# BUSINESS ANALYSIS OF SUPERSTORE

# **Section B (TEAM POWER)**

Business Intelligence and Business Analytics

MSc Data Analytics

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Abstract—This report discusses the use of Power BI tools to create visualizations and dashboards for the sales department of Superstores, a company that sells furniture, office supplies, and technological accessories. The report explains how data was collected and model diagrams were created to show the issues in supply chain and provide a solution for improved method. Types of visualizations are displayed in a dashboard, including sales trends, revenue, profit margins, and customer satisfaction scores. By using Power BI, the sales team can easily access and interpret this data, which can help them to make better decisions and optimize their sales processes. The report concludes that using Power BI can help Superstores to improve their competitiveness and achieve growth.

Keywords— Power BI, visualizations, dashboards, sales department, profit margins, customer satisfaction scores, decision-making, competitiveness, growth.

### 1. INTRODUCTION

Furniture and office accessories are essential components of any workplace, and a superstore that sells these items can be a one-stop-shop for businesses looking to furnish their offices. However, to maximize profits and ensure customer satisfaction, it is important for the superstore to have a clear understanding of its sales trends, customer preferences, and inventory levels. This is where business intelligence and business analytics can come into play.



Business intelligence refers to the process of collecting, analysing, and presenting data to help businesses make informed decisions. In the context of a furniture and office accessories superstore, this could involve analysing sales data to identify which products are the most popular, which customers are the most profitable, and which marketing strategies are the most effective. It involves using statistical and quantitative methods to make predictions and optimize business operations. This could involve forecasting future sales trends, predicting inventory needs, and identifying opportunities for cost savings.

It can help the superstore make data-driven decisions that improve its bottom line. For example, by analysing sales data, the superstore could identify which products are not selling well and adjust its inventory levels accordingly. It could also use predictive analytics to forecast demand for certain products and ensure that it has enough inventory on hand to meet customer needs.

One key issue that was addressed was the shipping process, which was causing delays and negatively impacting customer satisfaction. With Power BI, it was discovered that the current warehouse was not able to handle the volume of orders, leading to longer shipping times. By analysing the data, it was determined that opening another warehouse would be a viable solution to improve shipping times and increase customer satisfaction. Other issue can calculate frequently purchased products and get them into a sale. By identifying this issue through data analysis, the team was able to develop a solution to improve shipping times by opening a new warehouse. Overall, a business intelligence and business analytics project for a furniture and office accessories superstore could help the business identify opportunities for growth, improve its efficiency, and better serve its customers.





The Superstore furniture and office accessories sale is a large-scale retail business that has been operational for over a decade. The company specializes in selling high-quality furniture and office accessories to businesses and individual customers. Over the years, the Superstore has built a strong reputation in the market for providing top-notch products and exceptional customer service.

In recent years, the Superstore has experienced significant growth in sales and revenue due to its ability to adapt to changing market trends and customer demands. With the rise of remote work and home office setups, the Superstore has expanded its product offerings to include a wide range of ergonomic chairs, desks, and other office accessories that cater to the needs of modern-day workers.

As the demand for furniture and office accessories continues to grow, the Superstore is constantly looking for ways to improve its business operations and provide a better customer experience. One of the key areas that the company is focusing on is the use of business intelligence (BI) tools and customer relationship management (CRM) systems to gather data on customer behaviour and preferences. This data is used to develop targeted marketing campaigns and personalized product recommendations, which helps to drive sales and increase customer loyalty.

Overall, the Superstore is committed to providing high-quality products and services to its customers and is always looking for new ways to innovate and improve its business operations.

### 3. DATASET DESCRIPTION

### 3.1. SALES DATASET



Based on the information in the Sales dataset and the company background they sell furniture's, office supplies, technological equipment etc. The company has data on sales, sales durations as of the order date, shipment date, segment, location. Additionally, there is a shipment days attribute that results from the calculation of the production days. Each item sold is identified by a product ID and order ID, which can be used to track inventory levels and ensure that orders are fulfilled accurately. The calculated attribute for shipment days based on production days can be used to identify delays in the shipment process and to develop strategies to reduce shipment times.

Overall, this dataset is a valuable resource for companies to gain insights into their sales performance and make data-driven decisions to improve business operations and drive success.

### 3.2. CUSTOMER DATASET



For the Customer dataset, there are each row representing a distinct customer, the table appears to contain customer-related data. Each customer's ID, gender, age, name, payment method, and phone number are listed in the columns.

The "CG" and "DV" prefixes may indicate distinct customer categories or types. The customer's gender is listed as either "Male" or "Female" in the gender column, and their age is shown in years in the age column. Each customer's full name is listed in the customer's name column, and the customer's payment method is listed in the payment method column, with options like "Credit Card," "Debit Card," and "Cash" available.

The customer's phone number is listed in the last column, which can be used for communication or identification. The customer ID and name are same for some cases, but their payment options and phone numbers are different.

This suggests that multiple customers with the same name and ID are in the database or that the same person may have made purchases using different payment methods.

### 3.3. PRODUCT DATASET



The Product dataset corresponds to products offered for sale by a company, with each row representing a distinct product. The sections contain data about every item's ID, class, subclass, name, cost, country, city, state, and postal code. The table contains data about the types of products being sold, their prices, and the location of the store or warehouse.

The product ID appears to be a unique identifier for every item. With options like "Furniture," "Office Supplies," and "Labels," the type of product being sold is indicated in the category and subcategory columns.

The product name column records the name of every product, while the product price column determines the cost of the item in the nearby money. The store or warehouse where the product is sold or shipped can be found in the country, city, state, and postal code columns.

The model view of datasets is given below in figure 1. It describes how each data is linked and viewed with the connection in model view form. Product data, sales data, customer data and customer review data relate to ID and sales price. This will result in implementing profit by creating dashboards.

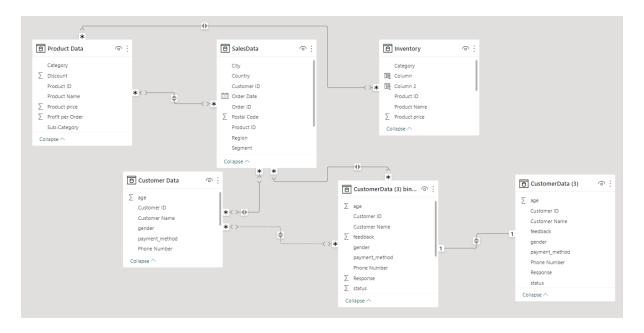


Figure 1. Model view of datasets

### 4. BALANCED SCORECARD

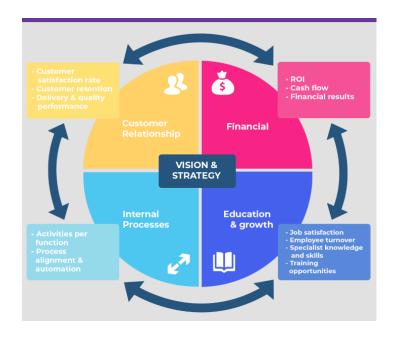


Figure 2. Balanced Scorecard

### 4.1. CUSTOMER RELATIONSHIP

A definitive point of any business is to give administration to the client. Customer satisfaction is the focus of this section. Input is taken from the client on how the assistance can be moved along. Any business's net promoter score, market share, and brand value can all be derived from this feedback.

### 4.2. FINANCIAL

Financial, operational, and strategic metrics all indicate whether the bottom line is improving or declining. Profit, growth, and shareholder value are the three most common financial goals. Income was used to check an organization's drawn-out feasibility; Growth in market share and return on equity were used to evaluate its prosperity, as were quarterly sales growth and operating income per division.

### 4.3. INTERNAL PROCESS

The internal tasks a company must complete in order to meet its customers' expectations must be used as a metric. In the end, a business's procedures, decisions, and actions are what lead to excellent customer service. The ability of an organization's internal operations to meet the expectations of its customers is critical to its success. Adjusted scorecards incorporate a fourth segment that gives the executives with this inside perspective.

### 4.4 EDUCATION AND GROWTH

The use of data and information to drive growth and enhance business performance is the primary focus of the growth perspective in the business world. Companies can enhance their operations, boost customer satisfaction, and ultimately drive growth and profitability by implementing these strategies and initiatives. The most important thing is to use insights based on data to make well-informed business decisions and to constantly improve and improve business operations for long-term success.

# Current state Keys steps to bridge gap Desired state ACTION PLAN

### 5. GAP ANALYSIS

Figure 3. Gap Analysis Theory

Gap analysis is a process used by businesses to identify performance gaps, or differences between current and desired levels of performance. By comparing current performance to desired performance, companies can identify areas for improvement and develop strategies to close the gap. This can involve developing new processes, systems, or strategies, or improving existing ones.

GAP ANALYSIS		
DESIRED STATE	CURRENT STATE	ACTION STEPS
Real time dashboard along	Currently data being	Implement power BI and
with dynamic input dataset	maintained in excel format	visualizations for efficient
to analyse the sales using	with manual entries	sales, target and marketing
statistics		strategies
CRM implementation for	Shipping service currently	Implement customer
customer purchase order	used for sales force and	relationship management
	customer service	system, feedback service
		and promoting offers of
		frequent buy.
Shipping time is reduced by	No strategy for shipping	Expansion strategy for
implementing new	service and no area wise	company using dashboards
warehouse	distribution	
Setup analysis through	No advertising plans tied	CRM provides new service
previous data dashboards	up with company	between people to attract
		many more new service
Advertising strategies to		
promote customers buy		
products and thus boosting		
sales.		

Figure 4. Gap Analysis Table

The goal is to improve business performance, meet customer needs and expectations, and drive business success. Gap analysis is a valuable tool for businesses looking to optimize their operations and improve their competitive position in the marketplace.

### 6. DESIGN AND TOOLS USED

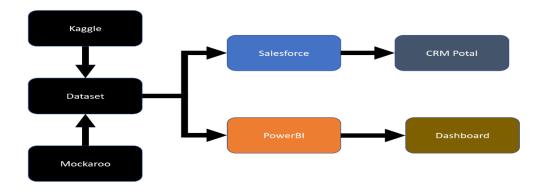


Figure 5. Design Analysis of the model

### 6.1. CRM



CRM, or Customer Relationship Management, is a crucial tool for managing interactions between businesses and current and potential customers. The "Customer ID" and "Customer Name" fields in the dataset are important data points that can be used for CRM. Businesses can gain valuable insights into customer behaviour and preferences by tracking customer interactions and purchase history. Then, can use this information to make customers feel better and keep them coming back. Businesses can also use CRM data to tailor marketing campaigns to specific customer segments and find opportunities for upselling and cross-selling.

### 6.1.1. WHY SALESFORCE CRM?



Salesforce CRM is a well-known and robust platform for customer relationship management that provides a variety of capabilities and features.

- Comprehensive CRM Solution: Salesforce CRM gives a complete set-up of instruments
  and functionalities to deal with your deals, client connections, and showcasing
  endeavours. You will be able to effectively manage a variety of aspects of your sales
  processes thanks to the modules it provides, which include lead management,
  opportunity tracking, customer service, and more.
- Scalability and Customization: Salesforce CRM is profoundly adaptable, empowering to fit the stage to the business necessities. To ensure that sales processes and data model are in sync, it can create custom objects, fields, and workflows. In addition, Salesforce CRM is scalable, making it suitable for startups as well as large corporations.

- Integration Capabilities: Salesforce CRM offers robust integration capabilities, allowing to connect with other systems, applications, and data sources. To create a unified view of the data and simplify operations, integrate it with existing data sources, such as inventory system or other business applications.
- Analytics and Reporting: Salesforce CRM provides built-in analytics and reporting features, enabling to analyse sales data, track key performance metrics, and generate insightful reports. Using dashboards, charts, and graphs, decisions can be made based on the data.
- Automation and Workflow Management: Automation features in Salesforce CRM enable to streamline sales procedures and boost productivity. Tasks, workflows, and approvals can all be automated to reduce manual labor and guarantee consistent and effective sales operations.
- Ecosystem of the AppExchange: Salesforce CRM has a tremendous biological system called AppExchange, offering many pre-constructed applications and incorporations. These applications allow you to effortlessly integrate with other systems and enhance the CRM's functionality.
- Accessibility on the go: Salesforce CRM gives portable applications to iOS and Android gadgets, permitting to get to deals information, oversee leads, amazing open doors, and client collaborations in a hurry.

### 6.2. POWER BI



Power BI is a business intelligence tool that lets users turn raw data into interactive dashboards, reports, and visualizations that are appealing to the eye. In your dataset, Power BI can be utilized to dissect deals information and recognize patterns and examples.

For instance, you can make a dashboard that showcases complete deals by class and sub-class, deals by nation, and deals by instalments strategy. These perceptions can assist organizations with pursuing information driven choices to streamline their deals techniques and work on execution.

### **6.2.1. WHY POWER BI?**

Power BI can be a productive tool for imagining the datasets as it gives a thorough perspective on an information, interactive visualizations, customization choices, automated updates, and collaboration features. By utilizing Power BI, insights can be acquired into the information and go with data-driven choices that can drive business growth.



Sales data can be visualized and analysed with the help of Power BI, a powerful business analytics tool. Using Power BI to visualize the datasets may be beneficial for several reasons, including the following:

- Data Consolidation: Data can be combined from multiple sources into a single view with Power BI. This means that a comprehensive view of your sales and inventory data by combining data from Dynamics 365 Sales, inventory system, and any other sources.
- Interactive Visualizations: Power BI gives interactive perceptions that allows to investigate the information progressively. Data can be easily filtered, sliced, and drilled down into for specific business questions and insights.
- Customization: Power BI is highly customizable, that can make visualizations that are just right for the business. To create visualizations that are simple to comprehend and communicate, it allows to select from a wide variety of chart types, colours, and formatting options.
- Automated updates: Power BI can be set up to refresh data from data sources on a regular basis. This means that no need to spend time manually updating the reports and that respected visualizations will always be current.
- Collaboration: With Power BI, the visualizations and reports can be shared with other members of a team. As a result, the team will be able to work together on data analysis and make decisions based on data.

### 6.3. TOOLS USED

- 1. Gather and clean the information: The first thing that needs to be done is to gather the data and clean it up so that it is accurate and consistent. This includes eliminating any copy or insignificant information and normalizing the information fields.
- 2. Implement CRM: CRM tools can be used to monitor customer interactions and purchase history once the data is clean. This will assist with acquiring bits of knowledge into client conduct and inclinations, which can be utilized to further develop client encounters and increment client faithfulness.
- 3. Establish dashboards: Power BI allows to make interactive dashboards that look good and show important sales metrics and key performance indicators. Will be able to see where can make the improvements and monitor the sales performance in real time with this.

- 4. Analyse Data: This will find patterns and trends in the sales data by using Power BI's data analysis features. To enhance the overall performance and optimize the sales strategies, this will assist in making decisions based on data.
- 5. Final Action: Lastly, can act on the knowledge that have gained from the Power BI dashboards and CRM data. Once the dashboards and reports are made, it's important to find the most important insights and act on them to fix problems or take advantage of opportunities.

### 7. CRM IMPLEMENTATION

We have used Sales Force CRM to offer useful insights into customer behaviour, sales performance, and inventory management, all of which have the potential to lead to better business outcomes and informed decision-making.

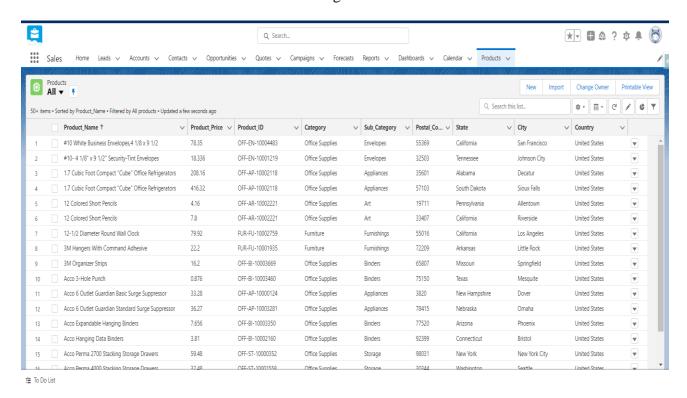


Figure 6. Product Entity

The above figure represents the **Products** entity, which has all the columns including Product name, price, ID, etc, the product data gives insights into the organization's item range, evaluating methodology, and geographic presence. It contains company's products that have high profits to low profits, depending upon the specific Country, State and City.

### 7.1. COSTUMER ENTITY

For the Customers entity, the data provides insights into the company's customer database, including demographics, preferred payment methods, and customer segmentation. It

recommends that the organization serves clients of various genders and age groups, offering different instalment choices to oblige customer preferences.

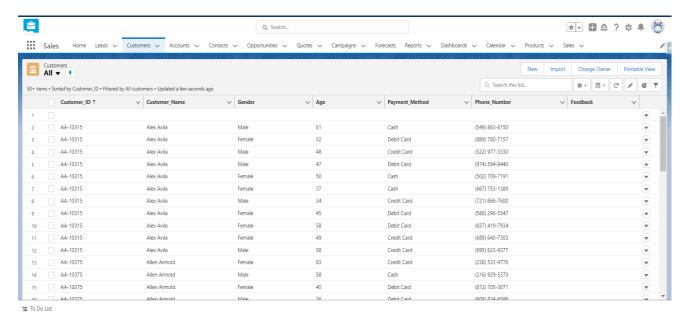


Figure 7. Customer Entity

The same we have implemented for the Sales entity, it provides insights into the company's order fulfilment process, shipping methods, customer base, geographic reach, product offerings, and sales performance. It demonstrates the company's capacity to process orders, serve customers from various demographics and locations, and provide a wide range of products to satisfy their requirements.

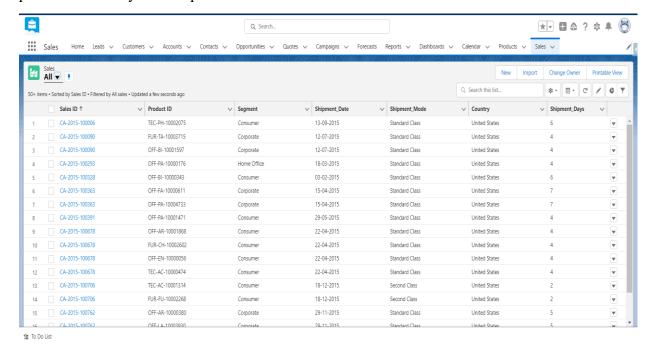


Figure 8. Sales Entity

### 7.2. LEADS ENTITY

The Leads entity contains client and contact information as well as information about the sales team's contacts. This element helps us in overseeing and following the potential customers delivered by the outreach group, including the clients' contact data and their current state.

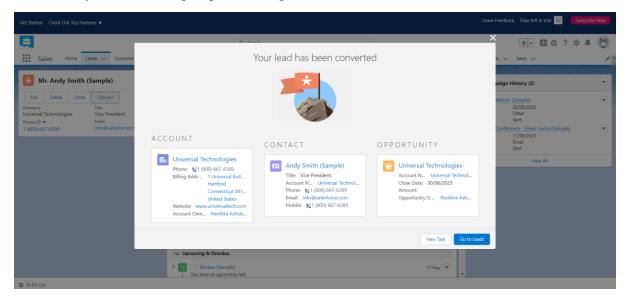


Figure 9. Leads Entity

### 7.3. OPPURTUNITIES ENTITY

Opportunities entity, which shows how many leads the sales team has generated and how each lead is doing, like whether the deal has been closed. The sales pipeline will be reviewed and areas for improvement will be identified with the assistance of this entity.

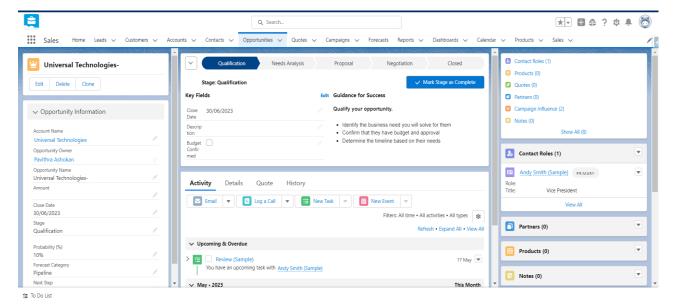


Figure 10. Opportunities Entity

### 8. DASHBOARDS IMPLEMENTATION

Dashboards are a critical part of business knowledge and information perception. Dashboards give a constant outline of key execution pointers and measurements that assist organizations with keeping tabs on their development and execution. Important sales metrics like total sales, average sales per customer, and sales by product category can be displayed in your dataset using dashboards. Businesses can quickly identify areas for improvement and make necessary adjustments to optimize their sales strategy by monitoring these metrics in real time.

### 8.1. DASHBOARD 1



Figure 11. Sales Dashboard

The above sales dashboard provides a brief overview of the product sales between year 2019 to 2022. Profit per day is noted each month of the corresponding year. It contains information of product shipment days and region of delivery where the first class shows that product delivered fast, and second class takes time for delivery. Additionally, it lists the top USA

cities profit per day according to the sales occurred in a month. Region of distribution includes all direction with product sales percentage. Finally, the dashboard displays the company's sales index, which gives the profit values of product sale in a city.

**Insights:** Based on the dashboard above, we know that New York City has the most active customers. As a result, we can target New York City first for business expansion and promotion before moving on to the other cities.

### 8.2. DASHBOARD 2



Figure 12. Inventory Dashboard

The above Inventory dashboard provides a detailed overview of the product inventory with quality value. It contains information of how much products are made in high margin and profit per order. The product is categorized as furniture, office supplies and technology. And even sub categorized the type of product. Additionally, quality of product is measured with quantity and the total valuation is given. Finally, the dashboard displays the company's inventory quantity index with its quality margin level.

**Insights:** From the above dashboard we understand that high margin product in inventory results in higher profit. henceforth for business expansion and promotion we can target the higher margin product and then go for the other ones.

### 8.3. DASHBOARD 3



Figure 13. Customer Dashboard

The above Customer dashboard provides a detailed overview of the customers details in few regions of major cities. It contains information of age of customers. Customers from regions of few major cities are measured with male and female category. The product payment mode is also added in 3 ways as credit, debit, and cash with percentage of customers used so far. Finally, the dashboard displays the company's customer details and payment methods.

**Insights:** From the above dashboard we understand that maximum young customer buy products frequently and mostly payment is done by credit card. Henceforth for business expansion and promotion we can deal with New York city customers who are younger and working in offices will purchase more product and through the credit card.

### 8.4. DASHBOARD 4



Figure 14. Customer Reviews Dashboard

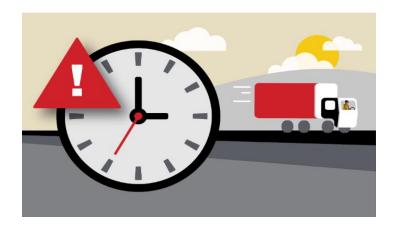
The above Customers Review dashboard provides a detailed overview of the customers review details. It contains information of subcategory products. Customer reviews are noted down in a way like if customers give positive response, then status will be closed else negative response status will be open until the issue is resolved. Additionally, ratings of the product are given as score provided by customer. Finally, the dashboard displays the company's customer review with ratings.

**Insights:** From the above dashboard we understand that positive response and higher rating define good product and status remains closed. Henceforth for business expansion and promotion we can deal with higher rating product.

### 9. RESEARCH QUESTIONS

### 9.1. PROBLEM STATEMENT 1

### **DELAY IN SHIPMENT**



The company's apparent objective is to enhance their supply chain operations, particularly by reducing shipment delays and expanding their warehouse network. The company hopes to expand and improve its overall performance by doing so.

To accomplish this, the organization might have to investigate the business information to distinguish examples and patterns connected with client interest and item accessibility. They may likewise have to evaluate their ongoing operations and store network processes, including transporting strategies and distribution centre areas, to distinguish regions where enhancements can be made.

By involving the information to distinguish potential open doors for development and carrying out changes to their production network tasks, the company can work towards achieving its goal of improving its overall performance and growing bigger.

The company may be able to speed up product delivery to customers and better manage its inventory if it expands its warehouse network. The business will be better able to meet customer demand and reduce shipping times and costs if it has more warehouses strategically placed.

The company may need to make an investment in new technologies and tools to improve its supply chain operations in order to achieve its objective. It might need to invest in automation technologies to increase warehouse efficiency, use predictive analytics to forecast demand, or implement new inventory management systems. Generally, carrying out upgrades to its inventory network activities, the organization can pursue accomplishing its objective of developing greater and working on its primary concern.

### 9.2. PROBLEM STATEMENT 2

### PROMOTING GOODS WITH HIGH PROFITABILITY



Identifying which products or categories have the highest profit margins and how the business can focus on selling more of those products to increase profitability is another possible concern. To calculate the profit margins for each product or category, this would necessitate analysing both the product data and the sales data. Also, the organization might have to examine the estimating procedures for these items and consider assuming there are any changes that can be made to improve benefits. Monitor sales and profitability over time to ensure that the strategies are effective and adjust as necessary. The business's overall profitability and growth can be boosted by concentrating on the sale of products with high profit margins.

The business can look more deeply into the sales and product data to find patterns and opportunities for improvement, which will help it improve profitability even further.

- 1. Customer segmentation: Information on customer segments like corporate and consumer are included in the sales data. The company can better target its marketing efforts by determining which types of customers make the most money by analysing sales and profit.
- 2. Regional analysis: The region, city, state, and postal code are also included in the sales and product data. The company can determine which products are most popular in each region and which regions are the most profitable by analysing sales and profitability by region. This can help decide which products to offer in each region and where to focus marketing efforts.
- 3. Seasonality and trends: The company can identify seasonal trends and patterns in customer behaviour by analysing sales data over time. This can help determine which products to prioritize at specific times of the year and when to offer discounts or promotions.
- 4. Product bundling: Product category and subcategory information can be found in the product data. The company can increase sales and profitability by bundling products that are frequently purchased together by conducting an analysis of sales and profitability by category and subcategory. Company can maximize profitability, expand their business, and continue to satisfy customer requirements and preferences.

### 10. CONCLUSION

The goal of the project was to improve customer relationship management and sales performance in a superstore that sells furniture and office accessories. The project involved integrating Power BI and Salesforce capabilities to develop a comprehensive solution for data analytics. This solution aimed to improve customer acquisition, retention, and service delivery, as well as increase sales by implementing additional warehouses to minimize shipment times and by analysing customer reviews to determine popular products.

The project involved an examination of the organizational and market contexts, identification of essential procedures, and development of system and database architectures. By implementing Salesforce, the organization could strengthen its customer relationship management capabilities, while Power BI provided data visualization and reporting capabilities. The project also emphasized the value of client feedback and the use of dashboards for data-driven decision-making.

If the recommended solution is adopted, the Superstore will be able to establish a more profitable and efficient operation with enhanced services. Overall, the project demonstrated the importance of using data analytics and customer feedback to inform business decisions and drive growth and profitability in the competitive marketplace.

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