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## **Data Analytics: Capstone Project Phase One & Two**

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## Phase 1 - Mission statement and Stakeholder Analysis

**Ask1** - There is evidence of critical thinking and analysis

**Background** – We, “GTN Analytics” is a Canada based Data Analytics organisation with domain expertise in enabling strategic stakeholders’ decisions using data driven insights. We have been hired by Global Superstore as an advisor and consultant to create strong growth roadmap for the organisation. This includes Evaluating current processes’ performance, Identifying gaps and improvement areas, Proposing consultative approach to define base for strengthening market competitiveness. The probable outcome will be better and strong competitive position against market peers

To align with the organisational need, we will propose a strong roadmap/blueprint of strategic advisory piece. This will encapsulate multi-faceted analytical approach to uncover trends, patterns, and actionable insights that can guide strategic decisions and foster a data-centric culture within the organization

**Ask2 -** Data source is appropriate for the assignment and will provide a sufficient set for analysis

* We have access to the exhaustive sales data of Global Superstore comprising relevant and strategic quantitative information like Time-Stamped transactions, Customer Profiling, Product and Sub-product level details, Pricing, Discounts, and Regional and Market unit level sales etc. In nutshell, the data consists of good number of Dimensions and Facts which would be used as conducive base to drive impactful analysis using various data analytics tools and techniques
* In terms of relevance to organization, the analysis is aligned with organization’s strategic goal of maximizing market share and revenue while enhancing customer satisfaction

**Ask3** - Data is converted to a suitable format

We perform following steps to ensure data is suitable enough to proceed with further analysis:

* **Data Quality check**: Initial assessment suggests well-maintained dataset with areas requiring standardization, error-checking, and normalization
* **Data Cleansing**: Addressing inconsistencies, missing values, and outliers. This step is not that much significant in our case as the data is already quite cleansed and refined
* **Data Integration**: Not that much applicable in our case
* **Data Transformation**: Conversion of data into analysis-ready formats, along with categorizing and encoding wherever needed
* **Direct correlation with key business areas**: Sales performance, Customer insights, Product strategy, and Market penetration

**Ask4** - Mission Statement and Stakeholder Analysis are complete and appropriate

* **Mission Statement**

*“We,* ***GTN Analytics****, has been hired by Global Superstore to provide comprehensive Business Intelligence playing an enablement role for* ***informed decision-making and strategic actions*** *of Global Superstore’s consistent* ***growth and profitability*** *at the global level”*

* **Stakeholder Analysis** (*Stakeholders and corresponding implications of data-driven insights*)
* **Executive Leadership -** Actionable advisory for complementing business growth, profitability, and market competitiveness
* **Backend team of Data Analytics -** Accurate and well-structured data will contribute to draft effective data-driven business strategies
* **Operations Managers -** Recommendations may provide additional perspective for optimizing operations, reducing costs, and improving product delivery timelines
* **Sales and Marketing teams –** Helping toidentify high-performing products, relevant customer segments, and regions for targeted marketing efforts & campaigns
* **Customer Service Representatives -** Insights into customer behaviours to enhance customer service, reduce response times, and improve satisfaction
* **Finance Department -** Detailed financial analysis may be leveraged as cornerstone for the identification of cost-saving opportunities, and strategies to maximize profits
* **Customers -** Improvements in product offerings and services has the high propensity of enhanced customer experience and potential benefits

## Phase 2: Project Scope Statement and Parameters

**Ask1 – There is evidence of critical thinking and evidence**

As a part of critical thinking at this project stage, we tried to capture both perspectives (In-scope and Out-of-scope) along with Goal/Objective:

In-scope Aspects

* + **Comprehensive Sales Trend Analysis** - Deep diving sales data for the identification of historical trends and seasonal variations. May be leveraging the same to forecast or predict future trends
  + **Detailed Profitability Analysis** – Segmentation of profitability at Product, Category, and Regional levels
  + **Discount Impact Analysis** - Evaluating the effectiveness of discount strategies on sales volume and profit margins
  + **Evaluation of Sales Performance at Regional level** - Identifying key markets, understanding regional preferences, and executing the proper strategic action plan for underperforming areas
  + **Advanced Customer Segmentation** - Utilizing data mining techniques to categorize customers into sub-groups based on behaviour patterns, preferences/choices, and value

Out of Scope Aspects (Factors which may be excluded)

* + **Customer Data Analysis at individual level** - Privacy issues and compliance with data protection regulations
  + **External Economic Factors** – Analysis is majorly pertinent to internal data; External market conditions may be out of strategy’s scope

Goal/Objective

Providing a comprehensive sales dynamics understanding for the refinement of business strategies leveraging data insights for product, inventory, and marketing optimization. Empowering decision-makers with data-backed insights for enhanced business growth and operational excellence

**Ask2 - Risk and Reward is clearly explained and documented**

**Reward Analysis**

* **Sales Performance -** Calculating total sales and profits by category, sub-category, and product
* Potential areas for investment - Identifying top-performing products or categories
* **Customer Loyalty -** Identifying repeat purchase patterns which may define Customer Loyalty
* This can be a potential indicator for sustained revenue from set of prime customers
* **Drivers for market growth -** Identifying trends in sales and profits by market over time
* Identification of growing markets could represent opportunities for business expansion
* **Discount Strategy -** Calculating impact of discounts on sales volumes and profit margins
* Evaluating if the increased sales volumes is offsetting factor for the reduced margins
* **Order Priority as a Sales Tool -** Analyzing the correlation between order priority and repeat sales
* Evaluating if high-priority orders could increase customer satisfaction and subsequent sales, thereby justifying the higher shipping costs

**Risk Analysis**

* **Inventory Risk –** Comparing the sales and quantity for each product or sub-category over time for calculating inventory turnover rates
* Probable Risk - Identifying products with high variability in sales and low turnover, which could be used as data point to identify potential overstocking
* **Market Dependence -** Analyzing sales by region and market for calculating the percentage contribution of each market to total sales
* Probable Risk - High dependence on a single market can be risky
* **Product Category Performance -** Calculating profit margins for each category and sub-category
* Probable Risk – Identification of categories with lower-than-average margins or high discount levels
* **Shipping Risks -** Examining relationship between shipping mode, shipping cost, and delivery times against profit margins
* Probable Risk - Considering the impact of different shipping modes on customer satisfaction and potential for returns
* **Order Priority Risks -** Evaluating the distribution of order priorities and their impact on shipping costs and customer satisfaction
* Probable Risk - High-priority orders might have higher costs, and frequent use may indicate inefficiencies.

**Ask3 - Audience is defined and documented**

* **Executive Leadership -** Actionable advisory for complementing business growth, profitability, and market competitiveness
* **Backend team of Data Analytics -** Accurate and well-structured data will contribute to draft effective data-driven business strategies
* **Operations Managers -** Recommendations may provide additional perspective for optimizing operations, reducing costs, and improving product delivery timelines
* **Sales and Marketing teams –** Helping toidentify high-performing products, relevant customer segments, and regions for targeted marketing efforts & campaigns
* **Customer Service Representatives -** Insights into customer behaviours to enhance customer service, reduce response times, and improve satisfaction
* **Finance Department -** Detailed financial analysis may be leveraged as cornerstone for the identification of cost-saving opportunities, and strategies to maximize profits
* **Customers -** Improvements in product offerings and services has the high propensity of enhanced customer experience and potential benefits

**Ask4 - Project Scope Statement is defined and approved**

* **Project description** - The project aims to analyse sales data-set of Global Superstore, and derive impactful data-driven insights to enable strategic business decisions of stakeholders
* **Project objectives**
  + Performing all the steps of analysis from scope to final delivery
    - Descriptive Analysis – Observational based on the analysis of data, and may be captured in the dashboard section of the visualisation part
    - Predictive and Prescriptive Analysis – This is next step and involves more analytical aspect. This will include analysing existing observational data and applying the analytical strategy to address the important business questions of stakeholders
* **Deliverables**
  + Cleaning and processing of data using various tools (SQL, Excel, SSIS)
  + Data visualizations and interactive dashboards using PowerBI/Tableau as the main tool
* **Project Boundaries -** The project is primarily focussed on internal sales data only
* **Assumptions**: We are assuming that the historical sales data is accurate, complete, and representative of the company's performance
* **Constraints**: There should be defined timelines for each stage of project right from the scoping to final execution. This would be instrumental in better project planning considering the multiple factors ranging from cost, human resources etc.

Probable Business Questions *(This is just draft of business questions which is based on the initial understanding. There is significant scope of improvement as we move on to the further analysis)*

1. Considering top 10 countries by sales, does the country will remain at top in terms of profitability margin as well?
2. Identify Top Salesperson by sales at Global level? Elaborate if there is any parameter which could be leveraged apart from sales to identify Top performer in the organisation

**Tools and Resources for Analysis:**

* **Software:** SQL for Data Querying, Python/R for Statistical Analysis, SSIS/PowerBI for ETL functions(Extraction, Load and Transform), PowerBI/Tableau for data visualization
* **Hardware**: High-performance computing resources for data processing