**Reporting System and Database Development**

School of Applied Computer Science & Information Technology

**PROG8630 – Dashboard Proposal**

**Confectionary Insights –**

**Market Insights and Trend Analysis**

BY

Abinaya Kalaiarasan - 8953115

Gurjot Singh - 8946091

Sasikala Palanivel - 8947487

February 08, 2024

**Table of Contents**

1. Abstract -------------------------------------------------------------------------------------------------> 3
2. Project Introduction ----------------------------------------------------------------------------------> 3
3. Departments Involved in Proposal Analysis ----------------------------------------------------> 3
4. Marketing Department ----------------------------------------------------------> 3

Purpose of the Department ------------------------------------------> 3

Key Performance Indicators (KPIs) ----------------------------------> 4

1. Revenue Department ------------------------------------------------------------> 5

Purpose of the Department ------------------------------------------> 5

Key Performance Indicators (KPIs) ----------------------------------> 5

1. Purchasing Department ---------------------------------------------------------> 5

Purpose of the Department ------------------------------------------> 5

Key Performance Indicators (KPIs) ----------------------------------> 6

1. Internal Brand Performance ----------------------------------------------------> 8

Marketing Team ---------------------------------------------------------> 8

Sales Team ----------------------------------------------------------------> 8

Customer Service Team ------------------------------------------------> 8

Human Resources Team -----------------------------------------------> 8

Finance Team -------------------------------------------------------------> 8

Key Performance Indicators (KPIs) -----------------------------------> 8

1. Geographical Department -------------------------------------------------------> 9

Purpose of the Department -------------------------------------------> 9

Key Performance Indicators (KPIs) -----------------------------------> 9

Market Targeting and Expansion ----------------------------------> 10

Localization of Products ---------------------------------------------> 10

Market Trends and Insights -----------------------------------------> 10

Risk Management -----------------------------------------------------> 10

1. Demographics Department ------------------------------------------------------> 11

Purpose of the Department --------------------------------------------> 11

Key Performance Indicators (KPIs) ------------------------------------> 11

Potential Uses --------------------------------------------------------------> 11

1. Data Source and Data Model ------------------------------------------------------------------------> 12
2. Proposed Allocation Project Team Role -----------------------------------------------------------> 13
3. Bibliography ---------------------------------------------------------------------------------------------> 13
4. **Abstract**

"Confectionary Insights" undertakes a comprehensive analysis of the candy/chocolate industry, examining data spanning the past five years. This study delves into diverse facets, including raw materials, geographic patterns, age group preferences, company market growth, revenue dynamics, and internal brand popularity. Utilizing advanced statistical techniques, the research aims to uncover complex relationships and trends within the industry.

The project's multifaceted approach seeks to provide a detailed understanding of the candy/chocolate industry, ‘dashboard’, offering actionable insights for industry stakeholders. By dissecting the interplay between raw materials, consumer demographics, and company strategies, "Confectionary Insights" aspires to contribute valuable knowledge to the confectionery sector. This research stands as a comprehensive exploration, poised to guide strategic decision-making in a dynamic market shaped by evolving consumer preferences and industry dynamics over the past half-decade.

1. **Project Introduction**

The confectionery industry produces sweet food items like chocolates, candies, praline, and pastries. It's a significant global market, valued at billions of dollars, driven by consumer demand for indulgent treats. Diverse product offerings and evolving tastes contribute to its widespread and growing presence. Collecting data on raw materials, marketing trends, geographical locations, demographics, and internal brand performance is crucial for informed decision-making. Analyzing this data can reveal cost-effective sourcing strategies, identify target markets, optimize product offerings, enhance marketing strategies, and improve overall business efficiency for better competitiveness and growth in the confectionery industry.

1. **Departments Involved in Proposal** **Analysis**
2. **Marketing Department**

**Purpose of the Department:**

The Marketing Department plays a crucial role in promoting and enhancing the brand image of the confectionery industry. This department is responsible for creating and implementing strategies to boost sales, increase brand awareness, and engage with the target audience.

Understanding how our marketing activities compare to competitors in other markets is crucial for refining strategies, identifying opportunities, and maintaining a competitive edge.

Here's a comprehensive approach to comparing marketing efforts:

1. Measure the company's market share in each targeted market compared to key competitors.
2. Compare brand visibility metrics such as social media impressions, online mentions, and search engine rankings.
3. Analyze customer engagement metrics like likes, shares, comments, and customer feedback.
4. Compare the return on investment (ROI) from marketing campaigns in different markets.
5. Analyze the adoption of innovative marketing strategies and trends in each market.

**Key Performance Indicators (KPIs):**

**Conversion Rate:** It measures the percentage of leads that convert into actual sales. A higher conversion rate indicates effective marketing strategies.

Calculation= Total number of conversions / Total number of unique visitors x 100

**Customer Acquisition Cost (CAC):** It measures the cost incurred to acquire a new customer through marketing efforts.

Calculation: (Total Marketing Cost / Number of New Customers Acquired)

**Return on Investment (ROI):** It assesses the financial success of marketing campaigns. A positive ROI indicates that the marketing efforts are generating more revenue than the cost.

Calculation: (Revenue from Marketing - Marketing Cost) / Marketing Cost x 100

**Market Share:** It measures the company's share in the overall market. Provides insight into how well the company is positioned against competitors in other markets.

Calculation: (Company Sales / Total Market Sales) x 100

The Marketing Department Dashboard serves as a valuable tool for decision-makers, providing real-time insights into the effectiveness of marketing strategies, audience engagement, financial performance, and competitive positioning across diverse markets.

1. **Revenue Department**

**Purpose of the Department:**

The Revenue Department is responsible for managing the company's income and sales activities. This department oversees all aspects related to generating income, including sales, pricing, and revenue optimization. Its primary objective is to ensure that the company meets its financial goals and maximizes profitability.

**Key Performance Indicators (KPIs):**

**Total Revenue:** It Provides an overview of the company's overall financial performance.

Calculation: Sum of all sales revenue across products and channels.

**Product-wise Revenue Contribution:** It identifies the percentage contribution of each product to the overall revenue, helping focus on high-performing products.

Calculation: (Revenue from a specific product / Total Revenue) x 100

**Average Transaction Value:** It measures the average amount a customer spends per transaction, aiding in pricing and upselling strategies.

Calculation: Total Revenue / Number of Transactions

**Revenue Growth Rate:** It Indicates the percentage increase or decrease in revenue over a specified period, highlighting the company's growth trajectory.

Calculation: ((Current Revenue - Previous Revenue) / Previous Revenue) x 100

The Revenue Department Dashboard exists to provide real-time insights into the company's financial health, assess the effectiveness of pricing and sales strategies, and guide decision-making processes for sustained revenue growth.

1. **Purchasing Department**

**Purpose of the Department:**

The purchasing department is responsible for procuring goods, raw materials, and services for an organization's effective operation. Its responsibilities are tailored to meet specific needs, ensuring smooth procurement plans, and preventing demand-supply challenges. It plays a crucial role in the business workflow, planning high-level procurement activities based on business goals. It aids in e-tendering, sourcing goods at economical prices and optimum quality.

Operational procurement, also known as tactical purchasing, focuses on maintaining business operations and administration, including repeat orders, inventory restocking, and invoice payments.

**Key functions of the purchasing department are as follows:**

1. Determine the items, materials, and services that the firm needs.
2. Locate trustworthy vendors to fulfill the demands.
3. Discuss terms of delivery, build quality, and pricing.
4. Establish order amounts and submit requests for bids on supply contracts.
5. Organize the operations for delivery and storage.
6. Conduct product testing and quality control.
7. Budget management based on payments and ROIs (Return on Investment)

**Key Performance Indicators (KPIs):**

**Purchase order cycle time**: Cycle time refers to the total time spent on a purchase order, including creation, approval, receipt, invoice generation, and payment completion. A lower cycle time indicates a fast procurement team. Suppliers can be categorized based on cycle time, allowing for quick response to urgent orders and efficient invoice generation.

**Cost of purchase order:** The KPI measures the average cost of processing a purchase order, varying by firm size and industry. It's based on the total time spent and staff involved in each step. Manually processed firms have higher average costs. Consistent tracking of purchase order costs can improve the procure-to-pay cycle efficiency, leading to reduced errors and lower costs.

**Purchase in time and budget:** Tracking this KPI helps determine purchase completion within budget and time, crucial for procurement managers. Consistent monitoring helps identify gaps, revise resource utilization, and streamline the purchase plan, ensuring budget and time constraints are met.

**Purchase order accuracy:** Tracking purchase order accuracy across buyer segments and supply categories helps assess supplier delivery accuracy, reducing operational costs. PO accuracy is measured by comparing line item, pricing, quantity, or delivery date/address errors.

**Emergency purchase ratio:** The emergency purchase ratio is a metric that measures a business's efficiency by comparing the number of impromptu purchases to the total number of purchases made over a fixed period. A lower ratio indicates better procurement planning, reduced costs, and better goods continuity.

**Downtime:** It is a key KPI in manufacturing, as it directly impacts profitability. Reducing downtime can protect against future losses.

**Procurement KPIs:**

Cost avoidance: It tracks soft savings, which do not directly impact the bottom line. Pairing it with cost reduction tracks hard savings helps procurement avoid future costs and strengthens the firm's bottom line.

**Cost savings calculation as a percentage**

Initial proposed cost **–** final contracted cost **=** difference

Difference **/** initial proposed cost **=** cost savings percentage

Cost reduction: Breaking down KPIs into individual sections and tracking them can provide a comprehensive view of a firm's overall cost reduction. For instance, businesses can streamline procurement processes, reduce labor costs, and track cost savings from price negotiation for a comprehensive view.

Procurement ROI: Procurement ROI is calculated by comparing annual cost savings to internal procurement costs, aiming for a positive return on investment. A negative value indicates trouble, while a positive return indicates wise investment.

**ROI = (gain from the investment - the cost of investment) /**

**the cost of investment**

Efficient procurement, measured through KPIs like Purchase Order Cycle Time and Cost, ensures our confectionery company secures quality raw materials promptly and within budget. Monitoring Purchase-in-time and Budget KPIs specifically for confectionery production enhances resource optimization and maintains consistent production schedules, improving overall efficiency and competitiveness.

1. **Internal Brand Performance**

**Marketing Team:** This team is likely to play a central role in assessing brand performance. They may analyze marketing campaigns, brand positioning, customer feedback, and market trends to evaluate the effectiveness of branding efforts.

**Sales Team:** The sales team’s input can offer valuable insights into the customer’s perception of the brand, the difficulties encountered during sales contacts, and prospects for enhancing brand representation in the marketplace.

**Customer Service Team:** The customer service team can provide useful insights on customer happiness, typical problems or grievances, and opportunities to improve the brand experience.

**Human Resources Team:** Engagement and contentment among employees are crucial components of internal branding. The HR department can offer input on how well staff members comprehend and represent the brand values, as well as make recommendations for better internal training and communication.

**Finance Team:** The finance team can provide insights into the financial performance associated with each brand. This may involve analyzing the return on investment (ROI) for marketing activities and other financial indicators.

**Key Performance Indicators (KPIs):**

**Brand Awareness (BA):** Measure the extent to which target audiences recognize and recall the brand.

Formula: (Number of people aware of the brand / Total target audience) \* 100

**Customer Satisfaction (CS):** Assess customer contentment with the brand experience.

Formula: (Number of satisfied customers / Total customers surveyed) \* 100

**Brand Loyalty (BL):** Evaluate customer loyalty and repeat business.

Formula: (Number of repeat customers / Total customers) \* 100

**Employee Engagement (EE):** Measure staff commitment to and understanding of the brand.

Formula: (Number of engaged employees / Total employees) \* 100

**Market Share (MS):** Assess the brand's share in the overall market.

Formula: (Company's sales / Total market sales) \* 100

**Social Media Engagement (SME):** Evaluate brand visibility and interaction on social platforms.

Formula: (Total likes, shares, comments / Total followers) \* 100

**Net Promoter Score (NPS):** Measure customer likelihood to recommend the brand.

Formula: (Promoters - Detractors) / Total respondents

In the confectionery industry, assessing internal brand performance through key teams and performance indicators is essential for sustained success. By analyzing marketing, sales, customer service, employee engagement, and finance, and employing KPIs like Brand Awareness, Customer Satisfaction, and Social Media Engagement, confectionery companies can optimize their strategies. These insights aid in creating a strong market presence, ensuring customer satisfaction, and fostering brand loyalty, ultimately contributing to sustained growth and success in the competitive confectionery landscape.

1. **Geographical Department**

**Purpose of the Department:**

Geographic information plays a significant role in the cocoa sector. For instance, with around three billion kilos of chocolate confectionary consumed yearly, Americans are the world's biggest chocolate consumers. The chocolate market is further divided geographically, with the main areas being North America (United States, Canada, Mexico, Rest of North America), Europe (Germany, United Kingdom, France, Russia, Italy, Spain, Rest of Europe), Asia-Pacific (India, China, Australia, Japan, Rest of Asia-Pacific), South America (Brazil, Argentina, Rest of South America), and the Middle East and Africa (United Arab Emirates, South Africa, Rest of Middle-East and Africa).

Geographic data is essential for the cocoa industry, and knowing the distribution of chocolate consumption and production across different areas may greatly assist chocolate firms.

**Key Performance Indicators (KPIs):**

This data will help us to analyze 4 KPIs which are:

**Market Share by Region:** Calculate the percentage of chocolate sales in each geographic region compared to rivals. This gives information on which regions provide the most significant prospects for growth or require further focus to enhance market share.

**Market Growth Rate:** Monitor the growth rate of chocolate consumption in major regions to detect emerging market trends and development possibilities. Monitor changes in customer behavior, market dynamics, and the competitive environment to adjust corporate plans accordingly.

**Customer segmentation:** To successfully design marketing campaigns and product offers, analyze the demographics and interests of customers in various locations. To make sure there is congruence with local tastes, track consumer happiness and loyalty within each group.

**Return on Investment (ROI) for expansion initiatives**: Calculate the ROI for growth projects in various locations to determine the profitability and efficacy of investment decisions. To measure the effectiveness of an expansion endeavor, consider revenue growth, market share gains, and cost efficiency.

**Here's how this information may be useful:**

**Market Targeting and Expansion:**

Knowing that Americans are the world's greatest chocolate consumers enables businesses to focus their marketing efforts on North America. They may customize their products, advertising, and promotions to appeal precisely to this demographic. Identifying potential prospects in other locations (such as Asia-Pacific and South America) might help influence expansion plans.

For example, if demand in India is increasing, then we can consider entering the market.

**Localization of Products:**

Every location has its distinct tastes and preferences. For instance, Americans often like milk chocolate, whereas Europeans value fine dark chocolate. Businesses might adjust their product lineups accordingly. There is more to localization than just taste preferences. Based on regional tastes, changes can be made to the packaging, portion sizes, and even seasonal fluctuations.

**Market Trends and Insights:**

By analyzing regional data, businesses may remain up to date on market developments. Companies might modify their tactics, for example, if chocolate consumption is increasing in India. We may maintain their competitiveness and adaptability to shifting customer needs by keeping an eye on local competitors and developments.

**Risk Management:**

Geopolitics, climate change, and natural disasters may all influence cocoa output. Companies must diversify their sourcing areas to reduce risks. If one area experiences difficulties (e.g., droughts or political instability), having alternate sources becomes critical.

1. **Demographics Department**

**Purpose of the Department:**

This will provide details on the age distribution of Americans and the rest of the world by state and region. It contains information on several attributes for the country, states, and counties, including the percentage of the population, and change in population from 2019 to 2023.

**Age Distribution:** The age distribution of the US population and population of the world by geographic region will be displayed. This data will help us to analyze 4 KPIs which are:

**Key Performance Indicators (KPIs):**

**Population % by age group:** The percentage of the population in each of the following age groups will be displayed: 5–10, 10–20, 20–30, 30–40, and 40 & above. The computation will include dividing the total population by the number of individuals in each age group and then multiplying the result by 100.

Percentage of Population in Age Group= (Total Population/Number of Individuals in Age Group​) × 100

**Alteration in the age distribution:** This KPI will demonstrate the evolution of the age distribution over time. The percentage change will be determined by comparing the age distribution in various years.

**Growth rate by age group:** This KPI will provide the anticipated growth rates for various age groups. The estimated population for each age group in several years will be compared, and the percentage change will be computed.

**Age group diversity index:** This KPI will display the racial, ethnic, and gender diversity among the various age groups. The proportion of each age group belonging to various racial and ethnic groups will be compared to compute it.

**Potential Uses** (Some of the potential uses for this information):

**Marketing that is specifically targeted:**

Businesses may adjust their marketing strategies by having a thorough understanding of the age distribution. Age groups differ in their tastes, pursuits, and purchasing habits. Businesses may develop tailored advertising strategies that speak to the distinct requirements and interests of the dominating age groups by recognizing them.

**Optimization of Sales Channels:**

Shop locations are influenced by age-related preferences. While older groups might still favor physical businesses, younger generations might choose internet outlets. Companies that know which age groups are more inclined to purchase online, visit physical stores, or do both may effectively deploy resources.

**Strategies for Pricing:**

Spending patterns and income levels differ throughout age groups. Pricing decisions can be guided by age-group-specific growth rate analysis. If the age range of 5 to 10 is growing, concentrate on reasonably priced family-friendly solutions.

1. **Data Source and Data Model**

At this stage, we have identified the below data to create our confectionery industry dashboard. Data may be added/modified based in future.

* Population Data
* Population Distribution by Age Group
* Historical Population Data
* Future Population Projections
* Demographic Data
* Consumption Data
* Market Analysis
* Localization Data
* Market Trends and Insights
* Supply Chain Data
* Risk Assessment
* Company Sales Data
* Customer/Visitors Data
* Marketing Cost Data
* Marketing Sales Data
* Marketing Revenue Data
* Sales Revenue Data by Product Wise
* Transaction Data
* Revenue Data by Year Wise

1. **Team Roles and Responsibilities**

|  |  |  |  |
| --- | --- | --- | --- |
| Roles | Abinaya | Gurjot | Sasikala |
| Purchase Information | Checkmark outline |  |  |
| Internal Brand Information | Checkmark outline |  |  |
| Marketing Info |  |  | Checkmark outline |
| Revenue Info |  |  | Checkmark outline |
| Geographical info |  | Checkmark outline |  |
| Demographics Info |  | Checkmark outline |  |
| Data Source and Data Model | Checkmark outline | Checkmark outline | Checkmark outline |
| Documentation | Checkmark outline | Checkmark outline | Checkmark outline |
| Data Collection | Checkmark outline | Checkmark outline | Checkmark outline |

1. **Bibliography**

Statista. (2023). *Chocolate Confectionery - Global | Statista Market Forecast*. Statista. <https://www.statista.com/outlook/cmo/food/confectionery-snacks/confectionery/chocolate-confectionery/worldwide>

(2023, March 10). What Are the Departments in a Business? (plus Their Uses); Indeed Editor Team. <https://www.indeed.com/career-advice/career-development/business-departments>

(2024, February 2). *What is the Average Transaction Value and how to calculate it | DashThis.* (n.d.). Dashthis.com. <https://dashthis.com/kpi-examples/average-transaction-value/>

(2024, February 2). *How to measure the success of your growth marketing efforts.* (n.d.). Abmatic.ai. <https://abmatic.ai/blog/how-to-measure-success-of-growth-marketing-efforts>

Abby. (2023, June 21). *Growth marketing metrics to measure your success.* Dashly Blog. <https://www.dashly.io/blog/growth-marketing-metrics/>

*15 Important Growth Marketing Metrics to Track (and Why) | Growth Center | Twilio Segment. (n.d.).* Segment. <https://segment.com/growth-center/growth-marketing/metrics/>

Hayes, A. (2022, August 23). *Everything You Need to Know About Market Share.* Investopedia. <https://www.investopedia.com/terms/m/marketshare.asp#:~:text=Market%20share%20is%20calculated%20by>

Asalekar, S. (2021, September 2). *Purchasing department | roles, duties & responsibilities*. AI & Machine Learning Blog. <https://nanonets.com/blog/purchasing-department/>

(2021, December 15). *8 Important KPIs for the purchasing department.* Essential Business Guides. <https://www.zoho.com/expense/articles/8-essential-kpis-for-the-purchasing-department.html>

*Setting KPIs for Bakery and Confectionery Businesses.* (n.d.). Www.linkedin.com. <https://www.linkedin.com/pulse/setting-kpis-bakery-confectionery-businesses-mark-bradford/>

*Procurement KPIs & Metrics. Top 18 Procurement Kpis.* (n.d.). Www.datapine.com. February 2, 2024. <https://www.datapine.com/kpi-examples-and-templates/procurement#emergency-purchase-ratio>

Ropp, M. (2022, October 6). *Cost savings vs cost avoidance: What’s the difference?* RFP360. <https://rfp360.com/cost-savings-vs-cost-avoidance/>

Yanova, M. A., Sharopatova, A. V., & Lozkin, I. F. (2021). *The effectiveness of the using new raw materials in the production of confectionery products.* 848(1), 012045–012045. <https://iopscience.iop.org/article/10.1088/1755-1315/848/1/012045/pdf>

(2023, August 27). Indeed Editorial Team. Marketing Team Roles, Skills, and Responsibilities. <https://ca.indeed.com/career-advice/career-development/marketing-team>

Sandra. (2022, August 5). *What Are The Roles And Responsibilities Of A Sales Team? 5 Steps To Create A Great Sales Team*. Apptivo. <https://www.apptivo.com/blog/what-are-the-roles-and-responsibilities-of-a-sales-team-5-steps-to-create-a-great-sales-team/#:~:text=A%20sales%20team%20is%20solely>

Shields, K. (2021). Chapter 3: Managing a Customer Service Team. *Ecampusontario.pressbooks.pub,* 3(5). <https://ecampusontario.pressbooks.pub/customercentricstrategy/chapter/chapter-3-managing-a-customer-service-team/>

(2024, February 2). Managing your employer brand. (n.d.). Www.robertwalters.be. <https://www.robertwalters.be/insights/hiring-advice/blog/is-employer-branding-a-marketing-or-hr-function.html#:~:text=Role%20of%20HR%20in%20building%20the%20employer%20brand&text=HR%20also%20sets%20company%20policies,responsibility%20of%20the%20HR%20function>

(2023, December 2). The Importance of Financial Analysis in ROI Management; FasterCapital. <https://fastercapital.com/content/The-Importance-of-Financial-Analysis-in-ROI-Management.html>

‌