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## Executive Summary:

In this analysis, we are focusing on customers in USA, Germany and Austria, because these countries have the largest volume of sales.

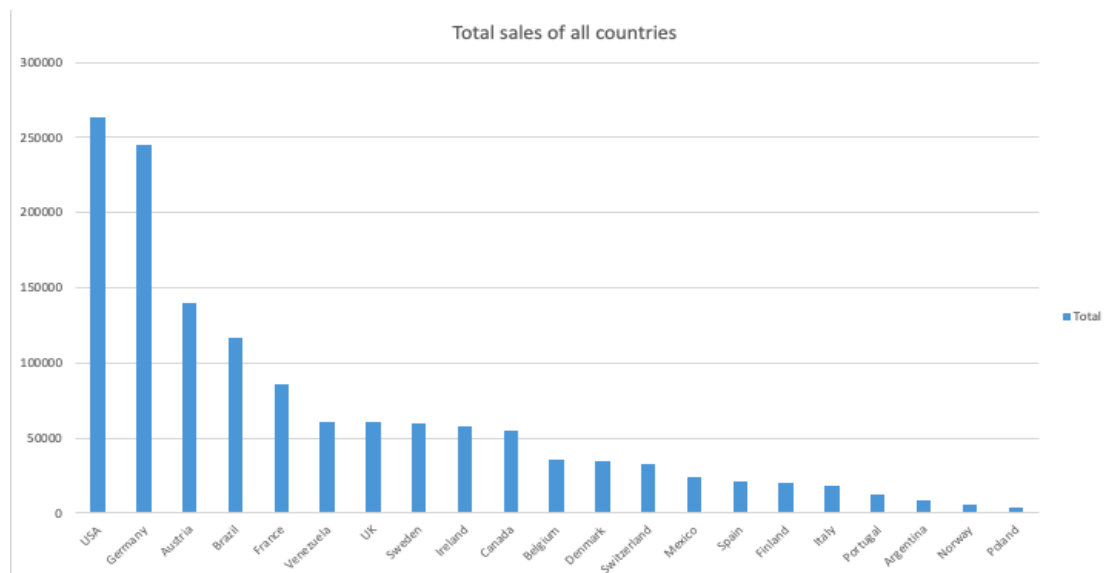
To be able to identify that, the data subsets we are choosing are:

- Customer Countries
- Category
- Order date
- Price
- Quantity

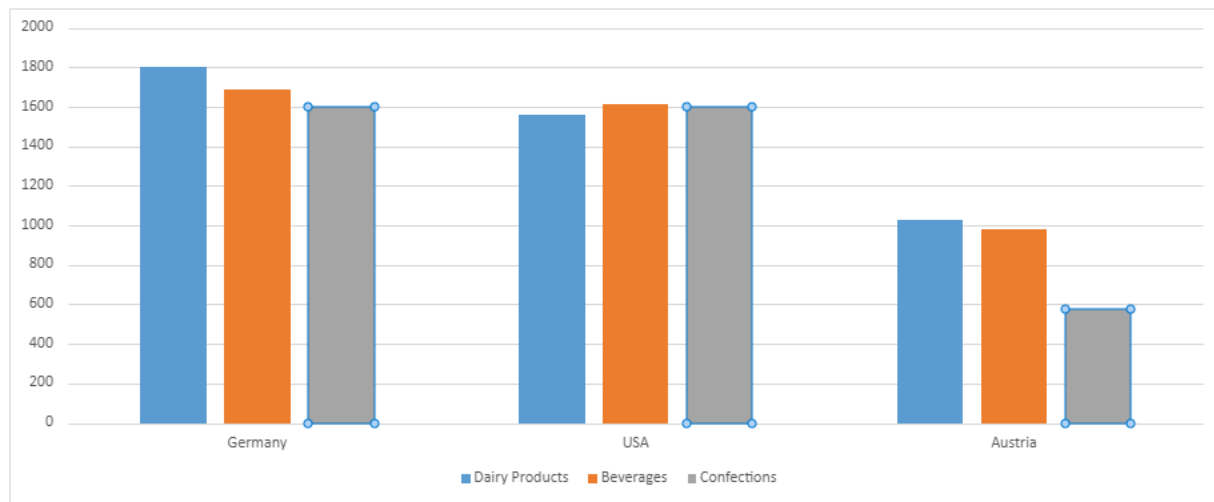
These 5 subsets will help us assess Northwind Traders performance over the years, aiding our understanding of our team and the market.

- For customer countries and product category subsets, these information will give us an insight into who we are targeting and what products we should focus on.
- The order date will give us some idea of when the demand of certain products peak, so we can increase capacity/inventory in those periods.
- An analysis on price will help us adjust cost in order to increase profit
- Quantity analysis will tell us how certain products perform over the year, and should we focus on them or diverse our product base

Our primary visualization will focus on demonstrating the total orders from each country. This visualization aims to depict the volume of orders originating from different countries and their trading patterns with us, with the results being sorted from the largest to smallest demand. Notably, the USA, Germany and Austria emerged as our predominant customer, consistently placing the highest number of orders throughout the year. Therefore, our data team will focus on analyzing the subset of data belonging to these countries, enabling us to understand trends in ordering behavior and product engagement. This strategic analysis will facilitate the formulation of targeted marketing and sales strategies for enhanced performance.



## Sales of top product categories in Germany, USA and Austria



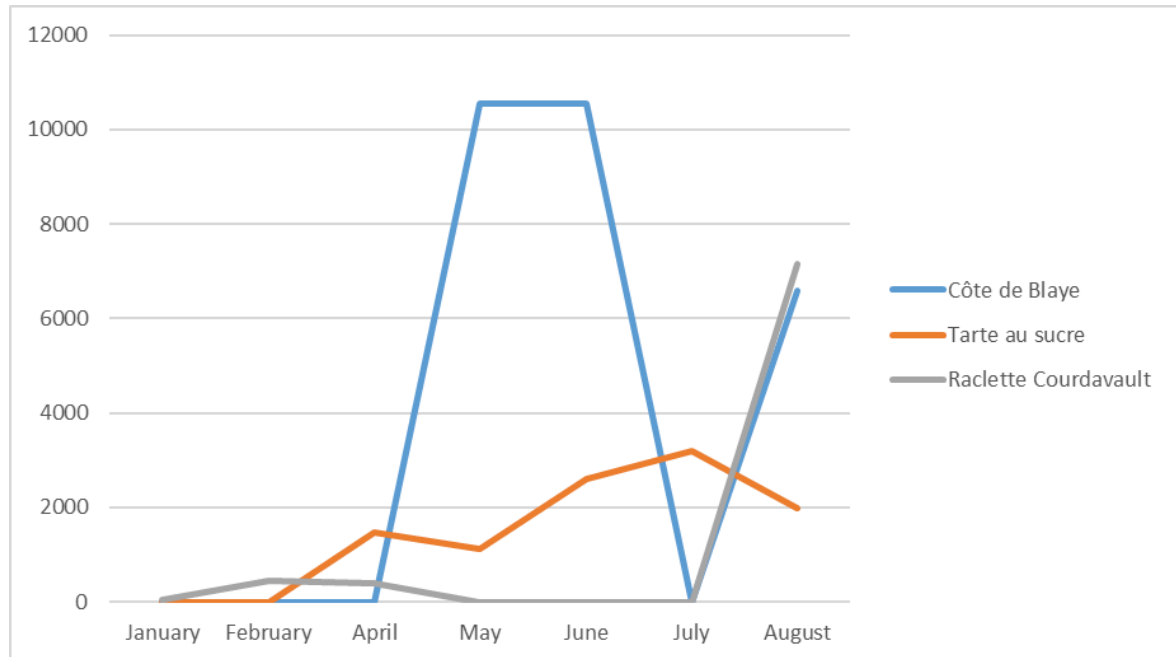
The given visualization shows the sales distribution in top nations for the top three product categories: beverages, dairy products, and confections. It appears to have been selected to show the company's current sales volume position for these categories in its main markets. The team can succinctly respond to the Senior Leadership Team's (SLT) concerns on the viability of Activity Based Costing (ABC) and sales efficiency thanks to the selection of this subset of data.

The graphic depicts the narrative of a sales distribution that differs dramatically by product category and nation. The strongest markets seem to be in Germany, the USA, and Austria, with dairy, beverage products and confections dominating the market. Based on product and regional success, this subset of data can help determine where to concentrate sales and marketing efforts and where to optimize expenses.

It would be essential to connect this data collection to customer profitability measures and cost analysis in order to better match with the ABC objective. Knowing which goods and markets provide the highest profit margins and cost-effectiveness can help direct a more sophisticated approach that is consistent with the maxims "Transformation," "Better, Faster, Cheaper," and "Run to where the ball will be."

Product-specific profitability, customer segment performance, and operating costs by location are among the things we don't know and should know. Without this data, the business runs the risk of concentrating on revenue without realizing how it affects the bottom line.

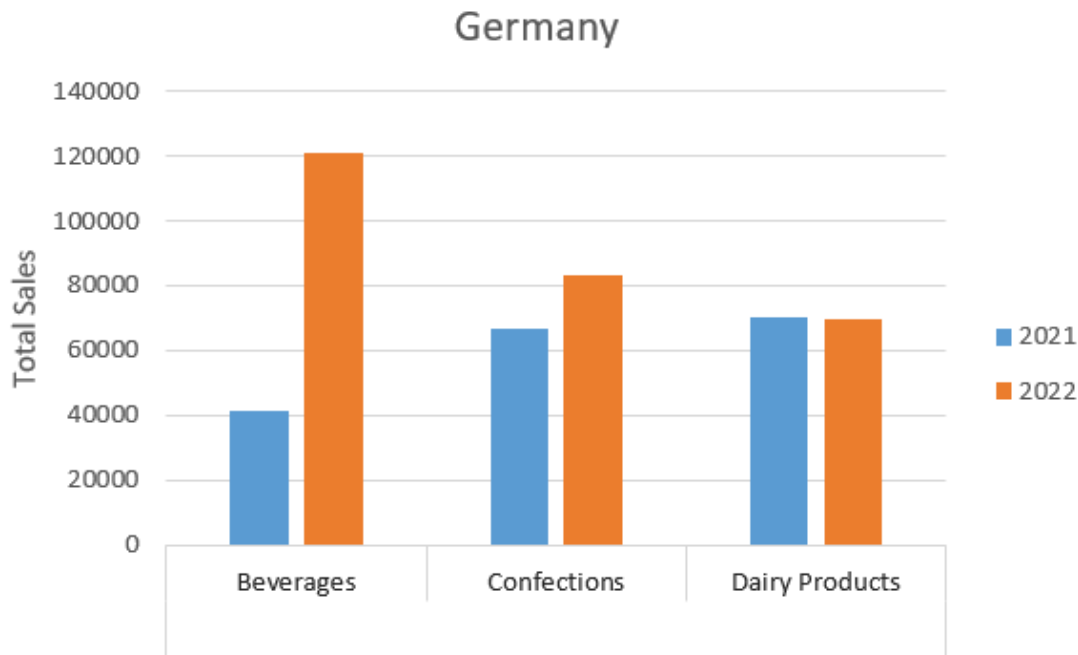
### Sales of top products in the USA over the 12-month period



This subset of data displays the sales trend during the most recent year, 2022, of the top three best-selling products in the USA. Overall, trends of the top selling products follow a similar pattern with sales reaching the highest amounts in the summertime. This data can be used to enhance inventory management practices and subsequently reduce costs by keeping inventory low in slow months, while increasing inventory levels in the summer months to prepare for higher demand.

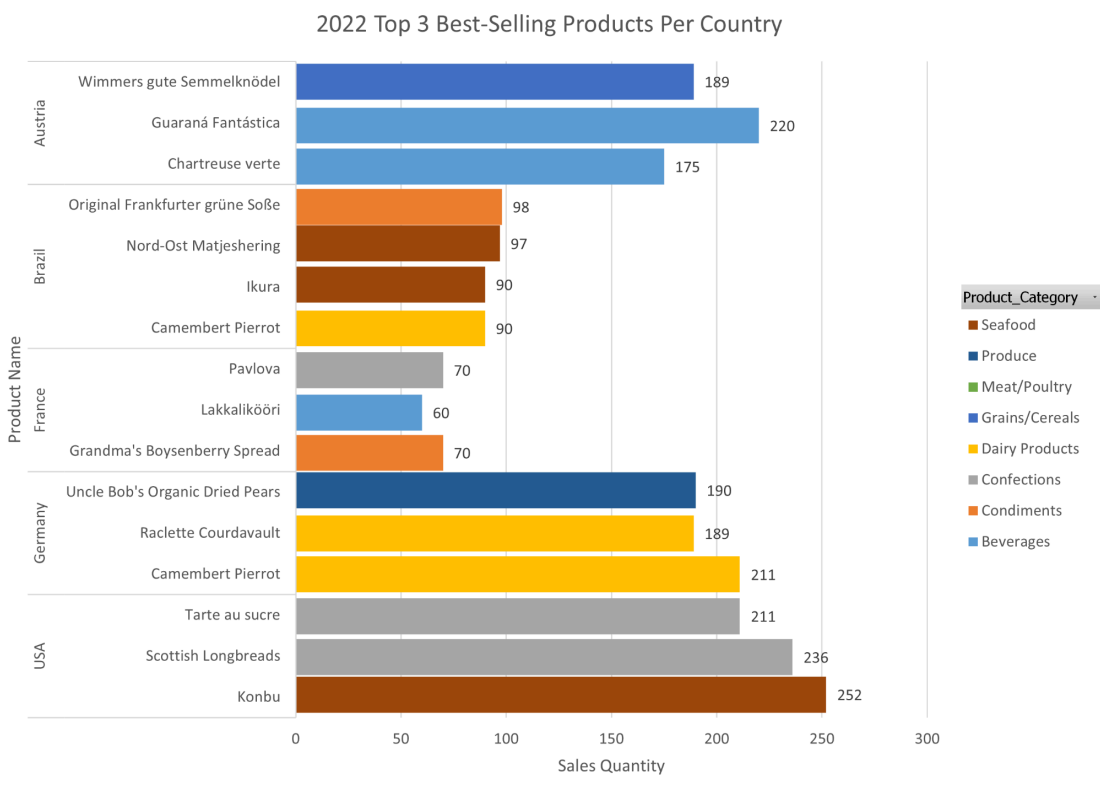
These products are Côte de Blaye in dairy, Raclette Courdavault in the beverage category, and Tarte au sucre in confections. The sales of Cote de Blaye reached its peak sales amount of \$10,540 in both May and June; Raclette Courdavault reached its peak sales amount of \$7,150 in August; and Tarte au sucre reached its peak sales amount of \$3,204 in July. In order to develop a more well rounded view of the situation, it would be important to look at these sales trends from previous years in addition to trends of top products of other customers to see if they follow a similar pattern.

## Sales of Top Product Categories in Germany 2021 vs 2022



This visualization shows how Germany's top 3 selling product categories changed between 2021 and 2022. We chose this data subset because Germany is one of Northwind's most successful countries. It is vital to understand what top orders they are wanting and how they are changing. The data shows us that there was a huge increase in the amount of sales of beverages. Confections showed an increase as well, and dairy products were about the same. Some things we don't from this chart is how the other categories are changing, we can only see the top 3. It is also only 2 years, we might be able to see a trend if we expanded and looked at previous years. Some other datasets that might be important to link with this one are the top selling categories of other countries. We could see if there is a similar trend there, or if it is exclusive to Germany.

## Top 3 Products in Sales Volume for 2022

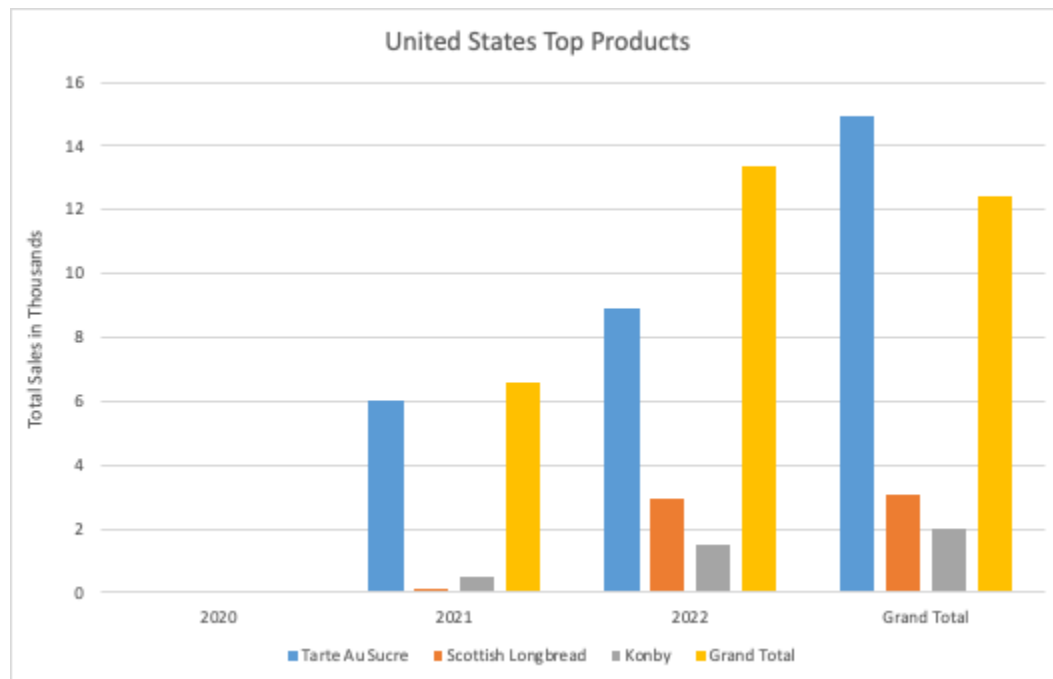


This graph portrays the top 3 best-selling products as well as their categories in five countries for 2022. This data was chosen to analyze the current trends and sales of certain products and categories. In comparison to listing all current products and sales, this graph narrows our focus and delves deeper into different countries' overall favorites that we can capitalize on and expand on. We can provide new substitutions or complementary products that conform to these food preferences subject to each country.

In the USA, two of the top three products are from the confections category with Tarte au sucre and Scottish Longbeards. This shows the preference for confections and sweets in America. The USA graph also provides insight into the potential of products similar to konbu or products that contain it. With other countries conforming to different categories such as Brazil and seafood, Germany and dairy products, and Austria and beverages, the graph provides data on categories of products to prioritize and fund. These preferences give way to new growth through new products that fit into different country's likes.

Some other data sets that would be useful would be datasets for 2021 and 2020 to analyze the trends and outcomes of the business's actions.

### Top 3 Products Sold in the United States over 3 Years



This visualization shows 3 specific products (Tarte Au Sucre, Scottish Longbread, & Konby) which have been picked out from the United States highest volume in sales over the 2022 period and broken down year to year to give a clear picture of the volume in sales and increase/decrease over a 3 year period. The data shows a small volume in sales during the 2020 period, but the jump to 2021 is a noticeable difference, but not as big as the jump to 2022. Which successfully shows all products sales in price/volume is increasing over time for all the products depicted. The Tarte Au Sucre and Scottish Longbread has had an exponential growth from the 2020-2022 period depicting certain food preferences. All products have had a steady increase in demand which is depicted in the visualization above. The United States was chosen as it is one of the most successful countries and it is vital to analyze that growth and what products do well and which don't.

## **Conclusion:**

In conclusion, while focusing on total orders by country highlights the significance of the USA, Germany, and Austria as key markets, the other 5 visualizations offer valuable insights into Northwind Traders market performance and consumer preferences. Analyzing subsets of data from these countries provides essential information on ordering behavior and product engagement, facilitating the formulation of targeted marketing and sales strategies. Additionally, examining sales trends for top-selling products in specific regions and categories enables better inventory management practices and helps identify opportunities for product expansion.

However, as much as we know right now, we need to develop a more comprehensive understanding and track long-term trends of other markets as well. Because it would be beneficial to incorporate more data from smaller customer bases and explore trends across different segments to expand Northwind Traders. Moving forward, it is recommended to incorporate historical data, expand data collection efforts, conduct comprehensive profitability analysis, explore additional datasets, and maintain continuous monitoring of market trends to drive sustained growth and profitability effectively.

## **What systems we proposed to implement based on business needs and the current state of Information Systems?**

- Transportation Management System (Transactional)
- Campaign Management System (Transactional)
- Automated Survey System (Transactional)
- Enhancement of the existing analytical system (Analytical)
- New Product Introductions Managing system (Analytical)
- Data Mart System (Analytical)

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

- Transactional system: Transportation Management System
- Analytical system: Demand Forecasting

## **Our strategy to implement the TWO prioritized systems:**

- Transportation Management System: We plan to implement a transportation management system involving appointing a knowledgeable project manager from within the supply chain department, using a hybrid agile-waterfall methodology, and outsourcing development to external specialists. As aligned with our needs, the Internal teams handle planning and coordination, while external vendors focus on development and implementation. To successfully implement this, effective communication and monitoring ensure adherence to deadlines. Finally, this structured approach aims for a three-month implementation timeline, optimizing efficiency and expertise utilization.



- Demand Forecasting System: Our plan involves appointing a project manager from the sales and service department to oversee the implementation of a new demand forecasting system. In this one-month plan, we will use an agile-waterfall hybrid methodology, with initial planning done through waterfall and implementation handled by an external vendor specializing in AI-powered forecasting. The vendor will work in an agile manner, focusing on development, integration/testing, and maintenance, while your company team provides research and design support.

**Summary:**

By the instruction of the CIO, NorthWind Traders will start to implement 2 new systems: a Transportation Management System and a Demand Forecasting System. We are currently working on an RFP to propose the solution and look for potential suppliers who can support us in the long run. With the lack of knowledge in AI-based technology, this will be the focus point of this project in order to develop more dynamic tools to help increase efficiency in our operation. In conclusion, if successfully implemented, these 2 systems will help us streamline our supply chain more smoothly and increase sales by forecasting more accurately.