

INVENTORY MANAGEMENT SYSTEM

Case Study

# DRINK AND DELIGHT

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# 1 Drink & Delight – Company Overview

## 1.1 Introduction

Drink & Delight(DD) is India's first listed pure-play beverage Company and one of the leading fruit juice manufacturers. DD's spectacular growth is matched only by their enthusiasm to serve the customers in the chosen markets and segments. They are a proud partner of India's growth story. Rooted deeply in the Indian ethos, they value Indian culture and values to the core. DD's endeavour has been to work with local partners and farmers to grow and benefit along with them in this journey of value co-creation.

In terms of market presence, they have:

- Beverage brands in over 20 states
- They have 400,000 retailers, over 2500 distributors and 200 plus super stockists.
- The company has seven operational manufacturing facilities:
  - three at Vadodara (Gujarat)
  - two at Varanasi (Uttar Pradesh)
  - one each in Dehradun (Uttaranchal) & Ambala (Haryana)
  - four at Bangalore
  - two at Chennai

## 1.2 Product Categories

They primarily deal with 5 product categories:

1. Juice
  - This is the second largest contributor ( ~ 35%) to DD's top line
  - Gross profit % is ~36% – 37% and is much lower than the overall average of 40% - 41%
2. Soft Drinks
  - Contributes to ~ 15% of the overall revenue
  - Gross profit is around 18% - 20% higher than the overall average
3. Energy Drinks
  - Since its launch in 2011, this has been doing well and contributes to around 10% - 12 % of the top line with Gross profit % at the same level as the overall average
4. Mocktails
  - This is the most profitable category. Gross profit is around 50% higher than the overall average.
5. Tonic Water
  - This is the largest and the best performing category
    - Revenue share is 40+%
    - Gross Profit is in the same range as the overall Gross profit of DD

### 1.3 Other Highlights

- Since 2015, DD's revenue has been increasing at a rapid rate of > 26% per year on year.
- The total revenue of this year is Rs 984.95 cr whereas in the last fiscal year 2016-17 the revenue was Rs 735.02 cr.
- The growth in revenue came from the company's expanded capacity and new distribution channels across rural, semi-urban and urban centers.
- The company declared dividend of 5% on expanded equity.
- It seems that maintaining the inventory is becoming a tedious job over the years. Below are the reasons mentioned as to why it is needed to have inventories:
  - To meet anticipated demand;
  - To smooth production requirements
  - To protect against stock-outs
  - To take advantage of order cycles
  - To hedge against price increases or to take advantage of quantity discounts
  - To permit operations
  - To decouple components of the production-distribution system

### 1.4 Current Strategy & Implementation

- Enhance Profitability
  - Increase the share of Tonic Water from 0.7% in 2012 to 1.5% in 2017
- Maintain the Revenue growth at current rates of 25% - 30% year on year
  - Increase the throughput of products at Retailer
- Maintain the inventory in excel sheet hence inaccurately orders inventory and is left with more than needed.
- On a daily basis organization takes 10 of the distributors with their families at their main plant where they have built an apartment for them.

The execution of the above strategies requires changes to be made across the board to acquire new **business capabilities** for which new **business initiatives** have to be conceptualized and implemented. The changes cut across the following departments/functions:

- Supply Chain
- Sales
- Order Management
- Procurement
- Finance
- Operation

## 2 Inventory Management Improvement Project

### 2.1 Objective

To enhance the profitability of DD by helping implement the strategy leveraging the current implementation and enhancing it wherever required

### 2.2 Functional Requirements - Key Features

#### 2.2.1 Stock Management

To keep enough inventory to meet customer demand,

- To determine the amount of inventory to keep in stock – how much to order and when to order.
- The task of the research takes place within the company, which deals with understanding the raw materials.
- Inaccurately orders inventory and is left with more than needed. This leads to storage problems and prevents you from offering better products that could lead to higher revenue.

#### 2.2.2 Operational Cost

The focus is on decreasing the cost of Operation

- 30% reduction in operational costs due to:
  - the ability to extend the application to various geographies with no additional costs
  - the usage of cheaper devices such as iPods
  - the usage of the existing store wifi network for connectivity
- Increased operational efficiencies and employee productivity

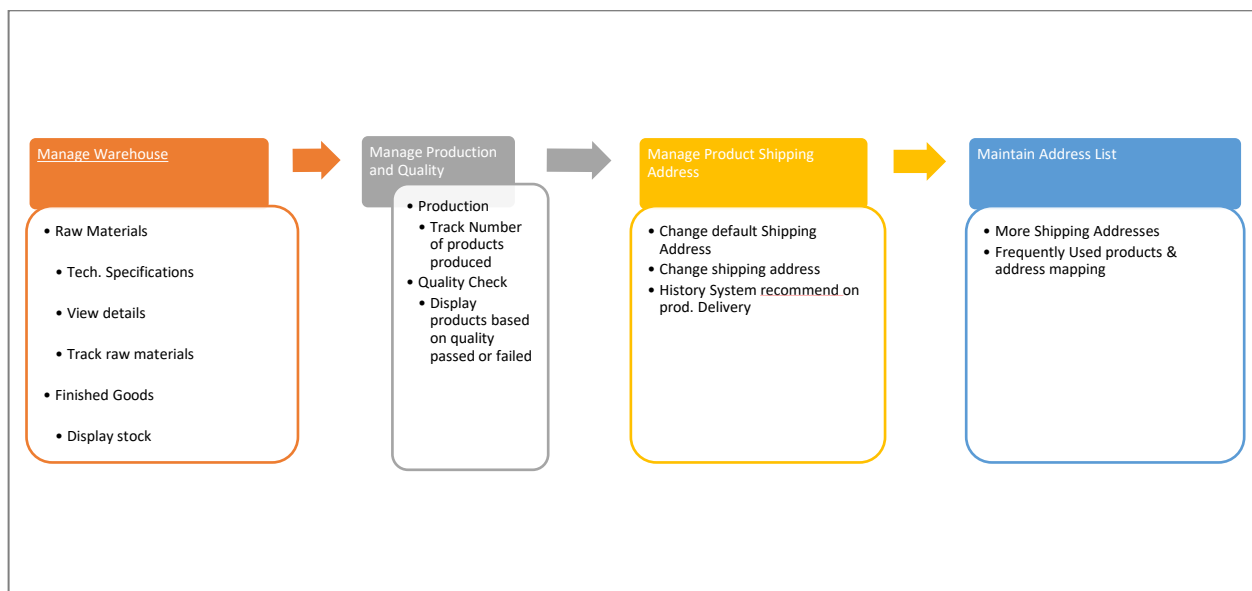
#### 2.2.3 Manufacturing Management

The focus is on increasing the production to meet the demand:

- Ability to understand the requirement of the market
  - Purchase the raw materials
  - Store them in a proper manner

- Utilize as required
  - Manufacture the product
- Keep a track of the supplier of Raw material
  - The task of the research takes place within the company, which deals with identifying the % of raw materials used and wasted.

Below are the functional requirements to eradicate above mentioned causes of returns:



#### A. Manage Warehouse:

1. Raw Materials :
  - Build raw materials page with raw materials details, technical specifications along with product sample image.
  - Warehouse Manager should be able to view all the raw material details.
  - Warehouse Manager can keep a track of raw material.
2. Finished Goods :
  - Display the stock of finished products available category wise.

#### B. Manage Production and Quality :

1. Production :
  - Keep a track of the number of the products produced category wise.
2. Quality check :

- Display the number of products which has passed or failed in quality check.

C. Manage Product Shipping Addresses :

1. Shipping Address selection should be made available for each product.
2. There should be an option to change the default Shipping Address for each product.
3. Based on customer's purchase and delivery pattern, system should suggest to change the Shipping Address using orders history.
4. An option to change the shipping address if the order is not yet sent for delivery.

D. Maintain Addresses List :

5. There should be an option to define more than one shipping addresses.
6. Customer should be able to create a new address (if address doesn't exist that he/she wants) and able to mark it as a onetime use address or add it to his/her addresses list.
7. An option to build frequently purchasing products and its' associated delivery addresses by the customer. System should be able to suggest this list based on order history.

## 2.2.4 Store Inventory

Reduce the inventory at stores

- Provide month on month /quarter or quarter /year on year reports on the time that an item stays on the shelf of the inventory
  - Report the change
- Track the time taken for the items to reach the Retailer from the warehouses of DD
  - Find out the outliers – the ones that take the least and maximum time
    - At Product category level
    - At item level within the Outlier Product category
    - At item level, irrespective of the Outlier Product category

## 2.3 Non-functional Requirements

### 2.3.1 Performance Requirements

- All canned reports should be published in < 10 seconds
- All ad hoc reports should be published in < 5 seconds

- Product Master screen should not take more than 2 sec to create a product
- Customer Order screen should be able complete submission of customer order within 3 sec including all validations on shipping address.
- Customer Address List screen should not take more than 2 sec

## 2.4 Platform Requirements

Above application needs to be developed using Java Tech Stack (Java Full Stack).

- Architecture of the application should be non-Monolithic or Microservices (Domain Driven Design) based. It can have multi layered architecture.
- **For Presentation Layer:** React JS /Angular 8, HTML5, CSS/Bootstrap has to be used
- **For Middle Layer:** Spring Framework /Spring Boot (Micro services Architecture) can be used
- **For Database Layer:** Either Hibernate/JPA/JDBC based implementation can be done
- **Database:** Oracle/MySQL/Sql Server
- **Java 8** and above should be used.
- **OS:** Windows for developer machine and for production environment Linux/Windows should be there
- **Application Server:** Tomcat/Wild fly latest versions can be used
- **Unit Testing:** JUNIT5 or Mockito (All the use cases must have the unit test cases)
- **Build and Configuration:** Maven, Jenkin
- **Code Repository/Version Control System:** Git / GitHub / Bit Bucket
- **Browser compatibility:** IE, Fire Fox, Safari, Chrome, Edge
- **DevOps Tools:** Docker, Docker Swarm, Chef, Cloud Environment (Azure/AWS/GCP)