A logo for a convention

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**Final BI Project - Written Analysis**

**Company – Starbucks**

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**Course section** : Business Intelligence MSIT 3820

**Due date** :04/21/2024

**Project Title:**

Starbucks Business Intelligence: Exploiting Data for Success

**Introduction:**

Starbucks Coffee Company, founded in Seattle, Washington in 1971, has become a global coffee shop chain with a presence in over 80 countries. Known for its high-quality coffee, drinks, and pastries, Starbucks takes pride in its exceptional customer service and diverse menu offerings, including espresso-based drinks, brewed coffee, teas, and seasonal specialties. Committed to ethical sourcing and sustainability, Starbucks supports coffee farmers and eco-friendly projects. With innovative concepts like Reserve Roasteries and Reserve Bars, Starbucks continually evolves to meet customer preferences. Through strategic alliances and acquisitions, such as Evolution Fresh and Teavana, Starbucks expands its product line to cater to changing tastes. The Starbucks Experience embodies a dedication to quality, community, and a passion for coffee, making it a beloved and recognizable brand worldwide.

**Current business model of Starbucks:**

Starbucks Corporation, a major player in the worldwide coffee market, has persevered in the face of difficulties posed by the COVID-19 pandemic. Starbucks, which operates in more than 80 countries and territories, has modified its tactics to deal with previously unheard-of situations. The company has placed significant emphasis on digital innovation and technological integration, as evidenced by the improvements made to the consumer experience by its digital ordering platform and mobile app. Customers now have more convenience and contactless transactions are made easier because to this emphasis on digital channels, which is in line with changing consumer demands during the epidemic.

Furthermore, Starbucks has persisted in its dedication to sustainability, achieving notable progress in cutting carbon emissions, decreasing waste, and procuring coffee beans responsibly. The company's values-driven strategy is further demonstrated by its commitment to diversity, equity, and inclusion throughout its workforce and communities. Starbucks is still committed to making strategic investments, taking advantage of market development opportunities, venturing into new areas, growing its Reserve Roasteries and upscale Reserve Bars concept, and broadening its range of products. Starbucks Corporation is a leader in the worldwide coffee market, delivering value and good impact for its stakeholders while staying true to its objective of inspiring and nurturing the human spirit—one cup, one person, and one neighborhood at a time—despite continuous obstacles.

**Overall Problem Statement of StarBucks:**

Starbucks has been working to minimize stock waste and maximize sales performance. More specifically, sales of underperforming products must be increased through focused promotions and discounts. To reduce waste from broken or surplus inventory, it is also necessary to enhance stock management by importing the appropriate amount of product to each store. Improving overall profitability and operational efficiency requires addressing these issues.

**Current Problems facing by the Starbucks:**

1)Data Integration: Starbucks is a worldwide company with many locations, and as such, it generates a lot of data from its supply chain operations, mobile apps, loyalty programs, and point of sale systems. Finding useful insights requires integrating and combining this data from several sources into a single BI platform, which can be difficult at times.

2)Real-Time Analytics: Starbucks may find it useful to use real-time analytics tools to track sales patterns, consumer preferences, and operational efficiency throughout all its locations given the dynamic and quick-paced nature of the industry. Starbucks will be able to act fast to adapt to changing market conditions and make choices on time by implementing BI tools that provide real-time data processing and visualization.

3)Customer analytics: Starbucks uses social media, applications for smartphones, and its loyalty program to gather a lot of customer data. BI tool analyzing this data may provide insightful information about the behavior, preferences, and purchase trends of your customers. Starbucks can optimize its product offerings, personalize marketing initiatives, and improve the entire customer experience by understanding consumer patterns.

4)Global Economic Conditions: In worldwide regions where Starbucks operates, consumer spending patterns and corporate performance can be impacted by economic crises, changes in currency, and security threats.

**Causes of the Problem for Starbucks:**

* Inadequate Product Promotion: When marketing and promotional activities aren't done well, some products may not be as visible or well-known to consumers. Reduced sales could result from consumers being unaware of the existence or advantages of certain products if there is insufficient promotion. Using focused marketing techniques, such influencer partnerships, in-store promotions, and social media campaigns, can help raise brand awareness and boost sales.
* Limited Target Audience Reach: Missed sales opportunities may result from ineffectively focusing on consumer categories. Starbucks might not be able to reach some customer segments without focused marketing efforts because different items might appeal to different consumer tastes or demographics. Targeted promotions and advertising that are customized to the interests of various client groups can be created by conducting market research to learn about their preferences and behaviors. This will increase sales.
* Lack of Product Innovation: Customers may grow weary of Starbuck's offers and lose interest if the company doesn't innovate its product line. Customers are drawn to novelty and distinctive goods; therefore, Starbucks might find it difficult to hold their interest if it stops innovating. By appealing to consumers' desire for novel experiences, product development investments and the introduction of new Flavors, formats, or limited-time offerings can generate buzz and boost sales.
* Suboptimal Stock Allocation: Stock shortages or surplus inventory may arise from improper stock distribution across various stores. While allocating stock, it is important to consider several factors such shop-specific sales patterns, seasonal fluctuations in demand, and regional preferences. This will help to guarantee that each store has the correct mix of products to meet customer demand. Stock allocation can be optimized and stockouts and overstocking can be decreased by using inventory management systems and demand-driven allocation procedures.
* Insufficient Inventory Management Techniques: Ineffective inventory management techniques, such as inadequate storage techniques or poor stock rotation, can cause product damage, spoiling, or obsolescence. Perishable goods handled or stored improperly might result in greater waste and lower profitability. Minimizing waste and optimizing inventory levels can be achieved by putting best practices for inventory management into effect, such as frequent stock audits, FIFO inventory rotation, and appropriate storage conditions.
* Disruptions in the supply chain: It can affect the availability of products in stores and result in lower sales. Examples of these disruptions include delays in procurement or problems with transportation. Natural catastrophes, unstable political environments, or worldwide pandemics are examples of outside variables that might interfere with the supply chain and delay the timely delivery of commodities. Maintaining open lines of communication with supply chain partners, diversifying your supplier base, and creating backup plans can all help to lessen the effects of supply chain disruptions and guarantee continuous product availability.
* Underutilization of Technology: Starbucks may not be able to maximize stock levels and boost sales performance if it does not make use of data analytics and technology for inventory management and sales forecasting. Predictive modelling tools, POS (point of sale) analytics, and sophisticated inventory management systems can all offer insightful data on customer preferences, sales trends, and inventory turnover rates. Through technological investments and personnel training, Starbucks can optimize its inventory management procedures and make informed decisions that propel sales development.
* Competitive Pressure: To stay competitive, the coffee industry's fierce rivalry demands constant innovation and adaptability. To draw clients, individual coffee shops and competing coffee chains frequently launch new goods, deals, and marketing techniques. Starbucks runs the danger of losing customers and market share if it doesn't stay one step ahead of rivals. It is possible for Starbucks to spot opportunities for differentiation and preserve its competitive advantage in the market by keeping an eye on competitor activity, performing market research, and paying attention to shifting consumer preferences.

**Starbucks Overall Goal:**

Starbucks is basically more than just a coffee business, it is a universal representation of excellence in coffee and customer service, as well as community. Starbucks main objective includes multiple important components. First and foremost, it wants to stay at the top of the coffee industry by consistently innovating, growing into new markets, and meeting consumer expectations for quality and consistency. Its main goal is to give clients a positive and unforgettable experience by supplying superior goods and first-rate service in pleasant environments. Starbucks is also dedicated to sourcing coffee sustainably, minimizing waste, helping communities, and conducting business ethically and responsibly. Because it values its workers, it fosters a positive work atmosphere where partners are encouraged to develop and feel appreciated.

**The key essential goals that Starbucks follows:**

1)Sustainability initiatives include buying renewable energy sources, cutting back on water use, and putting recycling programs into action.

2)Participating in the community and practicing philanthropy: Endorsing nonprofits, learning programs, and disaster aid.

3)Transparency and Ethical Sourcing: revealing the coffee beans' origins and ensuring ethical supply chain procedures.

4)Diversity and Inclusion: Promoting a sense of community in which each person is valued and honored for the distinctive contributions they have made.

**What software does the Starbucks Utilize? (e.g. Excel, SQL, Python, Tableau, etc.):**

It's probable that Starbucks use a mix of software technologies for data management and business analytics. Among the software frequently employed in this kind of situation could be:

* SQL:Structured Query Language is necessary for database management and querying. SQL is probably used by Starbucks to access, modify, and examine data that is kept in their databases, including sales and customer data.
* Excel: For data processing, reporting, and visualization, Microsoft Excel is a popular tool. Excel can be used by Starbucks for several purposes, such as report creation, sales data analysis, and simple data manipulations.
* Tableau: Tableau is a potent tool for data visualization that lets users build smart and interactive reports and dashboards. Tableau is a tool that Starbucks may use to track store performance, visualize sales trends, and obtain useful information from their data.
* Python: Python is a multipurpose programming language that's frequently used for jobs including automation, machine learning, and data analysis. Python can be used by Starbucks to create bespoke solutions suited to their business requirements as well as for sophisticated data analysis and predictive modeling.
* SAP: Starbucks may make use of specialized business intelligence (BI) technologies like SAP BusinessObjects, Microsoft Power BI, or QlikView for thorough data analysis, reporting, and decision assistance.
* Inventory Management Software: To keep tabs on stock levels, coordinate inventory across all its locations, and streamline supply chain processes, Starbucks probably uses specialist inventory management software.
* Customer relationship management (CRM) software: Starbucks may utilize CRM programs such as Microsoft Dynamics or Salesforce to track and manage customer interactions and customize marketing campaigns.
* Financial Software: For budgeting, financial reporting, and transaction management, Starbucks may employ financial software like SAP ERP or Oracle Financials.

To successfully manage and analyze company data, optimize operations, and make data-driven decisions, Starbucks uses a variety of software solutions, including these ones.

**The logical components of star schema followed by Starbucks:**

The different facts of Starbucks business operations and data sources would probably make up the logical components of the company's star schema. Here's how the parts might be broken down in theory:

Fact Tables:

* Sales Transaction: This table would provide information about every purchase made at Starbucks locations, such as the products bought, their quantities, costs, and timestamps.
* Inventory Levels: To assist with inventory management and forecasting, a different fact table might be used to track the quantities of different products in stock at each Starbucks store.
* Customer contacts: This fact table may document customer contacts, including participation in loyalty programs, submissions of feedback, and correspondence with customer service representatives.

Dimension Tables:

* Establishment Dimension: Provides specifics about the location, size, date of opening, and manager of each Starbucks establishment.
* Product Dimension: Holds information about the name, category, cost, and contents of every item sold at Starbucks.
* To enable time-based analysis, the Time Dimension collects time-related data such as date, day of the week, month, quarter, and year.
* Customers' location, age, gender, and status in loyalty programs are among the demographic data included in the customer dimension.
* Supplier Dimension: Contains information about Starbucks' suppliers, including contract conditions, contact details, and supplier names.
* Data on Starbucks employees is stored in the employee dimension, including performance metrics, role, employment date, and employee ID.

**If Starbucks do not have a Business Intelligence system in place, what would the components be to analyze data that is useful in solving the problems:**

Data Analysis Tools:

* Pivot tables, charts, and formulas can all be used with Excel or another spreadsheet program for basic data analysis.
* SQL is used for database queries and the extraction of data sets for study.
* For more complex analytics, such forecasting and regression analysis, use statistical analysis tools.

Data Collection Sources:

* Point-of-sale systems' sales and transaction data.
* Data about inventory management obtained from systems that track inventories.
* Data about customer interactions and feedback from a variety of sources, including as social media, online surveys, and in-store comments.
* financial information gleaned from accounting databases.

Data Storage and Organization:

systematic data storage in databases or spreadsheets, arranged according to pertinent criteria like sales, inventory, contacts with customers, etc.

While Starbucks can use these components to help with data analysis and decision-making, a dedicated business intelligence system would be more effective in analyzing and utilizing data for strategic insights due to its increased automation, scalability, and efficiency.

**Exploiting BI for Efficient Operations:**

There are several elements that BI can help in overcoming the challenges:

1)Data Integration and Analysis: BI solutions can integrate data from various sources, including supply chain management, consumer loyalty programs, and point-of-sale systems.

2)Client Analytics: Starbucks uses business intelligence to examine client data to comprehend demographics, preferences, and purchasing patterns. Starbucks may use this information to better serve customers by customizing product offers, marketing initiatives, and overall customer experience.

3)Supply Chain Optimization: To estimate demand, optimize inventory levels, and simplify logistics, BI systems can evaluate data from the supply chain. By doing this, Starbucks may minimize waste and cut expenses while maintaining appropriate stock levels.

4)Performance Monitoring: Real-time visibility into store performance measures, including as sales, shoppers, and customer satisfaction ratings, is made available via BI dashboards. This makes it possible for Starbucks to identify losing locations, evaluate efficiency in operations, and carry out focused interventions to raise performance.

5)Market intelligence: Starbucks can watch rival performance, keep an eye on market trends, and spot new opportunities and dangers thanks to BI technologies. Starbucks uses this information to stay competitive and make well-informed strategic decisions.

6)Predictive analysis: Starbucks can forecast future sales, anticipate customer trends, and enhance promotional techniques by utilizing predictive analytics models. Because of this, Starbucks can proactively modify its product line-up, pricing policies, and marketing initiatives to optimize sales and profits.

**Decision Criteria:**

* Sales Impact: Assess how each option might affect Starbucks' earnings per sale and profit margins.
* Cost Reduction: Consider all the costs associated with putting any solution into practice, including the initial outlay and continuing costs.
* Customer Satisfaction: Evaluate the potential effects of convenience, product quality, and overall experience on customer satisfaction and loyalty for each solution.
* Operational Efficiency: Assess how much each solution enhances supply chain effectiveness, store operations, inventory management, and other operational procedures.
* Competitive Advantage: Determine whether any of the proposed solutions gives Starbucks a distinct advantage over its rivals in the market, either through increased market share, differentiation, or brand perception.

**Alternative Solutions:**

* Promotional Campaigns: Start focused campaigns to draw customers during off-peak hours or boost sales of products.
* Optimized Stock Distribution: Make sure the proper amount of stock is assigned to each store based on demand trends and sales projections by putting in place data-driven inventory management tools.
* Supplier Agreements: Improve your profit margins and save procurement expenses by negotiating better pricing arrangements with suppliers.
* Initiatives for Waste Reduction: Put mechanisms in place to reduce waste, like cutting back on overproduction, extending the shelf life of products, and donating excess food.
* Digital Innovation: Make investments in digital technologies, such loyalty programs, mobile ordering apps, and tailored marketing campaigns, to improve the consumer experience.

**Sources of data and its frequency:**

For operational insights, Data for Starbucks is from sales and transaction data, customer information, and inventory management data. Marketing data influences promotional efforts, and financial data directs budgeting and investment decisions. Operational data guarantees effective service delivery and store performance. Context is provided for strategic decision-making by external data sources. Starbucks improves customer satisfaction, streamlines operations, and stimulates development in the competitive coffee market with these data-driven strategies.

**Through BI tools What else can you do to help the Starbuck company to achieve its goals:**

* We can use several strategies, such introducing product-focused promotional campaigns, adding creative menu items, and running focused marketing campaigns to appeal to customer groups to boost sales at Starbucks.
* Customers convenience can also be increased by launching combo offers on days of the week and increasing mobile ordering capabilities. By lowering the inventory of slow-moving items in specific places, such cakes and egg bits in Illinois and California, Starbucks can optimize its stock distribution and cut expenses.
* Costs can be further decreased by negotiating better pricing with suppliers and putting waste reduction strategies into place, such as giving end-of-day products a discount rather than throwing them out.
* Cost savings can also be achieved by increasing operational efficiency through reduced procedures and efficient workforce.
* Lastly, we can use data analytic tools to monitor customer preferences, store performance metrics, and market trends to improve decision-making. Furthermore, getting and examining input from clients and staff members might yield insightful information that is helpful in decision-making.
* By putting these tactics into practice, Starbucks may increase revenue, save expenses, and enhance overall operational efficiency.

**The Consumer of the BI insights of Starbucks:**

Starbucks is well-known for its outstanding coffee, but it's also known for its creative menu options, unrelenting dedication to sustainability, and unmatched consumer engagement techniques. The secret to Starbucks' success is its ability to use Business Intelligence (BI) insights to improve operational efficiency and drive strategic decision-making. Starbucks consistent commitment to sustainability initiatives is one of its main differentiators. Starbucks carefully monitors and evaluates sustainability measures, like emissions reduction and compliance with ethical sourcing, by utilizing BI analytics. By doing this, Starbucks can maximize the environmental impact throughout its worldwide supply chain while maintaining balance with its corporate values. Additionally, Starbucks' ability to adapt to changing market conditions is demonstrated by the way it plans its seasonal menus. Starbucks can more accurately predict demand, manage inventory levels, and create creative seasonal menu items that appeal to customers' changing tastes and preferences thanks to BI information. Starbucks can keep ahead of trends and hold its position as a leader in the cutthroat coffee sector because to its data-driven strategy.

Starbucks consumer engagement strategy is heavily reliant on its rewards program and mobile ordering app. Starbucks can comprehend client behavior, preferences, and buying habits on various digital platforms thanks to BI analytics. Equipped with this information, Starbucks can customize rewards, modify promotions, and improve the digital customer experience overall, encouraging repeat business and loyalty. Lastly, BI insights strengthen Starbucks dedication to social responsibility and community involvement. Starbucks can improve its engagement tactics, manage resources wisely, and show its commitment to improving the areas it serves by tracking the results of its community programs and participation rates.

**Recommendation to Improve Starbucks BI systems:**

* For Starbucks business intelligence (BI) tools to remain relevant and adaptable in the fast-paced modern corporate environment, real-time capabilities are a must.
* Starbucks must seamlessly integrate in-memory processing, real-time data streaming, and automated alerting systems to get quick insights into sales patterns, customer preferences, and operational performance.
* Giving managers mobile device access to real-time dashboards facilitates quick reactions to changing market conditions, encouraging proactive decision-making and tactical modifications.
* By utilizing cutting-edge analytics methods such as machine learning and predictive modeling, Starbucks is better equipped to forecast customer needs, maximize operational effectiveness, and seize new possibilities instantly.
* Starbucks adoption of real-time business intelligence (BI) enhances customer experiences by providing tailored services and expedited processes, while also solidifying its leadership position in the coffee sector.
* Starbucks can quickly adjust to changing consumer tastes, market conditions, and competition challenges thanks to real-time business intelligence (BI). This allows the company to maintain growth and resilience over time.
* Starbucks stays ahead of the curve using real-time capabilities, which allow it to continuously improve its services, strategy, and ability to seize market opportunities as they present themselves.
* By seamlessly integrating real-time business intelligence (BI) across several business activities, Starbucks can achieve operational excellence, stimulate innovation, and sustain a competitive advantage in the constantly changing coffee sector.
* Starbucks can quickly detect and resolve operational inefficiencies, allocate resources optimally, and improve overall business performance because to ongoing real-time data monitoring and analysis.
* Using real-time BI improves Starbucks' capacity to respond quickly to changes in the market and creates a culture of innovation and data-driven decision-making throughout the company.

**Data Analysis:**

* By means of an extensive analysis of data gathered from multiple sites throughout the United States, Starbucks has acquired significant knowledge regarding the import and export characteristics of its principal product lines.
* A thorough examination of consumer preferences, market trends, and economic factors affecting the demand for Starbucks products were all part of this investigation.
* Starbucks has been able to uncover patterns and trends that provide insight into how its goods are performing in various geographic areas by closely examining these data sets.
* Moreover, Starbucks has improved its comprehension of local tastes and market dynamics by concentrating on states with notable growth rates like Nevada, New York, California, lowa and Illinois. This has allowed the firm to customize its strategy more successfully.
* To identify areas for growth and improvement, Starbucks has specifically conducted a thorough analysis of customer data in these states with strong rates of economic expansion.
* Starbucks has refined its focus on products and product categories with the highest potential for profit maximization by analyzing client preferences and purchase patterns. By using this strategic approach, Starbucks can build on its strengths and reduces the risks involved with tossing out expired food items, such as bread, eggs, coffee beans, and other perishable goods.
* Starbucks hopes to reduce expenses and waste while increasing operational efficiency, optimizing its product line, and providing customers with a better experience by utilizing these data.

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**APPENDIX:**

**EXHIBITS:**

Below are some snapshots of visualizations we have created ourselves, as well as some sourced from Kaggle, GitHub, and Tableau Public websites.

1.Starbucks store locations in USA:

A map of the united states of america

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**2) Starbucks Beverage Category and its count in the menu:**

A screenshot of a computer

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**3)Top 10 healthy coffee drinks at Starbucks:**

A pie chart with different colored circles

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**4)Starbucks Beverage % of Sugar breakdown:**

A graph of blue bars

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**5) Top Starbucks Products Sales Across Top Five States in USA**

**A screenshot of a computer

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**6)Starbucks Performance Dashboard In USA:**

A screenshot of a graph

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