ADAMA SCIENCE AND TECHNOLOGY UNIVERSITY

SCHOOL OF ELECTRICAL ENGINEERING AND COMPUTING

TITLE:- BEER SALES AND DISTRIBUTION SYSTEM FOR BGI ETHIOPIA,St.GEORGE BEER COMPANY

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1.Chapter one

1.1. Introduction

Any organization, especially beer companies should have an effective distribution management process to convey finished products from the manufacturer to the final consumers. Without having a standardized distribution system, their product will not deliver and the marketing mix will break down and fail. The distribution channel consists of a group of individuals or organizations that assist in getting the product to the right place at the right time. Distribution plays a vital role because it ultimately affects the sales turnover and profit margins of the organization. If the product cannot reach its chosen destination at the appropriate time, then it can erode competitive advantage and customer retention.

Many companies do not sell their products directly to end-users. In mass production and consumption industries in particular, many manufacturers rely on distributors, representatives, sales agents, brokers, retailers or some combination of these intermediaries to distribute their products. These intermediaries perform a variety of functions and constitute a marketing channel that referred to a trade channel or distribution channel. The environment of Ethiopia's beer industry has experienced major changes in the last 5 years. The entrants of different companies coupled with the necessity of meeting the timely increasing of the demand and supply requirement made the competition to become stiff.

Now there are seven major beer companies operating in Ethiopia. BGI Ethiopia, Dashen, Meta, Heineken, Zebidar, Habesha, and Raya. The Ethiopian beer industry is rising exponentially in economic growth, high beer consumption, improved quality and globalization of markets that have provided better market opportunities.

1.2. Background of the organization [optional]

BGI is a large-scale brewery and beverage production wing of Group Castel, operating in over 53 countries. Since 1998, BGI Ethiopia PLC has been operating in the production and distribution of beer, wine and other beverages. BGI owns five breweries including the iconic St. George Brewery in Addis Ababa, the Kombolcha Brewery, the Hawassa Brewery, Zebidar Brewery and Maychew Northern Brewery, producing 3.6 million Hectoliters of beer (bottles and draft) annually.

BGI Ethiopia P.L.C. also owns and manages the Castel winery and vineyard located in the town of Zeway. Established in 2012, the winery produces 12,000 Hectoliters of different wine varieties annually under the brand names Acacia and Rift Valley. BGI Ethiopia's products are distributed by partner agents in all corners of the country and exported internationally to

North America (USA and Canada), Europe (UK, Italy, France, Germany, Switzerland, Belgium, Netherland, etc.) Middle East (Israel and UAE), Australia, Africa (Kenya, Tanzania, South Africa, South Sudan, Djibouti, etc.), Asia (China, Japan, etc.)

1.2.1. Mission of the organization
To produce, sell and give customers the best quality, and most loved brand in Ethiopia.

1.2.2. Vision of the organization
To become and remain the absolute beer market leader in Ethiopia.

1.3. Background of the project

Our world's beer industry is on the rise especially in developed countries because of multiple reasons like the economic growth, technology advancement, beer consumption, improved quality and globalization of markets that have provided better market opportunities. Likewise, some of the developing countries like Ethiopia, with better economic indexes expect to experience growth as well. In other regions, the industry has either declined or is stagnant because of economic recession, health and social concern, negative influence on the globalization of markets, lack of donor funding support, and industrial brewing technology as in the case of some African countries. In many developing nations, demand need to rise with the strongest gains being in Asia especially China and Eastern Europe. Because of their economic recovery, expanding population, rising disposable income, improvement in beer quality, efficient distribution systems, high per capita consumption levels, and a rising popularity of beer at the expense of traditional beverages, especially among women, youth and more consumers that are affluent.

1.4. Statement of the problem

Beer companies use different distribution strategies and widening their destination. However, the challenges posed to beer factories can be various, the most notable one is the distribution gap, and a major characteristic of a distribution channel is that the retailer is closer to the end consumer than the manufacturer. This argument raises some vital issues regarding distribution channel.

➢ Higher price for final consumers since the distribution process passes through d/t phases.

➢ Absence of well-integrated and comprehensive approach to product availability and distribution coverage.

➢ Poor announcements to consumers when new products released by beer companies.

➢ Improper management of sales and distribution mechanism.

- ➤ Customers might not get enough information about what is been produced and how much is produced.

- ➤ Higher price for companies when making advertisements

- ➤ Beer companies doesn't have well information about their customers

  - How many customers they have?

  - What kinds of product customers need?

  - How can they satisfy customer's demands?

  - How populated the customers are in a specific location?

1.5. Justification of the project

The current system as stated earlier in the above section is associated with a number of problems and deffects. To recap some of them it is more bulky for both parties, the company as well as the customers(agents, distributers, consumers etc), high time consumption, poor payment system.

Nowaday, beer consuption is increasing dramatically as new beer companies join the market with greater number. Our system is working on combating this issue by trying to eliminate the role of middle man that have significant capacity in manipulating the overall structure of the sales and distribution process. Hence, our system will clear up the problem of unnecessary cost charges imposed at different stages.

In addition to that Corona pandemic has become a major obstacle for about a year now, undermining each and every activity in our country. Automating the payment system can be key practice to cope up with the problem this

1.6. Objective of the project

1.6.1. General objective

The general objective of this project is to develop an automated beer sales and distribution system for Ethiopian beer company BGI, St. George Beer.

1.6.2. Specific objective

In order to achieve the general project of this project, we have used the following specific objectives:

- digital payment system for customers with multiple choices
- reduce the time comsumed when making requests for products.
- Eliminates intermediary expenses (cost) in the distribution process

- Tracking the movement of the products and making sure that they have departed and arrived at the righ destination.
- Making online advertisements and promtional works.
- Managing sponsorships.

- Analyze the clustter of customers and thier different behaviors.

1.7. Scope and limitation
1.7.1. Scope of the study

The scope of this project will focus on developing web based Beer sales and distribution management system in Ethiopia. Our project will have four sides of system users.

> **Beer Company:** is the master administrator and owner of the system. It produces or manufactures beers at its industrial plants and stores them in its storage centers. It can perform various list of activities like Log in and logout from the system, Register and remove distributor, Register and remove customers, Receive order request from districutors. Beer company could also receive feedback sent from customers regarding its product qualities and other distribution factors. They can also control the status of distributer by referring to the order details and ratings of distributors rated by the customers.

> **Distributors**: The beer companies register the distributors to the system. They are responsible to receive an order request that assigned to them by the beer company and deliver the requested product to the customer. The distributors will get the desired information about the customer, like location, amount of product ordered and the route to reach the customer.

> **Customer**: Either the beer company register the customers to the system or they could create their own account by signing up. Some functionalities of customers include manage their account, make an order of a product from beer company, online transactions for sales and deliveries and track their order pending.

1.7.2. Limitation of the project

Even though our project is capable of performing many functionalities, it has some limitations

> It doesn't have language alternatives for users who don't have English language skill

> The system does not contain video tutorials of usage and guidance.

> Difficuty in getting API of Google maps for tracking purposes as it is sold in dollars. We are trying to get free API if possible.

1.8. Feasibility study
1.8.1. Technical feasibility

Technical feasibility helps to determine whether our team has required technical resources to meet the objective and whether the team is capable of converting the ideas into a working system. It also involves the evaluation of the hardware, software, and other technical requirements of the proposed

system.

The main technologies associated with our projects are:

- ➢ HTML (Structural Language)

- ➢ CSS (styling Language)

- ➢ JavaScript (Behavioral Language)

- ➢ Android Studio (Development Software)

- ➢ Diagram drawing tools (Diagram Drawing Software)

  .a. Edraw

  .b. Microsoft Visio

- ➢ Microsoft Office and Libre Office (Document Editor Software)

Each of the technologies needed are freely available and technical skills required to build our project are manageable. Moreover, we have synchronized the time limitations of the system development and the ease of implementing using these technologies.

Initially, our system hosts in local server. However, for later implementations, it will be hosted in a paid web hosting space with a sufficient bandwidth.

From these its' clear that our beer sales and distribution management system is technically feasible.

1.8.2. Operational feasibility

Our project will support the existing system and create a good environment for the user of our system. In addition, if any changes like improvements in the distribution mechanisms and regulations change. Therefore, our project is surely operationally feasible because our team members will cooperatively study the existing beer sales and distribution systems problem and will find a solution in a proposed system.

1.8.3. Economic feasibility

Our proposed system needs few resources. Beer company will only need computers and internet connection to install the system. Customers and distributors can use their smartphones to use the system. Therefore, system users will not face economic difficulties using our system.

The only cost associated with our project is hosting cost, but BGI is capable of providing the budget for that. Therefore, we could say that our project is economically feasible.

1.9. Significance of the project

As it stated in the introduction section, the current growing beer sales and distribution environment is becoming more complex and dynamic in nature. Our project somehow minimizes the complexity

in the following ways.

- ➢ Beer company will collect valuable data on customer buying habits

- ➢ Beer company can get its products faster to the customers

- ➢ Eliminates intermediary expenses (cost)for distribution process

- ➢ Provide more controls over the customers

- ➢ **Cost reduction for customers:** Since the different agents , wholesalers, retailor and brokers are eliminated in this system, the distribution process will not have to go through different processes, which will result in reduction of cost for customers.

- ➢ Direct online sale is accomplished

- ➢ Build a strong relationship between beer company and customers

- ➢ Eliminate the role of middle man

1.10. Beneficiaries of the project
Customers:
The beer company:
Distributor: this include the vast distributors including drives and those involved in labour works.

1.11. Methodology

Methodology is the systematic, theoretical analysis of the methods applied to a field of study (project). It comprises the theoretical analysis of the body of methods and principles associated with a branch of knowledge. Typically, it encompasses concepts such as data collection paradigm, theoretical model for analysis and design follows, phases in software development, testing and deploymen. The methodologies that we have used to make this project are listed below.

Data collection

We have used different types of data collection mechanisms to get the necessary information about the project and to understand the nature and working conditions of the existing sales and distribution system of different beer companies. These are:

- ❖ **Observation:** We have tried to observe and understand how many of beer companies' sale and distribute their products. In addition to that we have also tried to asses the behavior of customers in purchasing the products.

❖ **Interview:** We have interviewed ST. George beer (Hawassa brunch in order to assess how they manage their sales and distributions.

❖ **Document analysis:** Our project team referred available relevant literature to obtain facts and data regarding sales and distribution.

1.12. Development tools

Software tools

Django: Django is a high-level Python web framework that encourages rapid development and clean, pragmatic design. Built by experienced developers, it takes care of much of the hassle of web development, so you can focus on writing your app without needing to reinvent the wheel. It's free and open source. In our project we are using django for back-end development.

React: React (also known as React.js or ReactJS) is a free and open-source front-end JavaScript library for building user interfaces based on UI components. It is maintained by Meta (formerly Facebook) and a community of individual developers and companies. React can be used as a base in the development of single-page or mobile applications. However, React is only concerned with state management and rendering that state to the DOM, so creating React applications usually requires the use of additional libraries for routing, as well as certain client-side functionality. So we will be using react for the front-end development or in designing the interfaces.

Microsoft office 2016 and Libre Office : Microsoft Office 2016 is a suite of productivity applications that includes Microsoft Word, Microsoft Excel, Microsoft PowerPoint and Microsoft Outlook. We will use this software to make our documentation. Libre Office does the same function as microsoft in linux OS.

Edraw Max: is a business technical diagramming software, which help create flowcharts, organizational charts, mind map, network diagrams, floor plans, workflow diagrams, business charts, and engineering diagrams. We will be using this software to draw diagrams for our project documentation.

www.draw.io: Is an online site that draw different kinds of diagrams. We will be using this software to draw diagrams for our project documentation.

Chrome: is a fast, easy to use, and secure web browser. We will be using this software to test our project. Moreover, to make some online additional search about our project.

➢ **Hardware tools**

  • **Pc(laptops):** High performance laptop is used to carry out the project

   Specifications: Brand – Dell

   Intel(R) Core(TM) i5-5500U CPU @ 2.40GHz, 2.50GHz

   Installed Memory (RAM): 8GB (7.89 usable)

   Windows 10 Pro X64-bit operating system

● **Papers pens and pencils:** Miscellaneous tools used to write notes, design prototypes, show demonstrations, take notes etc…

  ● **Portable Huawei Router:** Charji Evo Cloud Universal Mifi- PTCL, 4G

   Model: e5573cs-323

1.13. Required resources with cost

Cost type	Cost details	Total estimated cost in birr
Planning cost	Estimated cost for planning the project	300
Material cost	Papers, pens, Flash drives, CD and more	500
Transportation	Estimated cost for transportation	150

Operation cost	Binding and printing	100
Miscellaneous cost	Mobile card	300
Internet	Unlimited internet packages for 6 months	6000
Total cost	The total sum of costs	7350

1.14. Task and Schedule

Task	Due date	Activity	Task person
Documentation			
Chapter 1	1/12/2021	Requirement Gathering	Efrem
Chapter 2	13/12/2021	Literature review	Israel and Ephrem
Chapter 3	22/12/2021	Proposed system	Ephrem, efrem, Natnael, Israel, Caleb
Chapter 4	5/1/2022	System design	Natnael, Israel
Chapter 5	12/1/2022	Prototype and testing	Ephrem, Efrem, Israel and Natnael
Chapter 6	17/1/2022	Overall final documentation	Ephrem, efrem, Natnael, Israel, Caleb

1.15. Team composition

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Chapter 2

2. Description of existing system/ Literature Review

    2.1. Major function of existing system

The flow of existing beer sales and distribution process is Indirect. Indirect in a sense, the companies who do not sell their goods directly to consumers. It passes through different stages of intermediaries. First, the production manager will deliver the products to the sales manager. Then there are agents who made strong agreements to the beer company. The agents will buy products from the beer company and the will store it in their warehouse. After that, there are wholesalers and retailers, which already have negotiations with the agents. Then the agent will deliver the products to them. There are whole sellers that does not have legal agreement with agents, but he can buy (order) product from the agent if an agreement in price made between them. Then the wholesaler will either distribute the product to the retailer or direct to the customer. Customers are not only individuals but also Hotels, Restaurants, Glossaries and more as described in the above title. Although there are some exceptions that could deviate from this flow of distribution. Agents might

directly distribute the products to customers. Even the Beer companies could also sell their product directly to the customer. However, this kind of exceptions happen very rarely. The diagram below will show how the product delivers to the final customer with various list of stages.
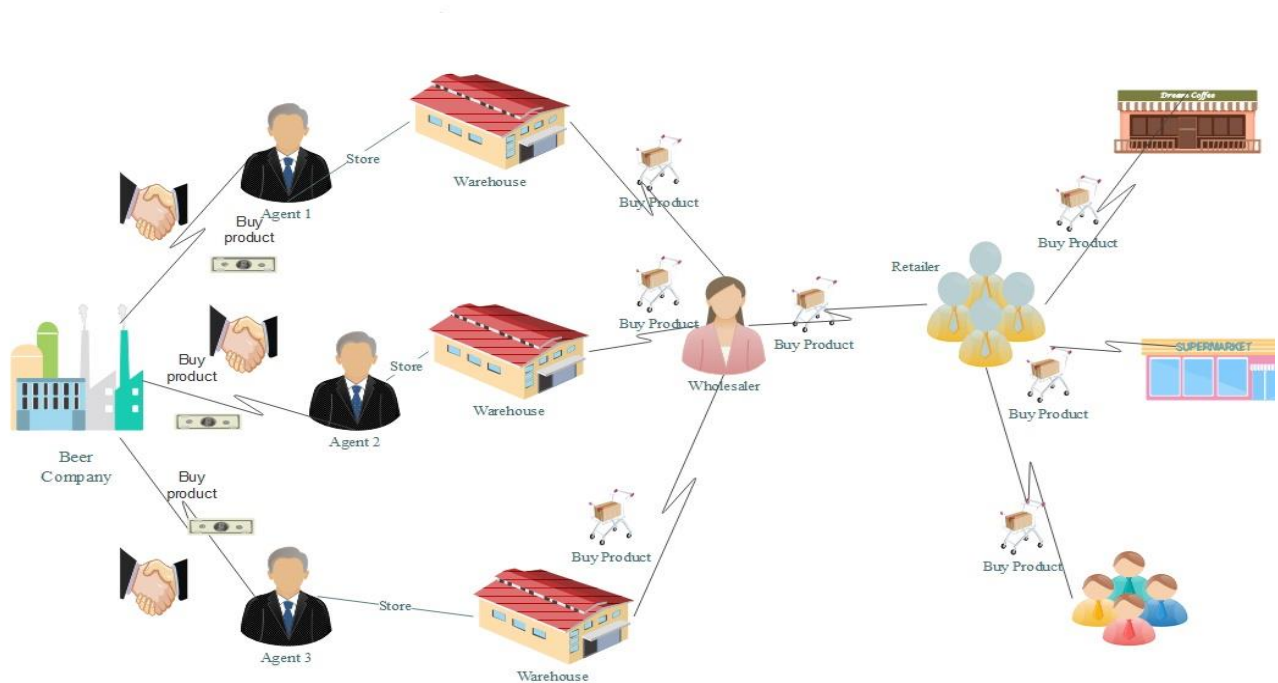
2.2. Users of current system

There are many role players or actors in the existing system each with different activities undertaken to carry out the process of sales and distribution of Beer Company. Major actors and activities that carry out during the sales and distribution process of BGI Beer Company are:

Beer Company: Are players that are responsible for producing, selling and distributing their beer products.

Agent: Are players in existing system that buys products from the beer companies and sell product to wholesalers or retailers. In our case study, there are six major agents in BGI Beer Company of the Hawassa Branch. In short**,** Agent is sales Specialist for producer, purchasing agent or buyer provides market information anticipate wants, interprets consumers' needs, Subdivides large quantities of a product, promotes producers' products, stores product and creates assortments. Some other functions of agent include transportation of product; negotiate with customers to provide financing, share risk with Beer companies.

Wholesalers: Are players that buy products from agents and distribute the product to retailer**.** In ST George Beer Company**,** the wholesaler will typically buy goods direct from the agents, but could also buy from a reseller.

Retailers: Are players that buy products from wholesalers. Although, retailers could also buy products directly from agents.

Distributors: Are players that buys Beer products from agents or wholesalers and resells them to retailers or direct to the end user or customers. Distributors are different from wholesalers and retailers in such a way that most distributors provide strong labor and cash support to the supplier or manufacturer's promotional efforts. They usually maintain exclusive buying agreements that limit the number of participants or enable distributors to cover a certain territory.

Customers (Final consumers): A final consumer is the last point in a distribution channel. The final consumer can reach directly or through multiple levels of channels (agents-> Wholesalers-> retailer -> Consumers) in between the manufacturer and the end consumer. The final consumer can be: Human being or person who usually drinks beer products, Hotels, Glossaries, Restaurants, Café, Shop, Supermarkets, Companies and more…

Promoters: Other than other types of players, promoters are a type of actors that usually check if the product sold from Beer Company reached the final consumers. Promotors contact both sales agent and customers in order to easily track the distribution process and report to the beer company when there is meeting. Promoters are the highest payed employees in ST George Beer Company since the workload is relatively higher. Some functions of promoters include:

- ➢ Make multiple outbound calls to potential customers

- ➢ Deliver customized, targeted sales strategies

- ➢ Meet all quotas for inside and outside sales

- ➢ Share information about company/product by following sales scripts

- ➢ Facilitate future sales

- ➢ Answer potential customer questions and follow-up call questions

- ➢ Close sales and lead customer through purchasing process

- ➢ Understand customer needs and offer solutions and support

- ➢ Maintain record of calls through computerized system

- ➢ Research potential leads from business directories, web searches, or digital resources

- ➢ Create and maintain a list/database of prospect clients

- ➢ Work with sales team to close sales

- ➢ Cold call potential sales leads

Finance administrator: Are a type of players that are mainly responsible to administer the

financial progress when sell made between Beer Company and agent. Other responsibilities of finance administrators include:

➢ Develop and maintain financial analysis and reporting activities for Beer Company.

➢ Send reports to main branch of the company, which is currently located in Addis Ababa-Ethiopia.

➢ Prepare finance reports and account reconciliation reports according to company policies on periodic basis.

➢ Prepare tax documents for timely filing of company tax.

➢ Prepare and adjust finance journal entries as required.

➢ Assist in managing account payable and receivable activities.

➢ Support the annual financial audit processes through the preparation of standard reports as well as other custom reports as requested.

➢ Coordinate with finance and HR teams in preparation of financial reports and statements.

➢ Administer all payroll activities as well as oversee vendor payments etc.

➢ Reconcile monthly general ledger balance, invoices and credit card statements.

➢ Maintain all financial records and files as per the company policies.

➢ Assist in setting and managing budgets.

➢ Identify and resolve invoicing issues, accounting discrepancies and other financial related issues.

➢ Manage all bill payments and customer invoicing as per the deadlines.

➢ Streamline processes and procedures for improving operational efficiency of finance reporting and budgeting systems.

Sales managers: Are a type of actors that are responsible for leading and guiding a team of sales people in an organization. They set sales goals & quotas, build a sales plan, analyze data, assign sales training and sales territories, mentor the members of his/her sales team and are involved in the hiring and firing process. Sales managers plays key role in providing good sales and distribution process in resolving customer complaints regarding sales and service, preparing budgets and approve budget expenditures, monitoring customer preferences to determine the focus of the sales effort, analyzing sales statistics and planning and coordinating training programs for sales stuff.

2.3. Drawback of current system

When we try to study the existing sales and distribution system of BGI Beer Company, we have seen those things as problems that need to be improved. Major problems are already justified in the Statement of the problem in chapter one and few of additional problems include:

➢ The manufacturer must put out time and effort to monitor the activities of distributors.

➢ There is always the possibility of conflicting sales efforts.

➢ Absence of well-integrated and comprehensive approach to product availability and distribution coverage

➢ Poor announcements to consumers when new products are released

➢ Improper management of sales and distribution mechanism

➢ Customers might not get enough information about what is been produced and how much is produced

➢ Data collection of the distribution progress is manual and time-consuming, often causing errors and delays in reporting.

➢ Difficult data management and delays in data aggregations made actionable data analysis difficult.

2.4. Business rule

There are various list of rules when controlling sales and distribution in the existing system:

➢ Agents should have strong agreement to buy products from Beer Company.

➢ The agreement paper of agents and Beer companies should be approved by the Head office of the company, which is located in Addis Ababa

➢ Agents will buy products from beer companies every day, once in two days or once in a week according to their distance from the Beer Company. If the agent failed to buy product from the Beer Company within that day, promoters will call the agent and ask them why did not they buy products and they report the reason to the stuff members of the Beer companies.

- Customers like Hotels, Restaurants and Groceries make strong agreement with Beer companies.
- Customers that are registered in Beer companies are offered with a lot of materials for free like:
  - Tables
  - Chairs
  - Draft machines
  - Umbrellas
  - Tower and more
- If the registered customers stop their business, they should return the materials to the Beer Company.
- If the registered companies lost or damage the item that offered from Beer Companies, they should pay the money according to the agreement.