

Data Science

Data Analytics

in

Business Processes

Task 3: Report Format (Data Analysis, Decision Making, and Power BI Reporting)

Scenario:

You are an analyst for a retail company that sells electronics. The company is looking to expand its product offerings and enter a new market. You have been tasked with analyzing the potential market and product options, making data-driven decisions, and presenting your findings using Power BI.

a: Market Analysis

- **Data Collection:** Research and collect data about potential markets for the company's products. This could include population demographics, income levels, consumer preferences, and competition.
- **Data Organization:** Organize the collected data into a structured format, such as an Excel spreadsheet.

b: Product Options Analysis

- **Product Options:** Identify at least three potential products the company could introduce in the new market. For each product, gather data on estimated production costs, selling prices, and projected demand.
- **Data Analysis:** Use Excel to calculate the potential profit margins, break-even points, and estimated profitability for each product option.

c: Decision Making and Recommendations

- **Decision Matrix:** Create a decision matrix that considers factors like potential profit, production costs, and alignment with the company's brand strategy.
- **Ranking and Recommendation:** Rank the product options based on your decision matrix analysis and provide a brief explanation for your recommended product.

d: Power BI Reporting

- **Data Visualization:** Create a Power BI report that visually represents the market analysis, product options analysis, and the decision-making process.
- **Include Visualizations:** Include appropriate visualizations such as bar charts, pie charts, scatter plots, and tables to present key findings and comparisons.

e: Executive Presentation

- **Narrative:** Prepare a narrative-style presentation (around 5 slides) that tells the story of your analysis, decision-making process, and recommendations.
- **Visual Aid:** Use screenshots from your Power BI report to support your narrative.

Source data: Global Superstore.xlsx

Introduction

Since 2000, The Appsiz Ltd. has been a retailer of electronic goods. The corporation has expanded over time alongside the financial markets of the United States, the Asia-Pacific region, Latin America, and the European Union. Additionally, the management of the company plans to increase its product offerings in the Middle East Market.

Methodology

Even though the corporation has some market knowledge of the current locations, selling directly in the Middle East without conducting thorough sales analysis and decision-making can be difficult. Therefore, it is essential to follow the processes required to perform the data analysis. It is advised to establish a set of questions, gather data, clean the data, analyze the data, and draw conclusions in order to do this.

Results / Observations / Discussion

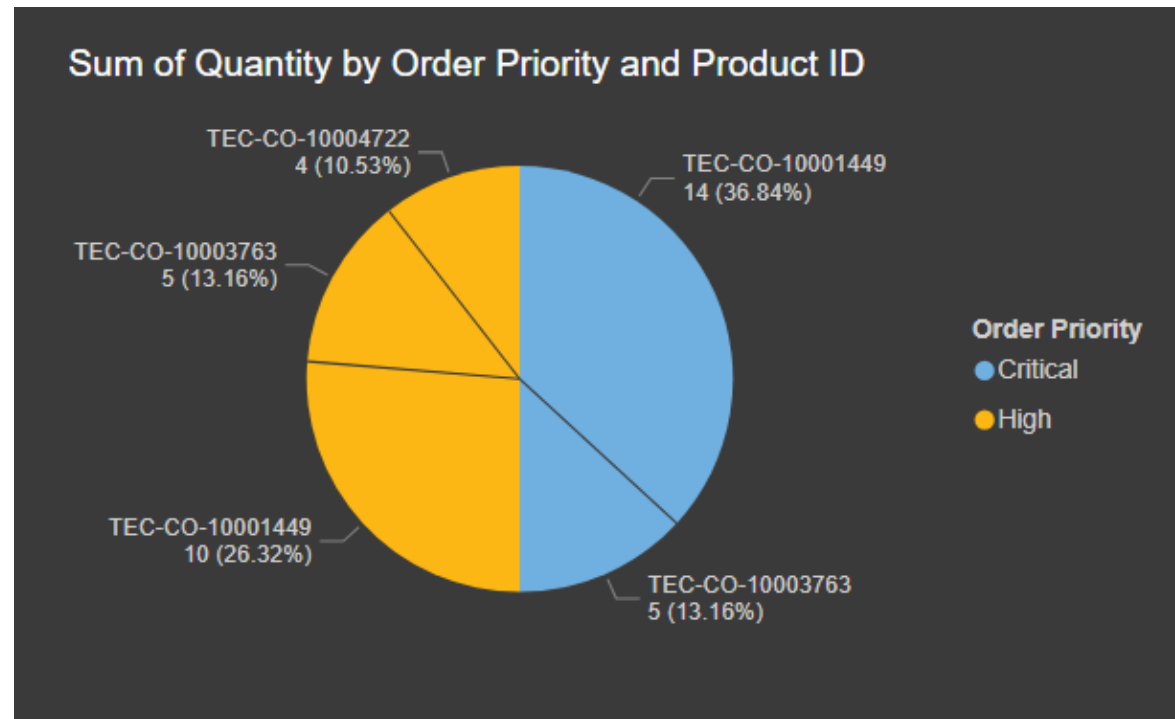
The three technology items with the highest total profit are listed in the table below. The total sales have been calculated based on the anticipated demand. Additionally, if the top 3 items were chosen based on their overall sales, the same outcomes should have been obtained.

Product ID	Sum of Sales	Sum of Profit
TEC-CO-10004722	\$61,599.82	\$25,199.93
TEC-CO-10001449	\$18,839.69	\$6,983.88
TEC-CO-10003763	\$11,619.83	\$4,570.93

The top three items are shown in the table below as a proportion of total sales, average cost, and average unit price based on total profit. This data indicates that the product with the highest total profit also has a high unit price.

Product ID	%GT Sum of Sales	Average Cost	Average Unit Price
TEC-CO-10003763	12.62%	\$169.74	\$594.99
TEC-CO-10004722	66.91%	\$255.26	\$3,079.99
TEC-CO-10001449	20.46%	\$345.60	\$479.99

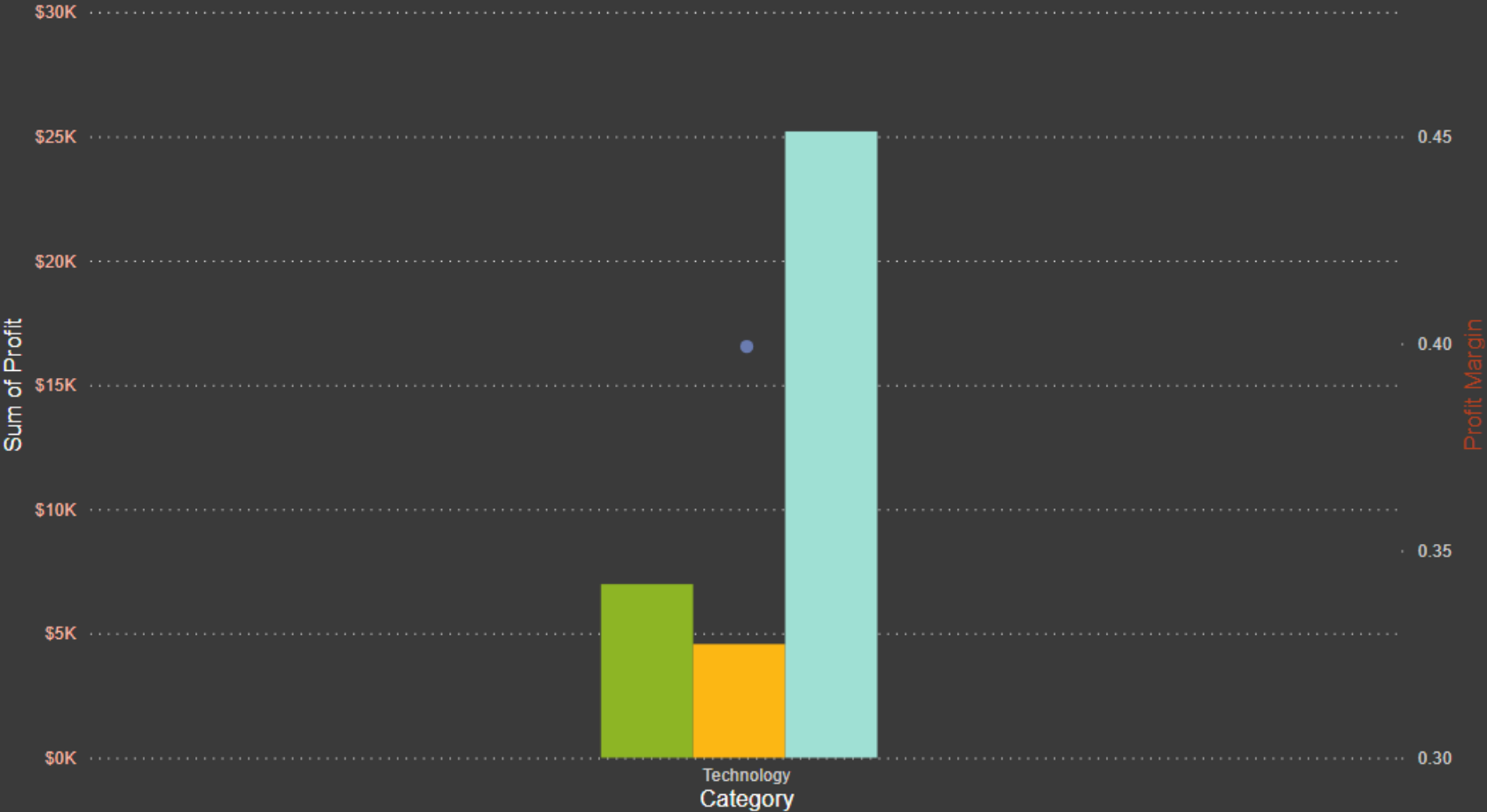
The quantity total is displayed by order priority and product id in the pie chart below. This makes it obvious that the item with the highest demand and crucial order priority has the largest ordered quantity.



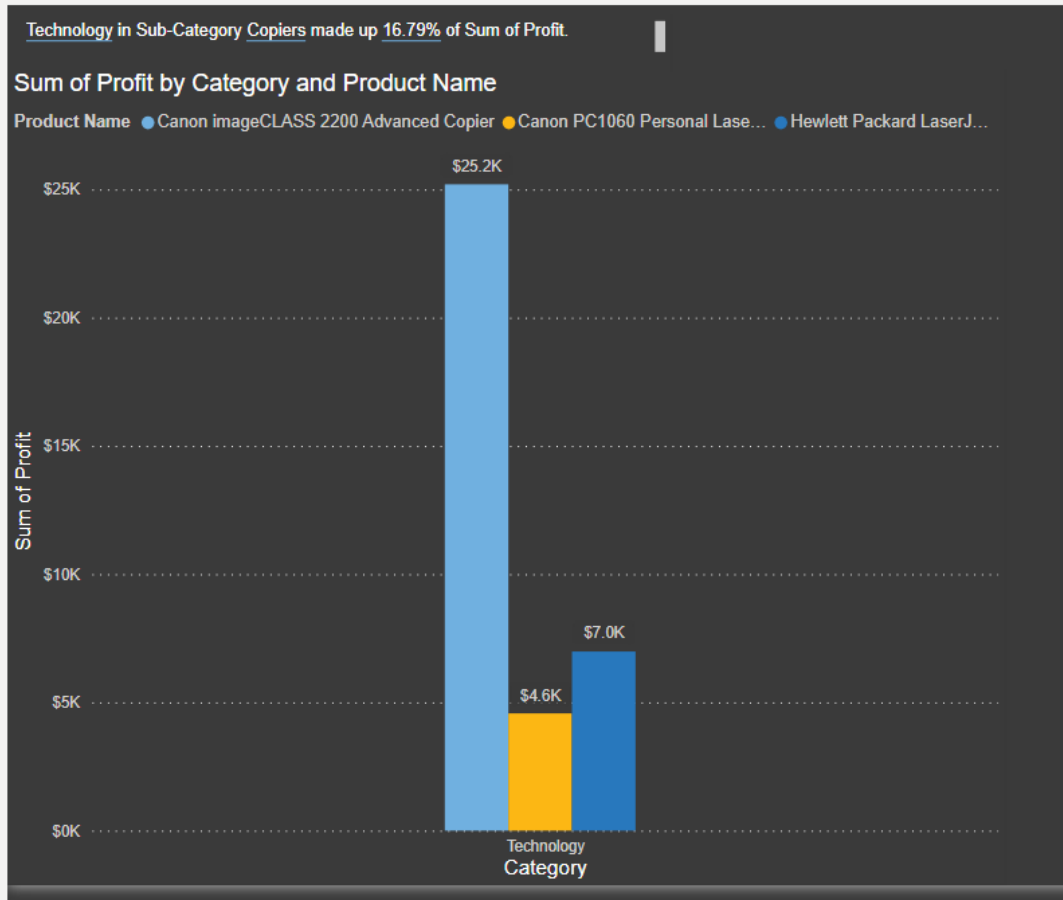
The total sales and the profit margin broken down by category and product ID are shown in the clustered column chart below. Based on this, the item code TEC-CO-10004722 has the greatest total profit, with a profit margin of 0.4. Additionally, similar to the preceding pie chart, the one below displays the top 3 goods that have produced the most profit out of all the others products.

Sum of Profit and Profit Margin by Category and Product ID

Product ID ● TEC-CO-10001449 ● TEC-CO-10003763 ● TEC-CO-10004722 ● Profit Margin



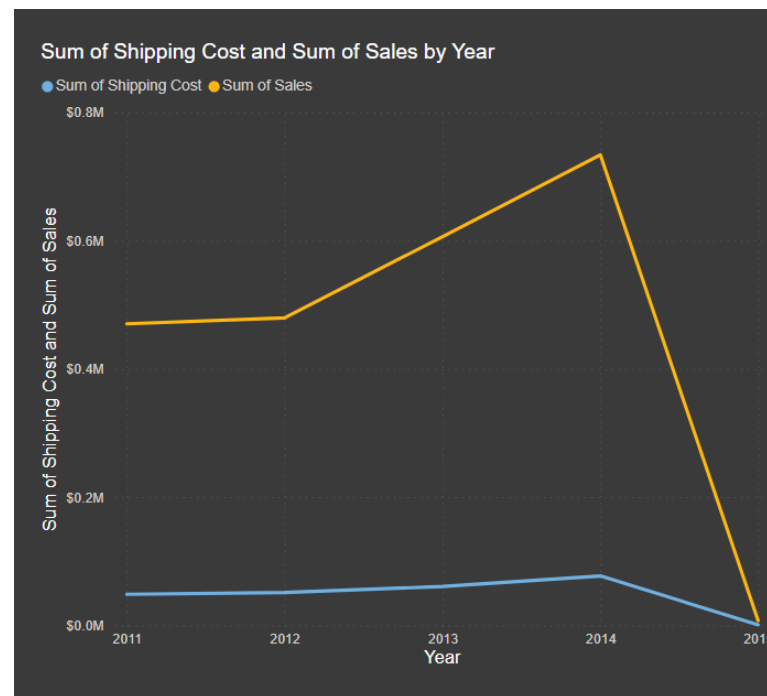
In addition to the details provided above, a smart narrative can be seen by stating that 16.79% of the technology category's overall profit has been generated by the Copiers subcategory of products.



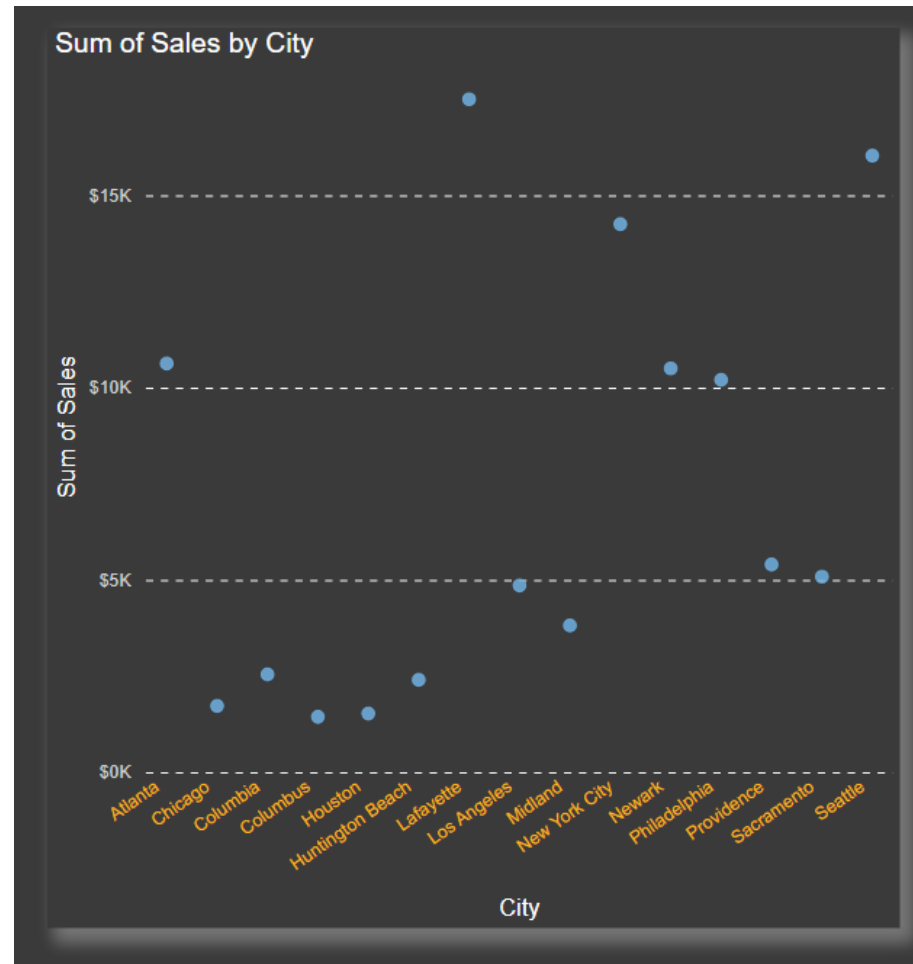
The break-even point:

The break-even point is the point at which there is neither a profit nor a loss for the company when the total cost and total revenue are equal.

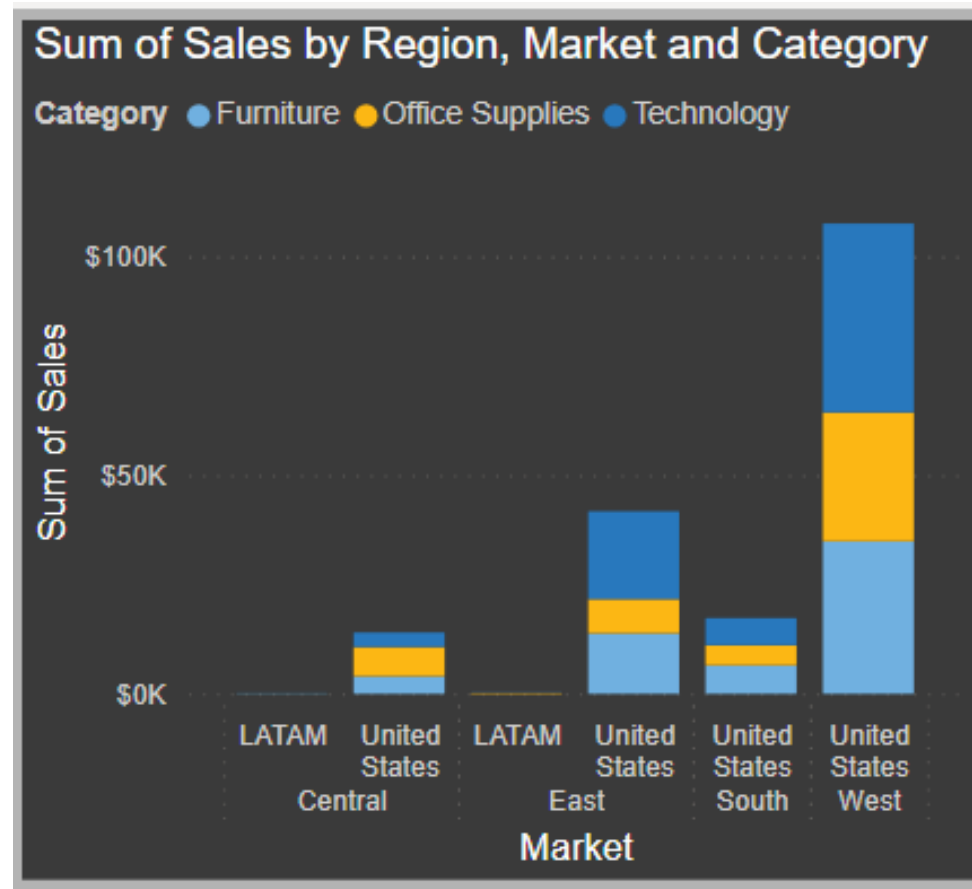
(**Assumption:** the excel sheet doesn't contain the data related to the cost of each product hence the shipping cost has been taken as the cost of each product.)



The correlation between the cities and the overall sales is depicted in the scatter plot below. The city of Columbus has the lowest total sales, and the city of Los Angeles has the highest.



The market analysis in relation to total sales vs. regions is displayed in the clustered column chart below. Therefore, among all regions in the United States, the West has the most sales of furniture, office supplies, and technology items.



The top three electronic items in terms of overall profit are shown in the matrix together with the total sales and profit margin for each region.

Category	Technology	
Product ID	Sum of Sales	Profit Margin
☐ TEC-CO-10004722		
Central	\$17,499.95	0.48
East	\$30,099.91	0.33
West	\$13,999.96	0.48
☐ TEC-MA-10002927		
East	\$3,991.98	0.50
☐ TEC-MA-10003979		
East	\$7,699.89	0.49

Brand strategy:

A brand strategy, also known as a brand development strategy, is a long-term plan for achieving a number of long-term goals that ultimately lead to consumers knowing and favoring the company's brand.

The Critical, High, Medium, and Low rankings for each product are shown in the matrix below. Based on the highest profit totals of the 10 products, the list was put together. When it comes to ordering, it is evident that the TEC-CO-10001449 item is in tremendous demand.

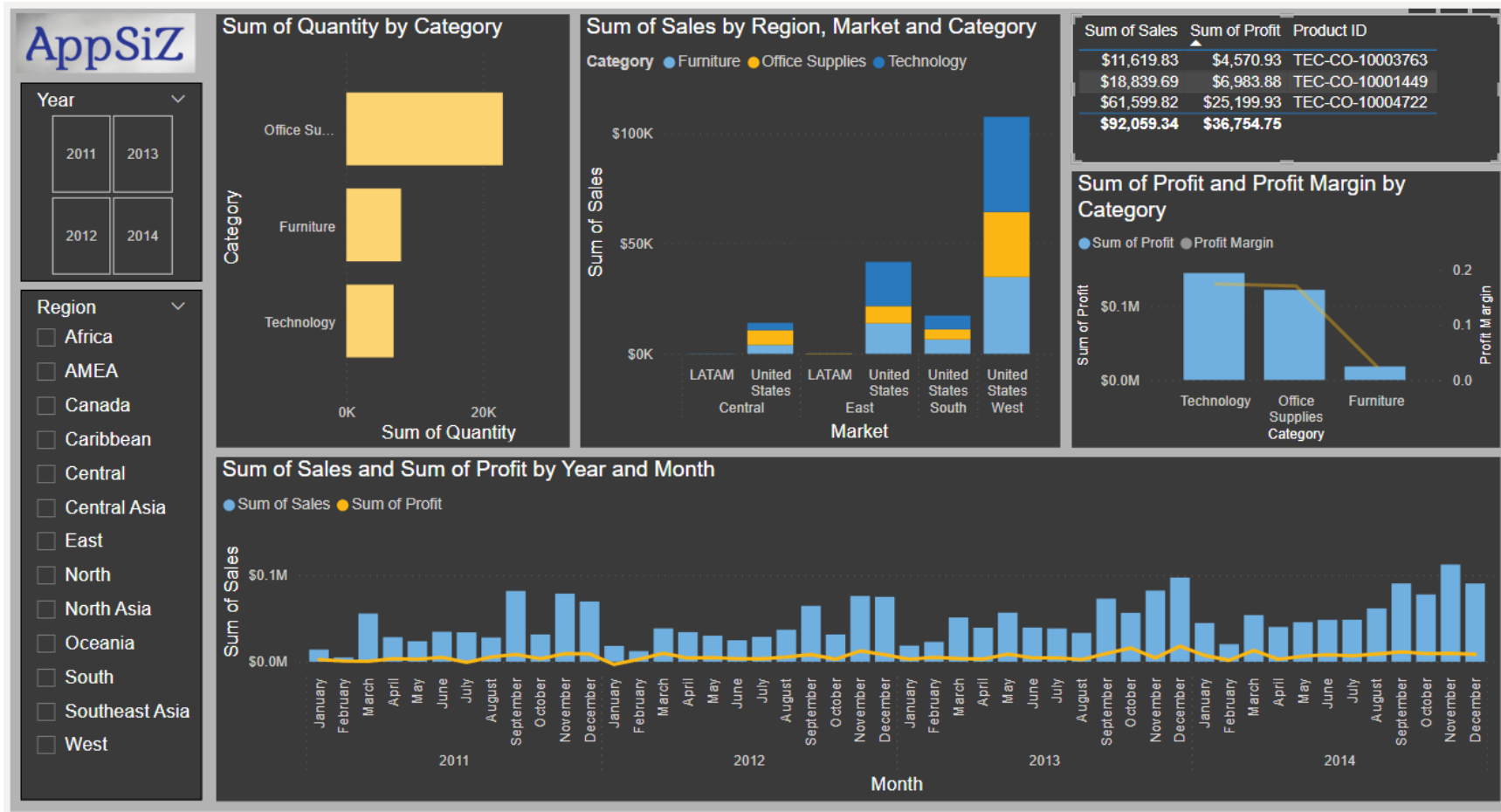
Product ID	Critical	High	Low	Medium
TEC-AC-10002049	11	22	4	23
TEC-CO-10001449	14	10		14
TEC-AC-10003033	7	2	1	25
TEC-CO-10002095	2	10		9
TEC-CO-10004722		4		16
TEC-CO-10003763	5	5		9
TEC-MA-10001127	5	3		4
TEC-MA-10001047				11
TEC-MA-10003979		4		7
TEC-MA-10000045		2		4

Conclusion

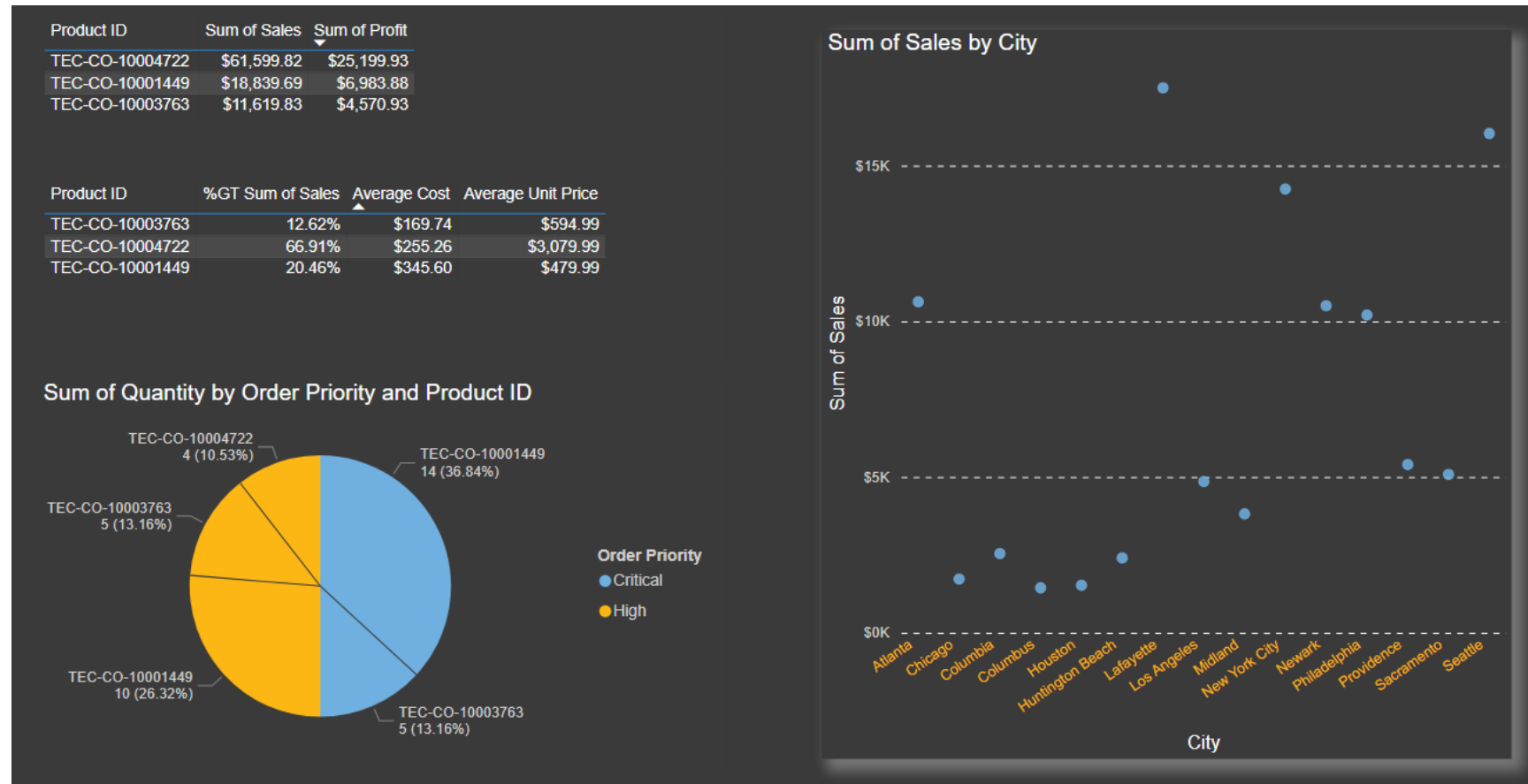
The item codes TEC-CO-10004722, TEC-MA-10002927, and TEC-MA-10003979 for the Technology category are suitable for selling in the new Middle Eastern market when all the aforementioned considerations are taken into account.

Presentation:

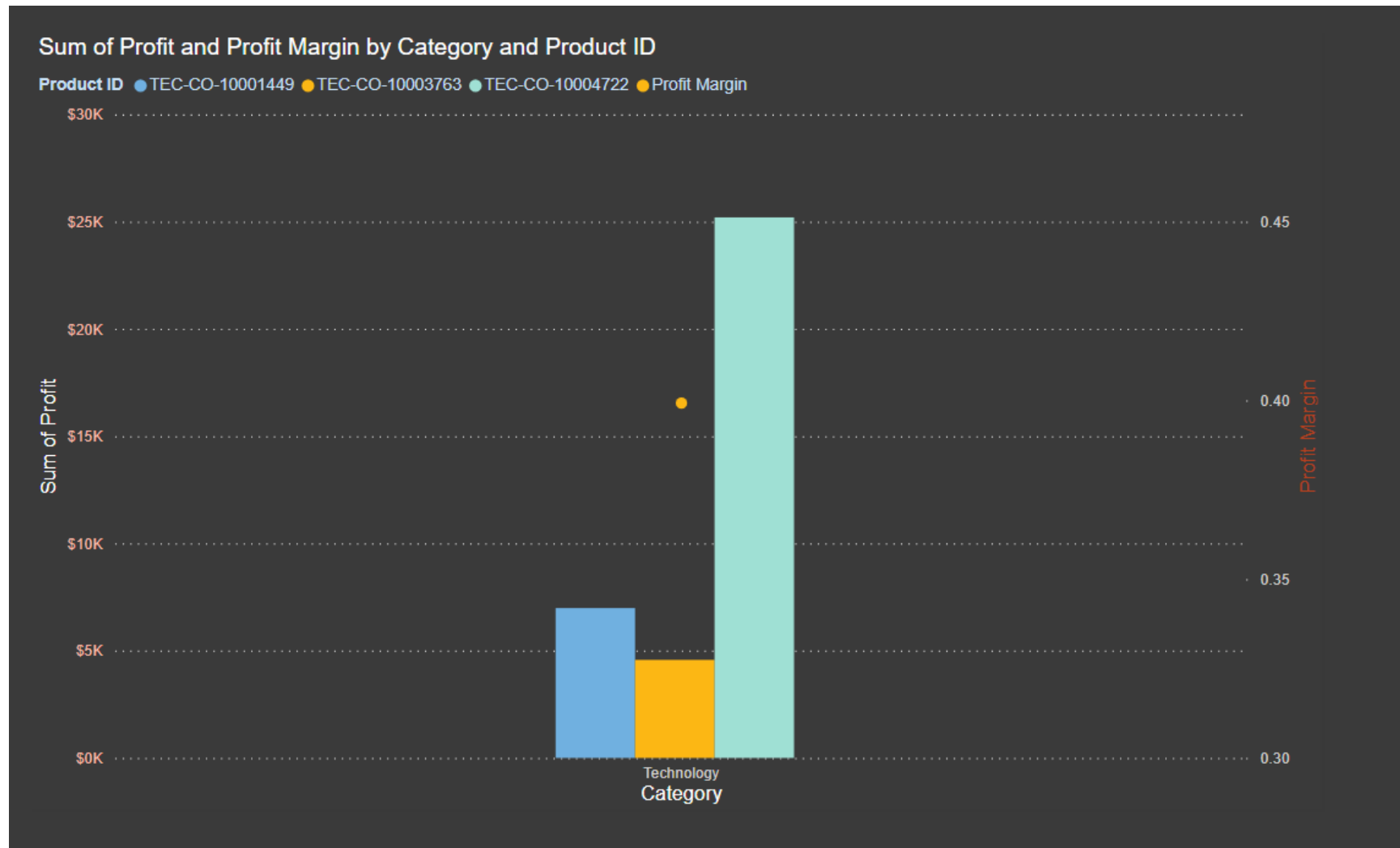
Slide 1:



Slide 2:



Slide 3:

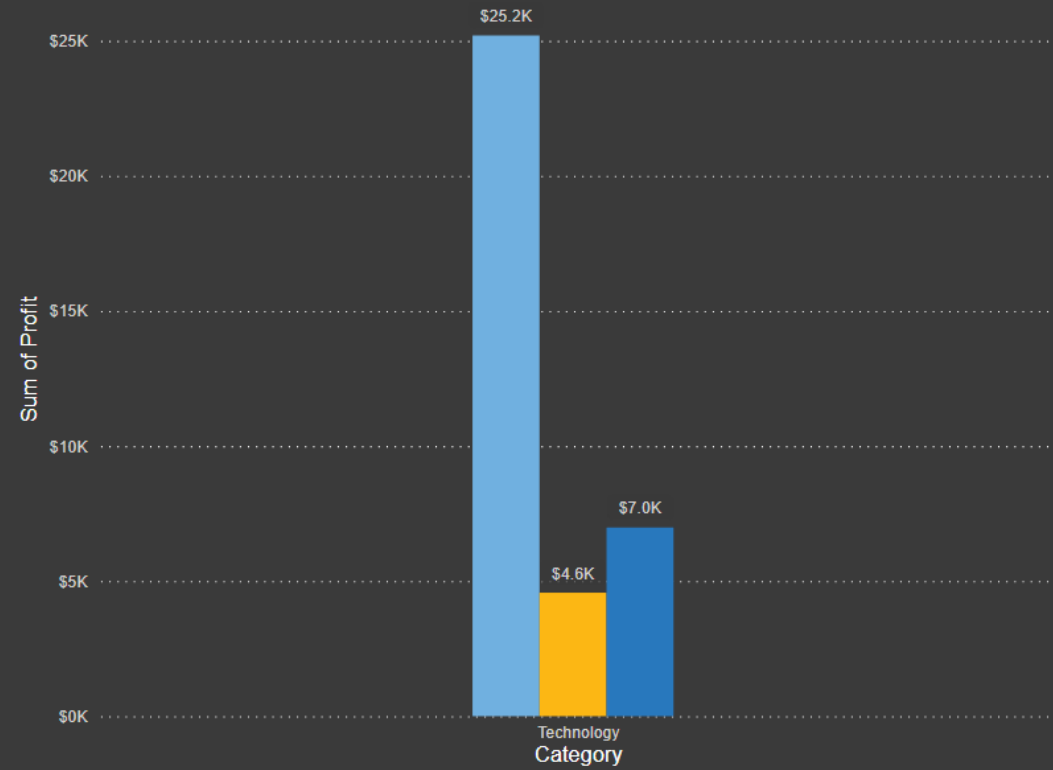


Slide 4:

Technology in Sub-Category Copiers made up 16.79% of Sum of Profit.

Sum of Profit by Category and Product Name

Product Name ● Canon imageCLASS 2200 Advanced Copier ● Canon PC1060 Personal Laser ... ● Hewlett Packard Laser...



Slide 5:

Product ID	Critical	High	Low	Medium
⊕ TEC-AC-10002049	11	22	4	23
⊕ TEC-CO-10001449	14	10		14
⊕ TEC-AC-10003033	7	2	1	25
⊕ TEC-CO-10002095	2	10		9
⊕ TEC-CO-10004722		4		16
⊕ TEC-CO-10003763	5	5		9
⊕ TEC-MA-10001127	5	3		4
⊕ TEC-MA-10001047				11
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⊖ TEC-MA-10003979		
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