T8- Final Analysis Report

Team 13
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CIS 235

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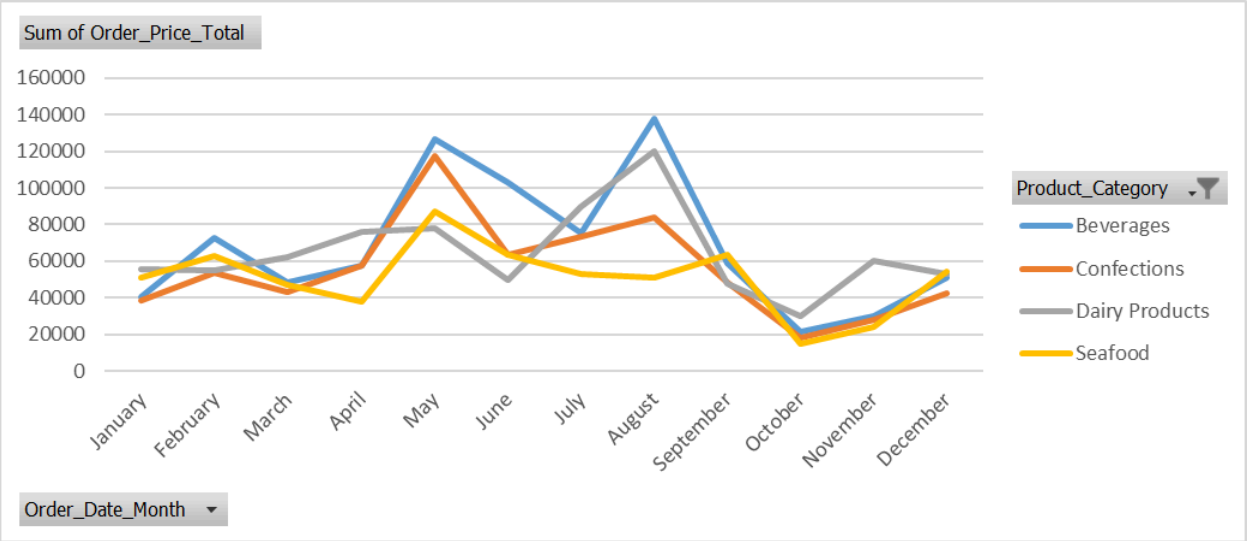
Link to Excel visualizations: Northwind Trader Global Sales Data 20.21.23.xlsx

Executive Summary:
The following five areas analyze and visualize critical trends in our data.
We look at order price totals by month, product, and country, as well as the performance trends and distribution of quantities among products.
The following table displays the main initial takeaways of “what we know.” These top-grossing products and countries should be a focus of our analytics going forward.

	Top Grossing Products		**Top Grossing Countries**
1	Côte de Blaye	**1**	United States
2	Raclette Courdavault	**2**	Germany
3	Thüringer Rostbratwurst	**3**	Austria

Visualization 1



- **Why did the team choose this specific subset of data to share and visualize? Why not others?**

The team chose this subset of data to showcase the distribution of order price total across the top-grossing categories (Beverages, Confections, and Dairy Products) over different months of the year. It provides a snapshot of how these products' sales are distributed throughout each year.

- **What story does the visualization tell?**

The visualization depicts the distribution of order price totals for each highlighted product category across different months. It reveals seasonal trends in purchasing behavior by showcasing in what months sales peaked in these top categories (May and August), and in what months sales dropped (March, June, September, and October).

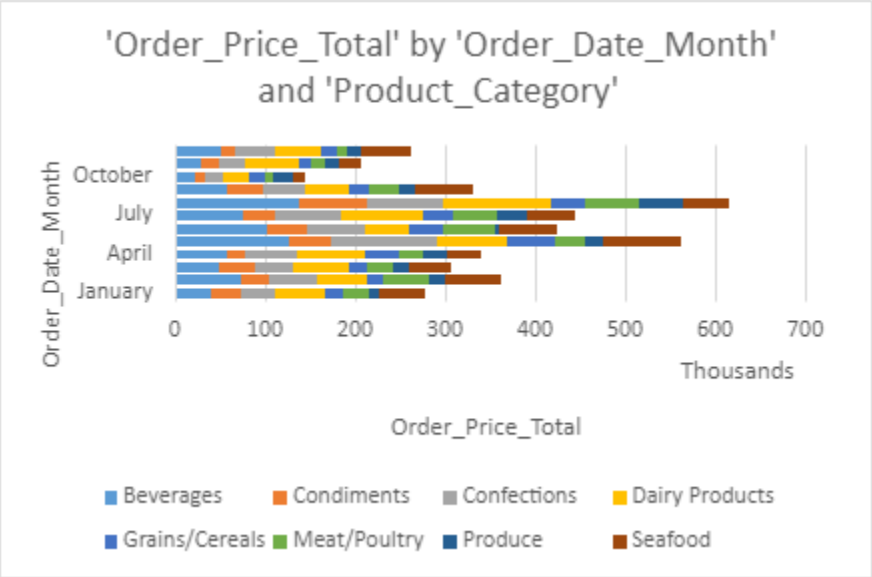
- **What do we know from this subset of data? What other data sets may be important to link to this data set? Why?**

From this subset, our team can discern when these most popular products are increasing, decreasing, or staying constant in revenue. Linking this dataset to other datasets, such as inventory levels, marketing campaigns, or external factors like economic indicators or seasonal events, could provide deeper insights into the factors driving sales trends.

- **What don't we know that we should know?**

Without additional information or context, it's unclear what specific factors are influencing the fluctuations in sales percentages for each category. We lack information on the absolute values of sales, making it difficult to determine the actual revenue generated by each category. It's also unclear whether there are any anomalies or outliers in the data that could skew interpretations.

Visualization 2



- **Why did the team choose this specific subset of data to share and visualize? Why not others?**

The team might have chosen this specific subset of data to share and visualize because it provides insights into the sales performance of different product categories over selected months.

Greatest revenue months leading October, July, April and January, followed by high amounts of seafood and beverages being sold in each.

- **What story does the visualization tell?**

The visualization tells a story of how different product categories perform in terms of total order price during these months.

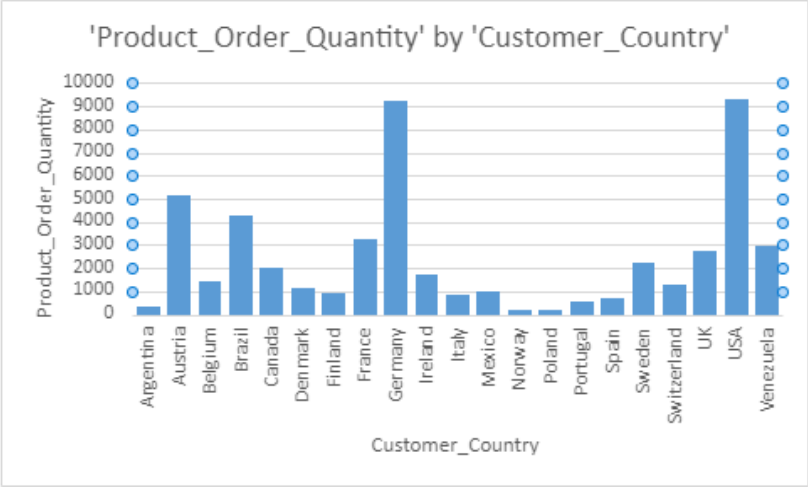
- **What do we know from this subset of data? What other data sets may be important to link to this data set? Why?**

From this subset of data, our project teams knows the total order price for each category in the given months. However, we don't have information on other months or years, customer demographics, or geographical sales distribution which could be important to get a comprehensive insight into the overall sales performance and trends.

- **What don't we know that we should know?**

We should know the sales performance in other months or years, the customer demographics that contribute to these sales, and the geographical distribution of these sales. This additional data could help us understand the seasonal trends, customer preferences, and market penetration in different regions, which are crucial for strategic planning and decision-making.

Visualization 3



- **Why did the team choose this specific subset of data to share and visualize?**

Understanding the bulk/volume of where product is fundamental to correct supply chain management. Putting the top-selling markets (or countries in this case) is beneficial to know what perhaps legal permits are worth getting or struggling to get, where to target advertising, and what cultures are best to understand/best market to serve. To sell cultural items you must first understand the culture driving said items.

- **Why not others?**

This graph tells a better story/trend of people's decision-making when it comes to cultural items. If you live in the city you may be more likely to enjoy certain styles of food as opposed to living in the countryside. You can't generalize everything, but having a broad sense of what markets drive the highest profits is certainly a crucial piece of info to any business or economic system.

- **What story does the visualization tell?**

Of all the items sold, the market is dominated by the United States and Germany in the matter of volume. While volume is important, it is worth noting the differences in what is sold and the profit difference between high-volume countries, and by high-profit items being sold by countries.

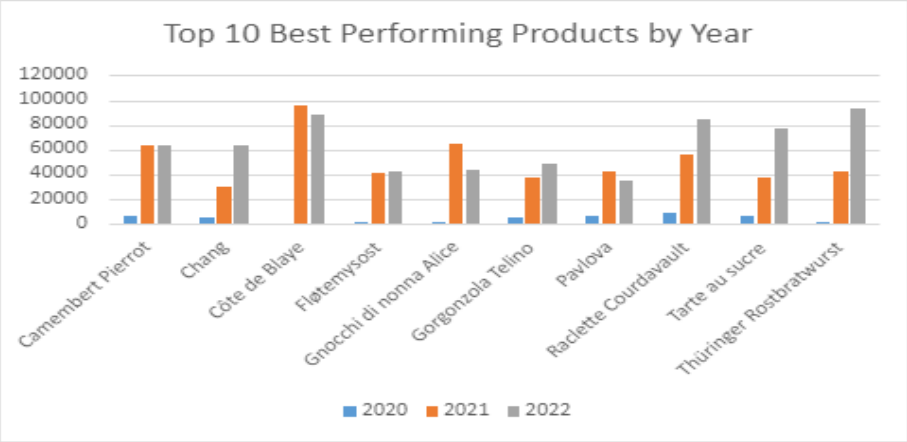
- **What do we know from this subset of data? What other data sets may be important to link to this data set? Why?**

There is an interesting range of high-volume customer countries ranging from Austria to the U.S. We will say the top 2 areas by volume seem to be the American Continents and the Germany - Austria sector.

- **What don't we know that we should know?**

Having a separate graph to show profit margins and dividing between what products sell highly in these high volume markets would be useful info to know. Leading to a question of high volume low margins, or lower volume higher margins. Or perhaps somewhere in the sweet middle of high volume, high margins.

Visualization 4



- **Why did the team choose this specific subset of data to share and visualize? Why not others?**

The team chose this specific subset of data to gain insights into products that drive the majority of sales. Top-performing products provide robust insights that affect a business's overall strategies, marketing efforts or even future product development. The business can use some of the already existing strategies to propel other products to the same level.

- **What story does the visualization tell?**

The visualization shows a comparative performance of the top 10 products over three years. It highlights consistency in some products and growth or decline in others, while also highlighting relative performance between the different products in terms of volume of sales.

- **What do we know from this subset of data? What other data sets may be important to link to this data set? Why?**

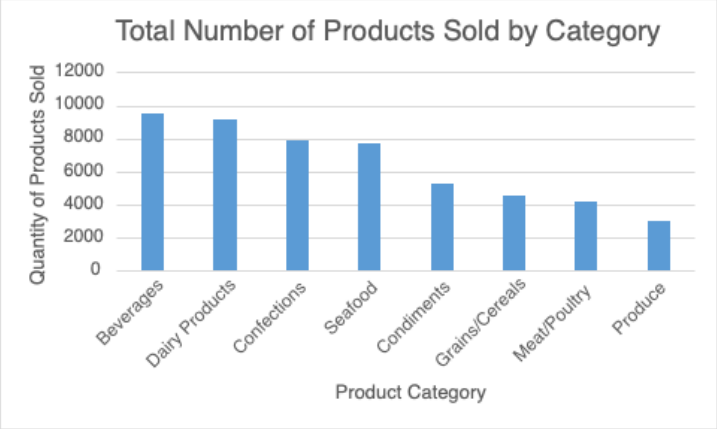
Our team knows which products have been performing best and can observe trends in their performance over the years. To get a comprehensive view, it might be beneficial to have data on marketing strategies employed, customer feedback, or regional sales data to understand why these particular products are performing well.

Other important insights will be customer demographics, product attributes(what makes it different from other products), and lastly what marketing strategies are utilized to achieve such effectiveness.

- **What don't we know that we should know?**

Our team is unsure of the criteria used to measure “performance”. Is it based on sales volumes, profit margins, customer satisfaction, or another metric? Also, information on other not-so-well-performing products and why they didn’t make it to the top 10 could provide insights for improvement. Aside from these, are there any other external factors that influence the sales performance of these products, or even are there more opportunities to further improve these products in the current market?

Visualization 5



- **Why did the team choose this specific subset of data to share and visualize? Why not others?**

Understanding the bulk/volume of each product type is important for supply chain management.

- **What story does the visualization tell?**

It shows that categories like beverages and dairy products require the production of thousands more products than other categories such as meat and produce.

- **What do we know from this subset of data? What other data sets may be important to link to this data set? Why?**

An important data set that could be linked to this data set is the total dollar amount of purchases by categories.

- **What don't we know that we should know?**

We should know the costs of production for each product category. This would help us know how important each of these categories is to the business.

Conclusion:

- **What we know**

The chosen subsets of data provide insight into various aspects such as sales distribution across product categories, top-selling markets, product performance, and production volume. Each visualization offers valuable perspectives for decision-making in different areas of business operations.

- **What we need to know**

Criteria used to measure product performance. Factors influencing sales trends beyond the provided data.Costs of production for each product category. Additional datasets such as marketing strategies, customer demographics, and regional sales data.

- **Recommendation(s) for next steps**

Incorporate additional data to gain a comprehensive understanding of sales trends and factors driving performance. Analyze the correlation between production volume, sales performance, and costs to optimize resource allocation. Conduct further analysis to identify potential growth opportunities and areas for improvement. Continuously monitor market trends and consumer preferences to adapt strategies accordingly.

What systems do we propose to implement based on business needs and current state of Information Systems?

1. Transactional: Automatic Sorting
2. Transactional: Supply Chain Management System
3. Transactional: Customer Relationship Management
4. Analytical: Demand Forecasting Software
5. Analytical: Data Mart
6. Analytical: Marketing Data Mart

What are the TWO prioritized systems that we will implement based on directions from the CIO?

1. Demand Forecasting Software
2. Customer Relationship Management(CRM)

Our strategy to implement the TWO prioritized systems:

- In seeking external vendor assistance to implement the systems, the internal team will issue a Request for Proposal (RFP) detailing our needs and permitting companies to submit proposals. The RFP will specify the scope of work, project timeline, financial constraints, and anticipated results. Vendors will be assessed according to their experience, technical expertise, proposed solution, and cost.
- Roles and responsibilities of the external vendors and the project team:
    - External Vendors:
        - System development and integration tasks as outlined in the scope of work
        - Providing technical expertise and guidance throughout the project
        - Delivering the agreed-upon solution within the specified timeline and budget
    - Project team
        - Requirement assessment and refining to verify the vendor's solution corresponds with the organizational needs
        - Quality assurance and user acceptance testing are performed to validate the functionality of the implemented systems.
        - Maintain regular communication with the vendor to provide feedback, clarify requirements, and handle any challenges that occur.

Brief Summary

Customer Relationship Management: A platform that centralizes customer data and interactions, lowering the cost of time it takes for manual reports.Flexible to integrate with existing systems such as current automation tools in the sales department creating a more fluid process for sales reps to give them an opportunity for better quality sales appointments.

Demand Forecasting System: Integrates with the business's sales data and current market trends to generate highly accurate forecasts to get ahead of the curve of other companies. Capable of forecasting algorithms and other analytical tools to identify future trends for research on new product design or innovation on current products.

Transition Period Assistance

For the transition process of both systems with the help of the teams of both software companies our team chooses to use (potentially Salesforce as an example) and the help of any current faculty with experience with either system. The companies our team decides to partner with can help us stay on track of our financial budget (though our

team advises having our team work on this as well) and ensure a smooth transition into our new way of using these systems