**INTRODUCTION**

**RETAIL INDUSTRY**

Retailing is an essential business action, furnishing clients with a chance to buy products and services from different kinds of traders. Retail is an unpredictable and complex field, which includes the selling of a wide range of physical merchandise, like, vehicle parts, pharmaceuticals, attire, social insurance and healthcare items, books, and food, as well as services, for example, a car fix or floor covering cleaning. It includes the selling of a wide range of physical merchandise. The significant elements of retailing might be classified into five functions:

1. Merchandising and Buying
2. Store Operations
3. Sales Promotions and Advertising
4. Accounting and Bookkeeping
5. Work Force Personnel

Merchandising and buying decides the combination and measure of products to be sold, displayed, or loaded in a business' shop. Store operations laborers keep up the retailer's structure. Sales promotion and advertising illuminates clients and potential customers about the available goods and services. Accounting and bookkeeping helps in tracking the cash spent and received, as well as records of payrolls, taxes, and accounts payables, i.e. cash yet to be paid and accounts receivables, i.e. cash due from clients. The personnel department sets up the store with qualified workers. Retail managers are liable for smooth operating and profitability of the retail store. They regulate the selling of numerous products, depending upon their business. Their obligations include recruiting, training, and supervising other employees, keeping up the facilities, managing inventory, observing expenditures and receipts, and keeping up good public relations.

**SWOT ANALYSIS**

|  |  |
| --- | --- |
| **STRENGTHS**   * Economies of scale – driven by concentration and growth * Availability of different brands * Customer loyalty through loyalty cards, points etc. * Flexibility in workforce personnel * Population demographics and increase in purchasing power of the consumers | **WEAKNESSES**   * Many small companies, highly disorganized * Low margins * Poor infrastructure and supply chain management * Changing political and regulatory requirements |
| **OPPORTUNITIES**   * More collaboration due to the highly fragmented market * Competition based on services and customer relations * E-commerce, direct-to-customer marketing via online channels * Emerging markets * Increase in disposable income | **THREATS**   * Fierce international competition * Focus on price-competition, lower profit margins * Cultural differences and local tastes can be barriers in global expansion * Increase in transport costs * High demand and low availability of land and real-estate |

**FUTURE PROSPECTS**

Web based businesses are extending consistently in the nation. Customers have the ever-expanding selection of items at the lowest rates. Internet business is presumably making the greatest upset in retail industry, and this pattern is most likely to grow in the years to come. Retailers should leverage and use computerized retail channels (E-business), which would empower them to spend less cash on land while connecting with more clients in tier II and tier III cities.

In any case, the long haul standpoint for the business looks positive, supported by rising pay, good socio-economics, entry of foreign players, and increasing urbanization.

For retailers, seeing how consumer desires are advancing and how their expectations are evolving, it has never been more increasingly significant to understand the consumer. Especially with the intermingling of supply chain, computerized advances, and other innovations and developments.

To stay ahead, retailers must settle on a troublesome decision on what to offer and how to comprehend it, by gaining useful insights to remain profitable. This implies there's a fundamental discussion around intense trade-offs what really matters to the consumers, and what must companies have internally as consumer spending is the lifeblood of the retail industry. This is where retail analytics comes into play.

Using business intelligence tools, retailers can use data from the past to predict expected sales growth, due to change in consumer behaviors and/or market trends. This can help retailers stay ahead of the curve, compete effectively and gain considerable market share. **The insights can be obtained from several sources like POS systems, RFID, mobile apps, in-store cameras, websites etc.**

**PROBLEM STATEMENT**

Measuring sales performance for any retail company is one of the most important aspects of strategic planning. Analysis of historical sales data helps to improve sales efficiency. It helps to draw insights and lead in a direction that ensures high turnover and profitability.

**OBJECIVES**

* Determine the yearly sales and profits
* Region-wise sales vs profit analysis
* State-wise sales vs profit analysis
* Determine the sales and profit analysis based on
  + Segment
  + Product category
  + Product sub-category

1. ANALYSIS

* Demand based on different product categories based on different segments of customers
* Transaction details - Sales based on the store, region / geographical location, city and state
* Order details
* Sales based on different segments, product categories and product sub-categories
* Customer details

2. INSIGHTS

From the analysis, the following insights can be drawn:

* Identify slow moving products
* Inventory turnover rate
* Average sales per transaction
* Sales quantity based on different segments, product categories and product sub-categories
* Top selling products
* State with highest sales

3. DECISION

Upon drawing insights, the following decisions can be taken in order to increase sales as well as profits:

* Minimum reorder level
* Identify stores with high demand for specific products
* Proper advertisements and target marketing in regions / states that show losses
* Based on demand, price adjustments can be made to increase sales

**KPIs:**

KPIs or Key Performance Indicators help in tracking important metrics to determine the performance efficiency and profitability of a business. They also indicate whether the business is on track in achieving goals and whether the implemented strategy is aimed at achieving that goal.

Based on the data available from the current dataset, the key performance indicators could be:

* Sales and Profits per category and segment
* Average transaction per sale
* Year on year growth
* Customer reorder rate (derived column)

However when more data is available, the following KPIs should definitely be considered as they give more insight on the profitability of the store.

* Inventory turnover rate
* Conversion rate
* Gross vs Net Profit
* Shrinkage / Pilferage of inventory
* Customer retention rate
* Customer satisfaction

These parameters give an overall idea of the business functions and can determine the exact pain points in case of losses.

**DATA ANALYSIS AND INTERPRETATION**

The dataset chosen had no missing values. It consisted of 21 columns and 9994 rows. The variables were as follows:

|  |  |
| --- | --- |
| **Column Name** | **Description** |
| Row ID | Serial number |
| Order ID | Unique Order ID |
| Order Date | Date on which the order was placed |
| Ship Date | Date on which the order was shipped |
| Customer ID | Unique Customer ID |
| Customer Name | Name of the Customer |
| Segment | Segment of the Customer |
| Country | Country to which the customer belongs |
| City | City to which the customer belongs |
| State | State to which the customer belongs |
| Postal Code | Postal Code of the Customer's region |
| Region | Region of America to which the customer belongs |
| Product ID | Unique Product ID |
| Category | Category of Product |
| Sub-Category | Sub-Category of the product |
| Product Name | Name of the product |
| Sales | Sales amount |
| Quantity | Number of products sold |
| Discount | Discount amount on the product |
| Profit | Profit made by the transaction |

Variable Description

**FINDINGS**

* Maximum profits are made by California, followed by New York
* Maximum sales is in the Consumer segment, followed by Corporate and lastly Home Office
* Based on Category, Technology has the highest sales and profits (owing to sub-category: phones)
* Maximum sales and highest profits have been accomplished in the West region, followed by East, South and Central regions respectively
* There are about 10 loss-making states – Arizona, Colorado, Florida, Illinois, North Carolina, Ohio, Oregon, Pennsylvania, Tennessee and Texas
* Based on the data provided, it could be possible that the states that are suffering losses could be due to the huge discounts offered on products, especially in the category of Furniture and Office Supplies

**CONCLUSION**

With coming of new age technology, the way forward for the retail industry is via online channels. This also means generation of millions of rows of data due to daily interactions and transactions. Making sense of this data is imperative to draw insights and make data driven decisions. The sales performance analysis gives us valuable insight about the inner workings of the business. But with the amount of data generated, it’s almost impossible to draw any conclusions by making accurate interpretations manually, not to mention how difficult and time consuming it really is. Therefore, using the various business intelligence tools available will not only make the work load less laborious, but will also increase speed and efficiency to make valuable deductions. Visualization tools help in creating a varied number of simple charts and interactive dashboards that are understood by everyone effortlessly. This also makes problem identification much easier, analyzing every nook and corner which was not possible previously. Thus, necessary actions can be taken in order to solve the problem, make data-driven decisions by measuring performance via important KPIs to steer the company towards profitability.