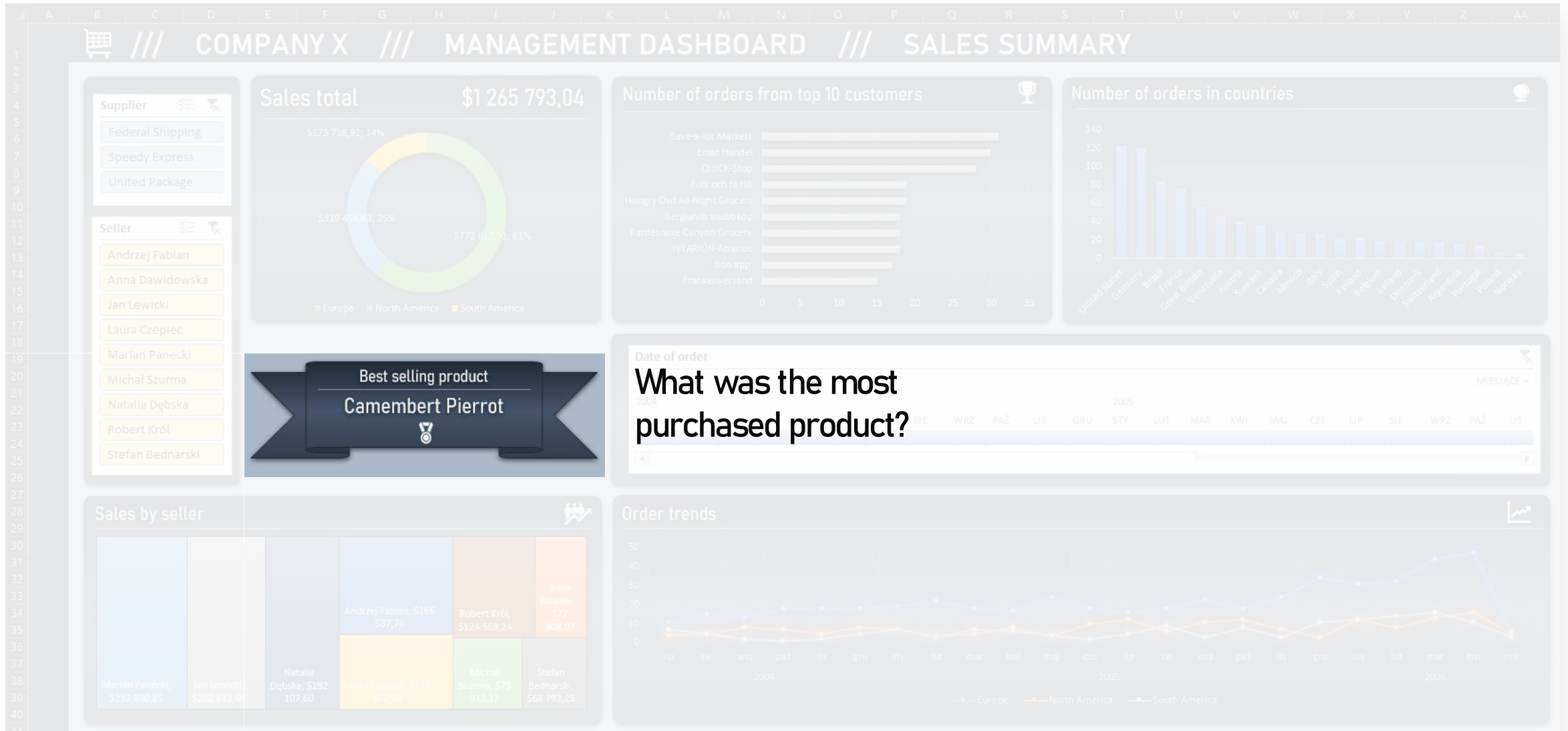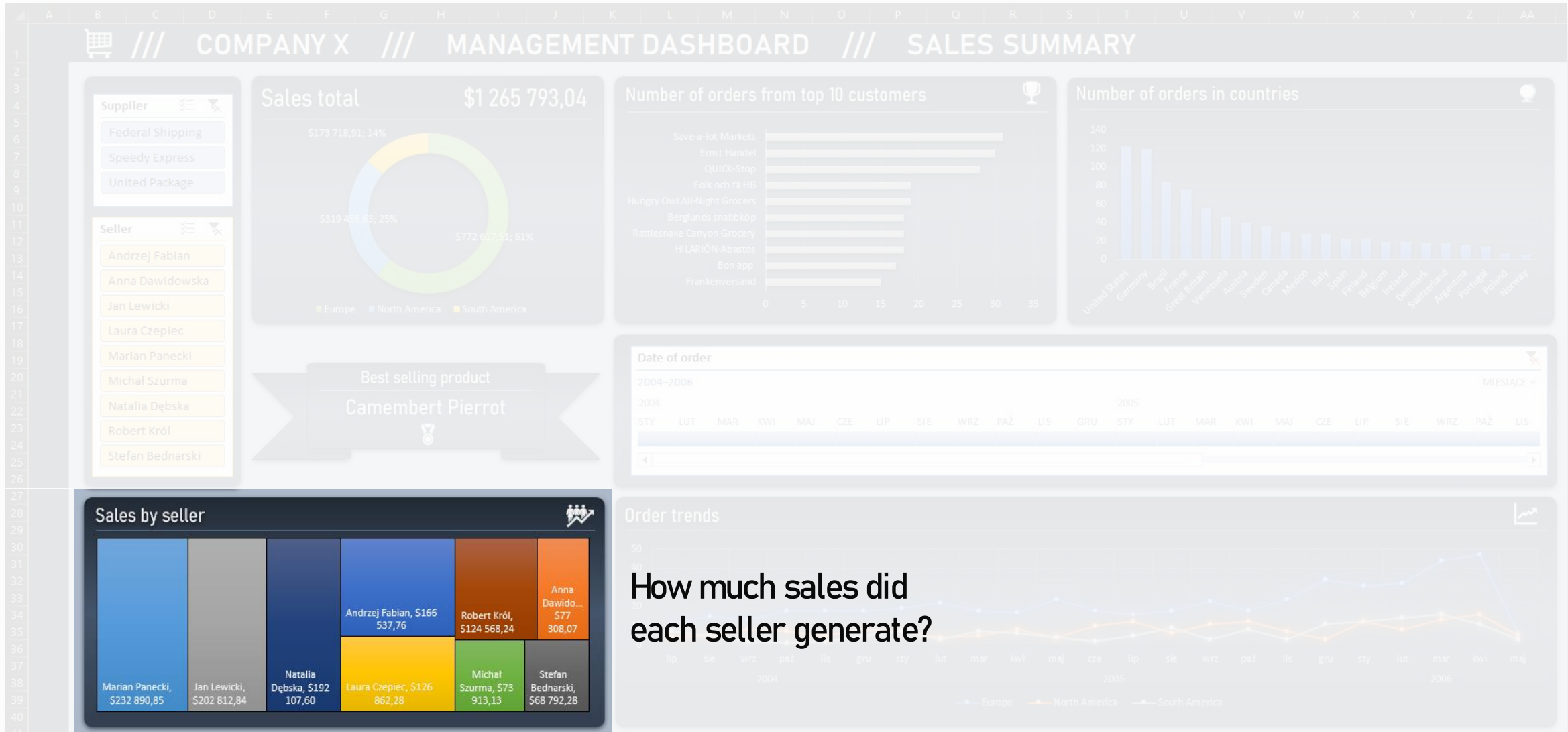**Number of orders from top 10 customers**

# Questions for the dashboard

What is the number of orders broken down by country?

**What was the most purchased product?**

**COMPANY X /// MANAGEMENT DASHBOARD /// SALES SUMMARY**

Sales total $1 265 793,04

How much sales did each seller generate?

# Questions for the dashboard

How did the number of orders change by continent in the following months and years?
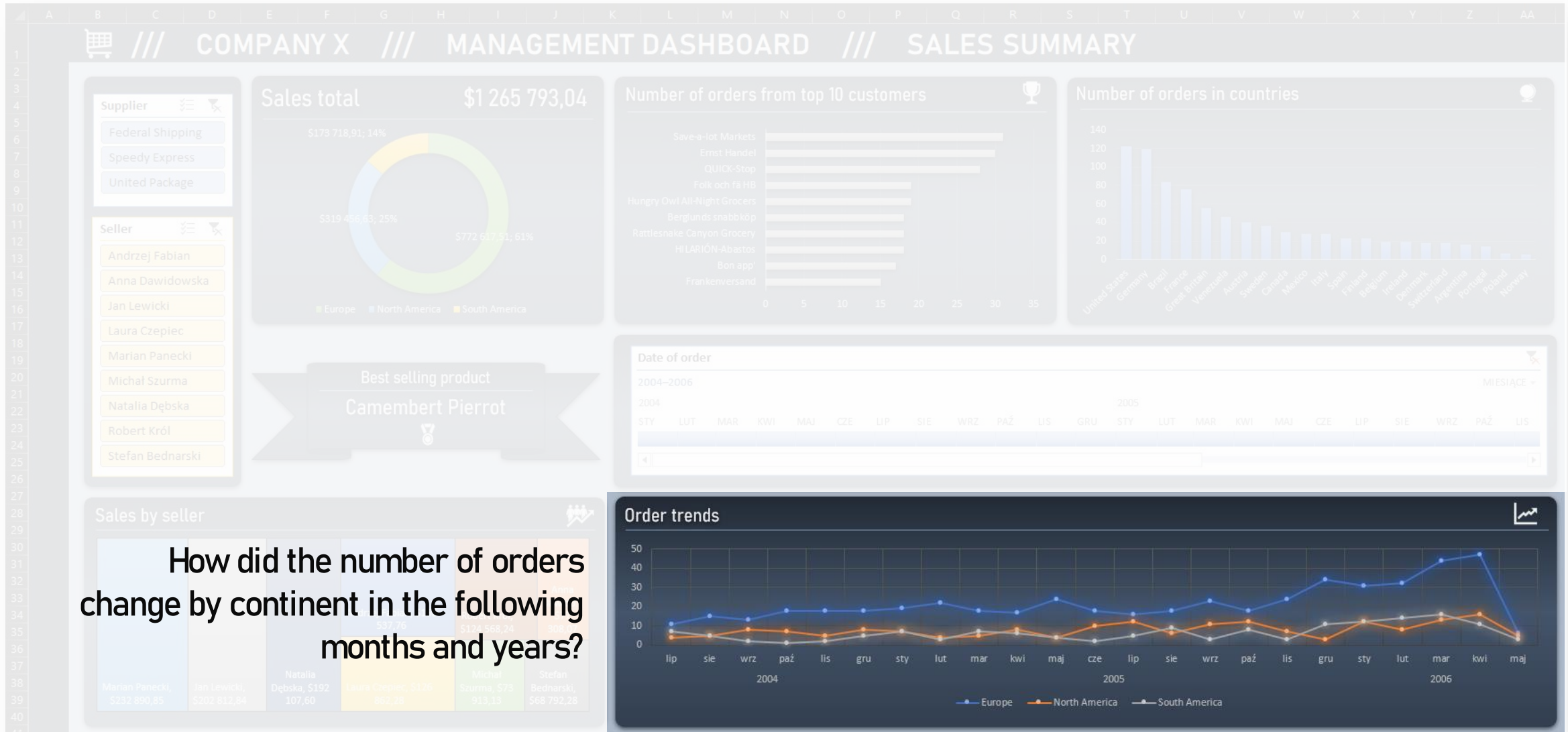
# Slicers in the dashboard

**COMPANY X** /// **MANAGEMENT DASHBOARD** /// **SALES SUMMARY**

Supplier selection

Seller selection

Timeline to control the range of data

# Data

## CONTINENTS

Primary key

| Country | Continent |
|---------|-----------|
|         |           |
|         |           |

## CUSTOMERS

Primary key

Foreign key

| Customer ID | Customer name | Address | Place | Region | Zip code | Country |
|-------------|---------------|---------|-------|--------|----------|---------|
|             |               |         |       |        |          |         |
|             |               |         |       |        |          |         |

# Data

## PRODUCTS

Foreign key

| Order number | Product number | Product name | Unit price | Quantity | Discount | Extended price |
|---|---|---|---|---|---|---|
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |

## ORDERS

Primary key

Foreign key

| Order number | Date of order | Delivery date | Seller | Supplier | Freight | Customer ID |
|---|---|---|---|---|---|---|
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |

# Relationships between the tables

### CONTINENTS

| Country | Continent |
|---------|-----------|
|         |           |
|         |           |

### CUSTOMERS

| Customer ID | Customer name | Address | Place | Region | Zip code | Country |
|-------------|---------------|---------|-------|--------|----------|---------|
|             |               |         |       |        |          |         |
|             |               |         |       |        |          |         |

### ORDERS

| Order number | Date of order | Delivery date | Seller | Supplier | Freight | Customer ID |
|--------------|---------------|---------------|--------|----------|---------|-------------|
|              |               |               |        |          |         |             |
|              |               |               |        |          |         |             |

### PRODUCTS

| Order number | Product number | Product name | Unit price | Quantity | Discount | Extended price |
|--------------|----------------|--------------|------------|----------|----------|----------------|
|              |                |              |            |          |          |                |
|              |                |              |            |          |          |                |
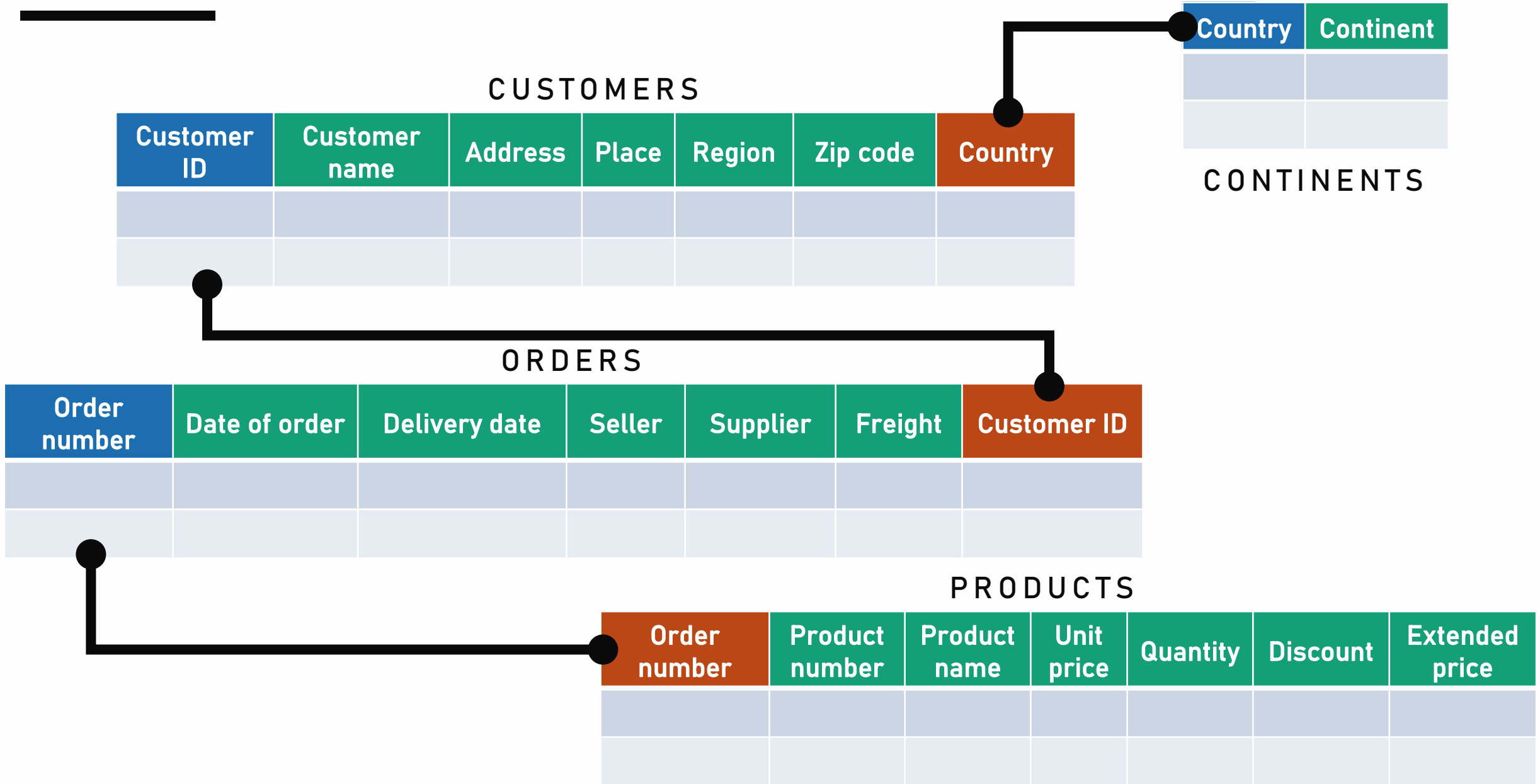
# Exercise procedure

**1** Data import from spreadsheets

**2** Creating connections between data tables (data model)

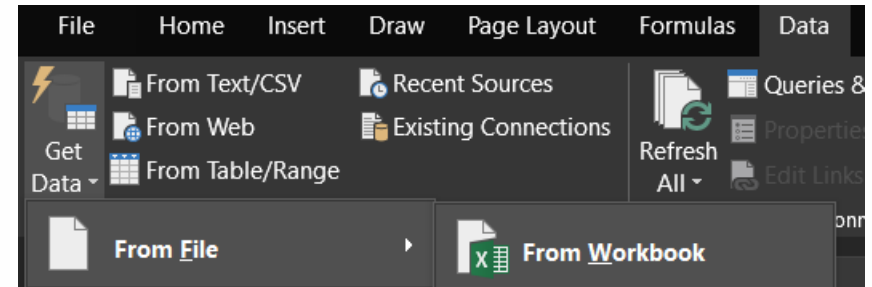**3** Creating pivot tables and generating visualizations based on them

**4** Placing visualizations on the management dashboard

# Data import from spreadsheets

1. Select: **Data -> Get Data -> From File -> From Workbook.**

2. Select one of the workbooks with data.

3. Select the sheet name.

4. If the column names are incorrect, press the **Transform Data** button and go to the step 5.
   If the column names are correct, press the **Load to** button and go to the step 7.
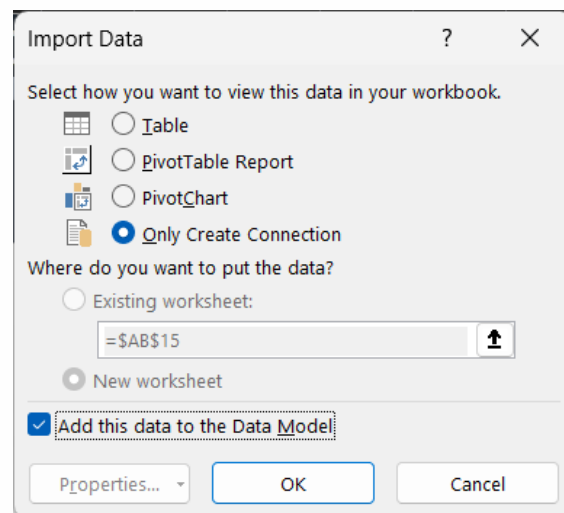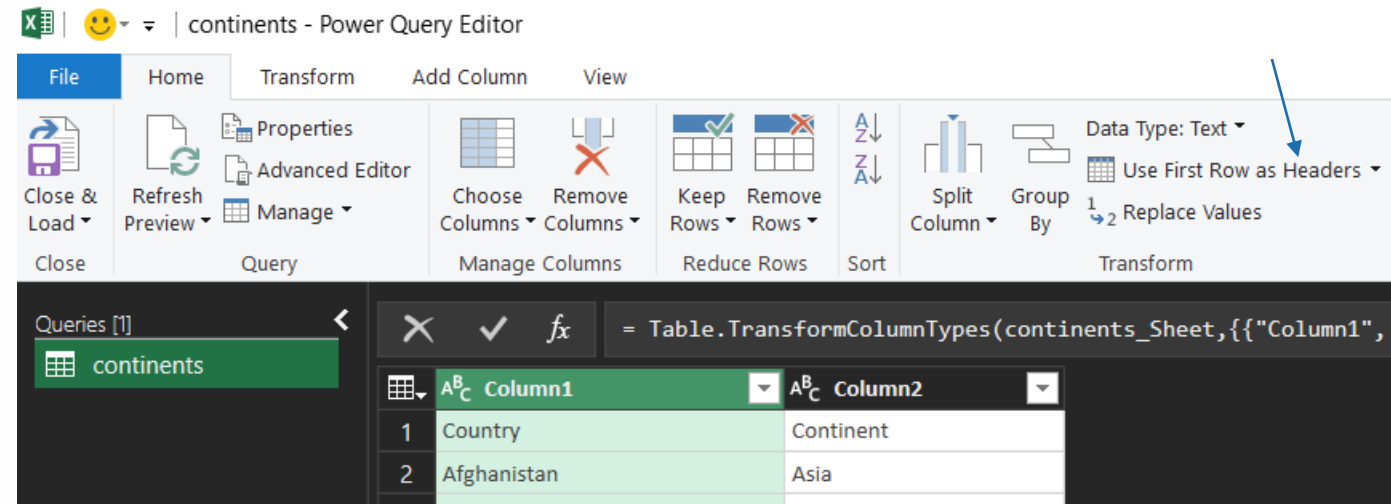
# Data import from spreadsheets

5. In PowerQuery, use the **Use First Row as Headers** button.

6. Select **Close & Load To ...** button.

7. Set up the **Import data** window as shown in the figure.
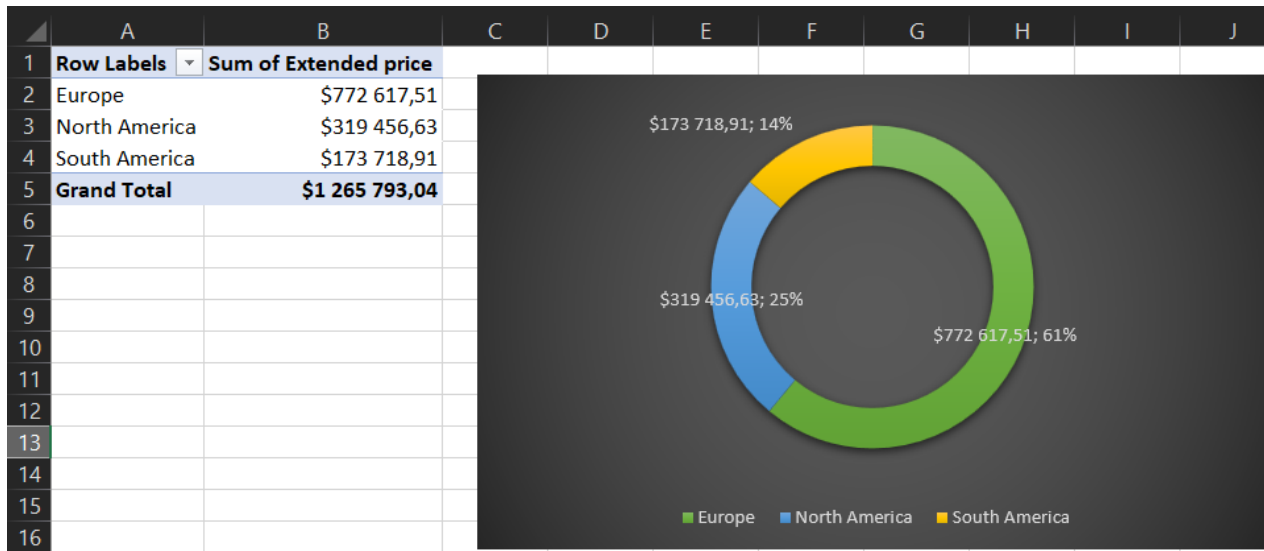
8. Repeat these tasks for all workbooks with data.
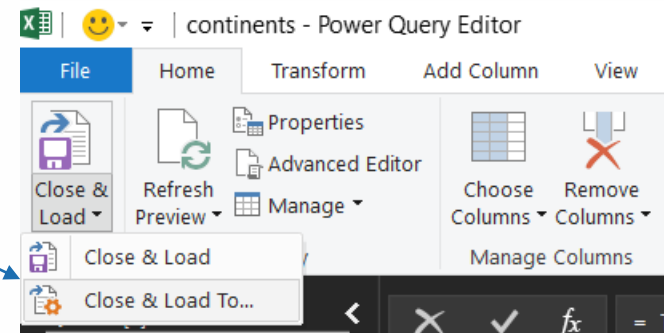
# Creating connections between data tables

1.  Select: **Data -> Manage Data Model.**

2.  In the Pover Pivot, select **Diagram View.**

3.  Using drag and drop, make three connections between:
    - Continents: Country and Customers: Country,
    - Customers: Customer ID and Orders: Customer ID,
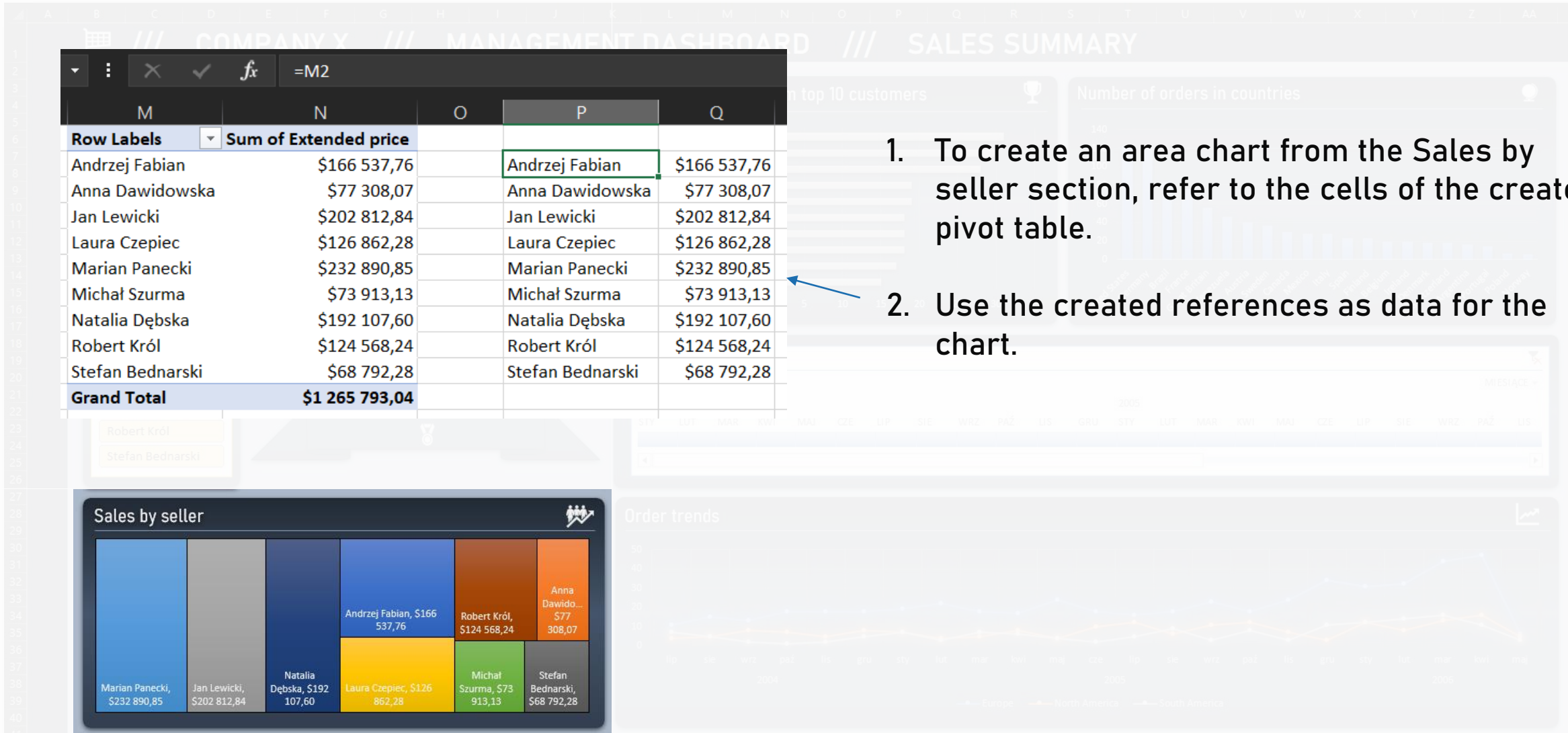    - Orders: Order number and Products: Order number.
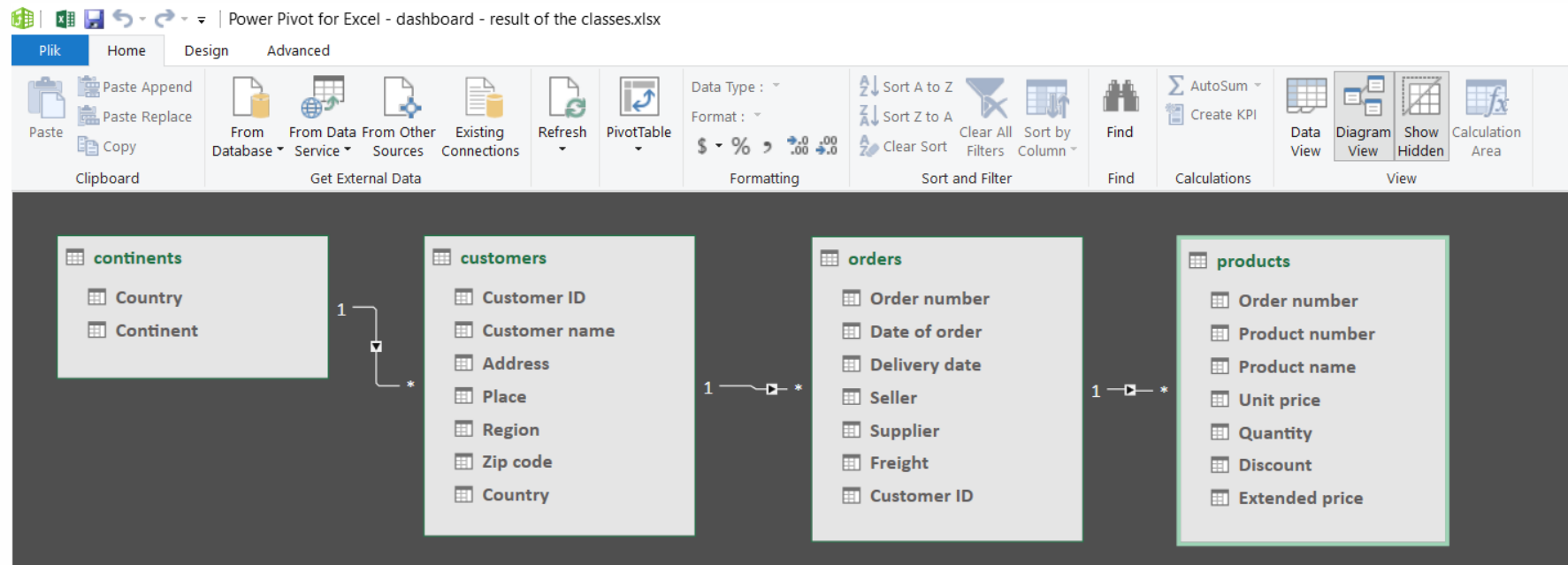
1. In the **power pivot** sheet, select **Insert -> Pivot Table** and press **OK**.

2. Construct an appropriate pivot table.

3. Convert a pivot table into a pivot chart by selecting the appropriate chart type.

Follow steps above for charts from the following sections:
Sales total, Number of orders from top 10 customers,
Number of orders in countries, Order trends.

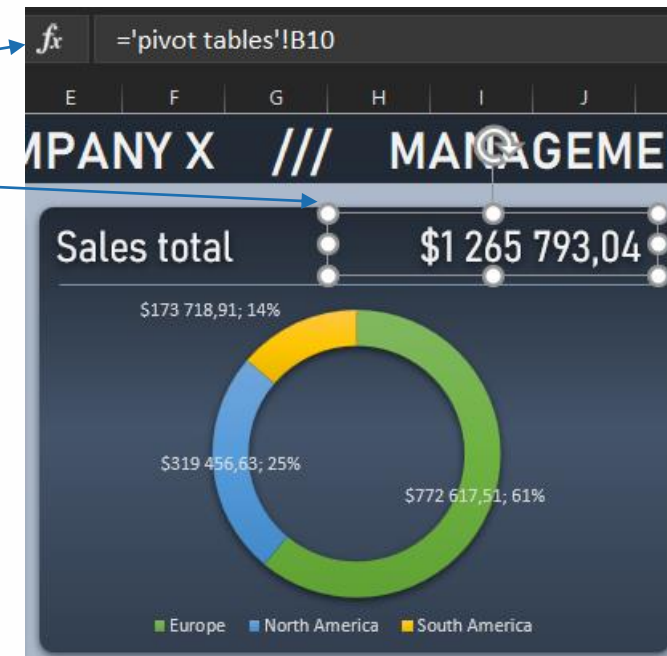| | M | N | O | P | Q |
|---|---|---|---|---|---|
| | Row Labels ▾ | Sum of Extended price | | | |
| | Andrzej Fabian | $166 537,76 | | Andrzej Fabian | $166 537,76 |
| | Anna Dawidowska | $77 308,07 | | Anna Dawidowska | $77 308,07 |
| | Jan Lewicki | $202 812,84 | | Jan Lewicki | $202 812,84 |
| | Laura Czepiec | $126 862,28 | | Laura Czepiec | $126 862,28 |
| | Marian Panecki | $232 890,85 | | Marian Panecki | $232 890,85 |
| | Michał Szurma | $73 913,13 | | Michał Szurma | $73 913,13 |
| | Natalia Dębska | $192 107,60 | | Natalia Dębska | $192 107,60 |
| | Robert Król | $124 568,24 | | Robert Król | $124 568,24 |
| | Stefan Bednarski | $68 792,28 | | Stefan Bednarski | $68 792,28 |
| | Grand Total | $1 265 793,04 | | | |

fx   =M2

1. To create an area chart from the Sales by seller section, refer to the cells of the created pivot table.

2. Use the created references as data for the chart.

**Sales by seller**

Marian Panecki, $232 890,85
Jan Lewicki, $202 812,84
Natalia Dębska, $192 107,60
Laura Czepiec, $126 862,28
Andrzej Fabian, $166 537,76
Robert Król, $124 568,24
Anna Dawido... $77 308,07
Michał Szurma, $73 913,13
Stefan Bednarski, $68 792,28

# Placing visualizations on the management dashboard

1.  Cut and paste all charts into the dashboard sheet.

2.  Remove the background and border of all charts and place them in the appropriate sections of the dashboard.

3.  To show the total sales amount in the Sales total section, refer to the **Grand total** in the pivot table.

4.  Click on the total sales amount text field and in the formula bar make a reference to the appropriate cell of the **pivot tables** sheet.
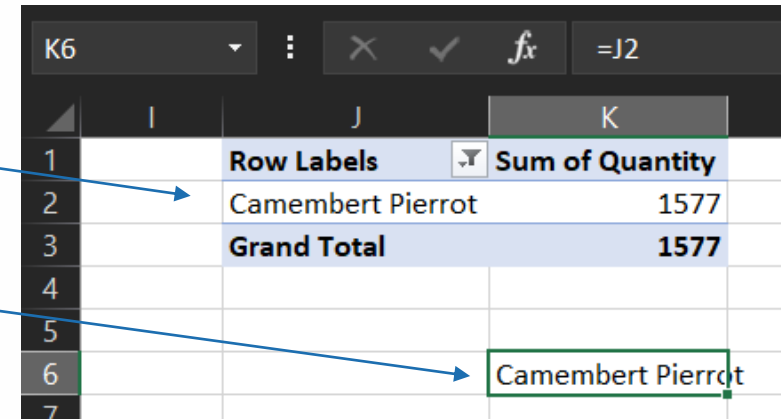
5.  Format the total sales amount textbox.

| | A | B | C | D |
|---|---|---|---|---|
| 1 | Row Labels | Sum of Extended price | | |
| 2 | Europe | $772 617,51 | | |
| 3 | North America | $319 456,63 | | |
| 4 | South America | $173 718,91 | | |
| 5 | Grand Total | $1 265 793,04 | | |
| 6 | | | | |
| 7 | | | | |
| 8 | | =GETPIVOTDATA("[Measures].[Sum of Extended price]";$A$1) | | |

*fx* ='pivot tables'!B10

MPANY X   ///   MANAGEMEN

Sales total          $1 265 793,04

$173 718,91; 14%

$319 456,63; 25%

$772 617,51; 61%

■ Europe  ■ North America  ■ South America

# Placing visualizations on the management dashboard

6. To show the name of the best selling product, make an appropriate pivot table.

7. In one of the cells, refer to the product name from the pivot table.

8. Click on the product name text field and in the formula bar make a reference to the appropriate cell of the **pivot tables** sheet.

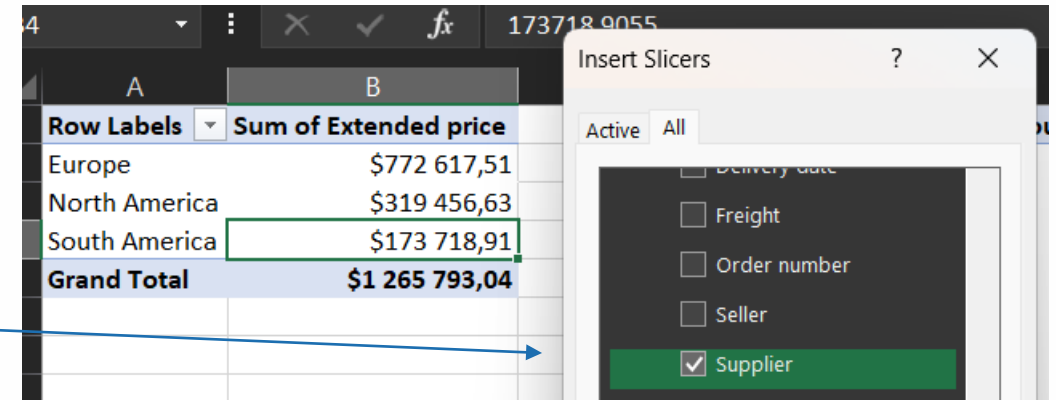9. Format the product name textbox.

# Placing visualizations on the management dashboard

10. To make a slicer, right-click on any pivot table you made earlier.

11. Select **Analyze -> Insert Slicer**.

12. In the **Insert Slicers** window, check the box for which you want to create a slicer and confirm your selection.
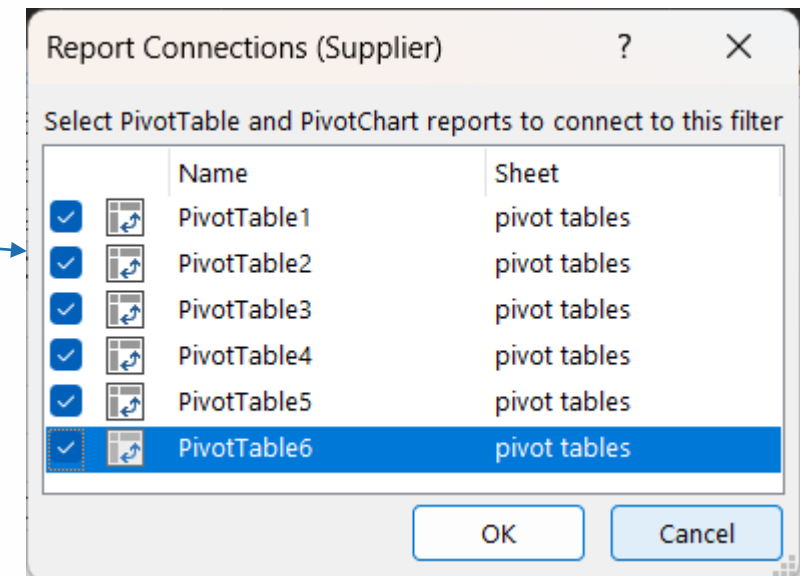
13. Right-click on the slicer you created and select Report Connections.

14. In the Report Connections window, select all pivot tables.

15. Cut and paste the slicer into the dashboard sheet.

Repeat steps 10 to 15 for all slicers.

# Thank you for your attention!