Universitat Autònoma de Barcelona

PROJECT MANAGEMENT SUPPLY CHAIN CASE

New Warehouse Establishment

Under the guidance of

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ASSUMPTIONS

- Golden Seed is a distribution company which has already one warehouse established in Malaysia catering to the South Asian Market.
- The revenue from the existing warehouse in the year 2022 was € 4.5M.
- With the construction of a new intelligent warehouse, we anticipate a 25% increase in our sales capacity over the current warehouse.
- To accomplish this, we propose the establishment of this new warehouse in China to expand our services to China & Africa which is an even bigger market.
- " • " used as decimal separator and "," used as thousand separators.
- Year 2023 is solely dedicated for planning & construction of new warehouse. We have done financial analysis only for years 2024, 2025 & 2026.

1. ABOUT COMPANY

Golden Seed is a well-known international oil distribution company, based in China. This company has a warehouse established in Malaysia to serve South Asian Market. We are one of the large food distribution companies to offer different types of edible oil in the form of packed bottles and tankers for different consumer groups. Our products are offered under a diverse range of brands across a broad price spectrum. We distribute different types of oil like palm oil, sunflower oil, soybean oil, coconut oil, castor oil in South Asia.

Main advantages of distributing these oils are:

- Long shelf life
- Oil is easily available
- Oil is used by different consumer groups
- Ease of exporting / distributing
- With bulk delivery overall transportation cost for company can be reduced

We procure oils from various producers, handle storage, repackaging, and distribution in South Asian nations. It is clear from the financial analysis of the prior year that we distributed to South Asia from this single warehouse and reached sales revenue of € 4.5M. Since the business was founded, this revenue has been sustained.

2. AGENDA

The current sales volume is around € 4.5M in 2022, but the company wants to expand it, building a new warehouse to distribute the final goods to their sale points, reducing so, the rotation period and decreasing the delay time because of road transport. The construction of a new intelligent warehouse in China to serve China and Africa as final markets, should achieve 25% increase in the sales capacity over the current warehouse. Main drivers would be very low-cost impact for personnel, low taxes, no environmental and safety restrictions, logistic cost is acceptable. As cons topics, high problems for quality demanding. In China, logistic issues to be hold as key drivers. Our agenda is to propose a project plan using Microsoft Project software.

3. CHINA – AFRICA RELATIONSHIP

No other country comes near the depth and breadth of China's engagement in Africa. Trade between China and Africa increased by 700% during the 1990s, and China is currently Africa's largest trading partner. China currently has military alliances with six African states, four of which are major oil suppliers: Sudan, Algeria, Nigeria, and Egypt. China is still predicted to have the fastest-developing economy per capita. China has a positive impact on investment in infrastructure and business development. In December 2015, the China-Africa Co-operation, "Advancing towards mutual benefit and common development" got established to increase investment in African continent. In 2016, the investment from China reached eighteen times more i.e., $ 36.1M.

3.1 OBOR Initiative

The 'One Belt, One Road' (OBOR) is a global infrastructure development strategy adopted by the Chinese government in 2013 to invest in nearly 150 countries and international organizations. This initiative is a Chinese economic and strategic agenda by which the two ends of Eurasia, as well as Africa and Oceania, are being more closely tied along two routes–one overland and one maritime. The objectives of the OBOR strategy are to promote economic prosperity of the countries along the belt and road and regional economic cooperation, to strengthen exchanges and mutual learning between different civilizations, and to promote world peace and development. In the developing world, the OBOR Initiative is designed to provide China with a range of interests, particularly in the economic sphere. This project is aimed at fulfilling the following tasks.

- Increasing the importation of raw resources and encouraging the establishment of a Chinese "resource base overseas.
- Construction of the infrastructure required for production facilities that will be exported.

Figure 1: China's One Belt, One Road Initiative

4. WAREHOUSE LOCATION & DEVELOPMENT PLAN

4.1 Warehouse Location

Free Trade Zone (FTZ): Chinese government economic policy known as Special Economic Zones (or Free Trade Zones) was implemented in 2013 as part of a comprehensive plan to support and promote foreign direct investment in a variety of industries that vary by location. The primary goal of the first special economic zones (SEZ) was to advance global trade. In free trade zones, merchandise may be brought in, handled, manufactured, modified, and re-exported without the involvement of regional customs officials.[1]

The warehouse will be located in the Qingdao Region which is a favorable strategic location. On the Shandong Peninsula's southernmost point, close to the Yellow Sea, is where you'll find Qingdao. In the middle is a significant Chinese coastal city. The maritime sector of the city's economy is anticipated to grow by about 6% in 2020 and account for 29.4% of the city's GDP. The industrial bases for automobiles, locomotives, electronic information, and home goods are all significant. The "Brand Capital" of China, Qingdao, is home to a number of internationally renowned companies, including Haier, Hisense, and Tsingtao Brewery.

Qingdao has a strong commercial atmosphere and has been named one of "the most attractive Chinese cities in the eyes of foreign talents" for nine years running, which is important for "Golden Seed" to seek young talent. Qingdao has 1.798 million market operation entities, 26 numerous university research institutions, and numerous entrepreneurial innovation platforms. Qingdao has business ties with 228 countries and regions worldwide, in addition to maintaining friendly relations with 76 foreign cities and creating joint ventures for economic cooperation with 111 cities. The fact that Qingdao has a free trade zone, which is crucial to the distribution of oil, was taken into consideration when choosing the location of the warehouse [2]. Companies with registered offices in SEZs receive the following benefits.

- Lower rates of corporate tax
- Exemption from import taxes until the items are removed from the SEZ
- Free exchange rate for currencies
- A quick and efficient customs clearance
- A selection of vendors for logistical, pick-and-pack, and transportation services is available here. All close by
- A quicker return of VAT

Property Law of the People's Republic of China: Private real estate ownership is not permitted in China. China is a socialist nation where all land is either owned by the government or is owned collectively. There are two types of land-use rights, the "granted land-use right" and the "allocated land-use right". The State, the collective or the individual person may, in accordance with law, invest to establish companies with limited liability, companies limited by shares or other enterprises.[3]

4.2 Warehouse Development Plan

The "Golden Seed" company plans to construct a high-bay warehouse at its headquarters in the Chinese city of Qingdao, which is connected to the railway network. A silo-style, three-aisle high-bay warehouse with a floor area of 1,000 square meters and a 50-meter height can be built. This floor space is divided for different purpose as follows (unit is in meters).

Surface Area	1000
Height	50
Usable Space = Total Sq. m. – Non-Storage Space Sq. m.	
Total Sq. m3	50000
Non Storage space Sq. m3 = 30%	15000
Storage Capacity	35000

Table 1: Floor Space Distribution

The above-mentioned storage space is used for storing oil in the form of bottles and in tanks as follows

Storage Capacity for Pallets in cubic metres	**20000**
Total No. of Pallets	16025
Total No. of Units including 1L, 3L, 5L & 20L bottles	4706139
Total Quantity of Oil in Litres	11186385

Table 2: Storage capacity for Pallets

Storage Capacity for Tanks in cubic metres	**15000**
Total No. of tanks	18
Capacity of each tank in Litres	500000
Total Quantity of Oil in Litres	9000000

Table 3: Storage capacity for Oil tanks

The warehouse must be as stable as possible due to its altitude, so it will be inserted four meters into the ground, and the building will be constructed on a high load bearing foundation slab. Due to the constrained size of the construction site, the construction process requires careful planning. Each step of the process will be completed on schedule and "just in time." This applies to the 71 drives that were connected for receiving and issuing items to the conveying system, as well as the painting of the wall panels and the roof construction.

Facilities in the warehouse:

- 16025 pallets for Bottles storage
- 18 Oil tanks with 500 m^3 Capacity each
- 4 auto ramps - for trucks to distribute the production
- Temperature controller unit – To maintain temperature less than 20°C & 80% humidity
- 2 stacker cranes with double play
- 5 forklifts with high automation rate

Functioning is made in accordance with: Pallets that are staged in the various manufacturing lines and areas are picked up by forklift trucks and manually scanned. The load units for the high-bay warehouse are delivered directly to the loading station. After being placed on the conveying technology, the load units are automatically delivered to the transfer point for the appropriate stacker crane. On its way there, the pallet's label is automatically scanned. Additionally, a profile control checks the fork dimensions, weight, and space.

Organization of Warehouse storage space:

This warehouse will be built exclusively for distribution of three types of Oil: Palm oil, Sunflower oil & Soybean oil. Several brands of these oils are procured from different manufacturers in the following proportion.

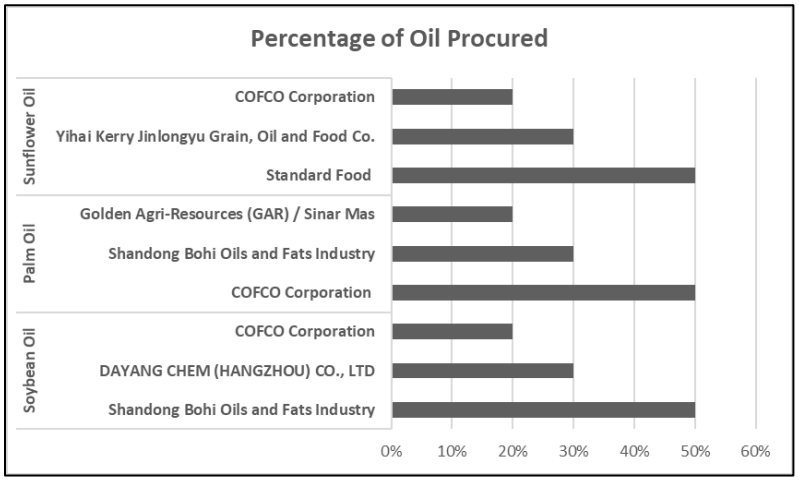


Figure 2: Percentage of oil procurement from different vendors

After procurement, warehouse storage space will be distributed in the following proportion for three types of oil.

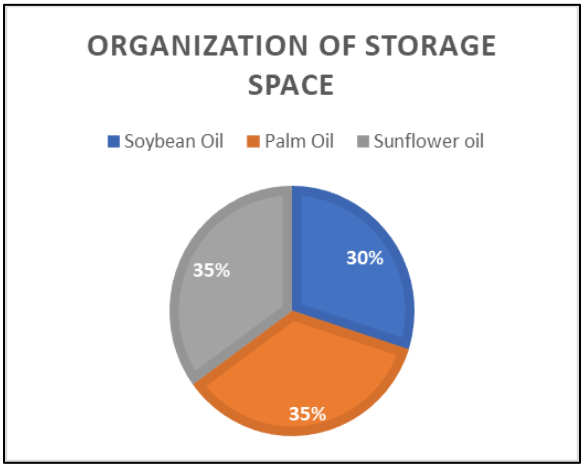


Figure 3: Organization of storage space in warehouse

Construction Contracts:

The principal-agent model is commonly seen in the construction contracting process, where the customer (the principle) frequently hires the services of a contractor (the agent) to provide a good or service. Contracts are used to define roles and responsibilities, identify tasks to be completed, provide guidelines for allocating pay, and indicate how the activities of the parties may be observed. A contract will be issued to well-known Chinese construction firms, China Wuyi Industrial Co., Ltd. and Sichuan Road & Bridge Co., Ltd. to develop the warehouse and the railway track for private siding respectively. The contract for with the builders will contain the following particulars.

- The Parties – The agreement is made between the client and the contractor.
- The Services – A Breakdown of the services that the contractor will be providing.
- Payment – How much to pay, in what intervals of time must the payment be made, and in what proportions in exchange for the Services to be rendered by the contractor.
- Due Date – The completion date of the services provided by the contactor.
- Expenses – Responsibility of the expenses related to supplies, equipment, operating costs, business costs, employment costs, taxes, social security contributions, unemployment taxes, and other costs.
- Termination & Option to Terminate – The date of termination and the option to terminate the Agreement unless there is reasonable cause are defined.
- Business Licenses, Permits, and Certificates – The representation of employees and personnel associated complying with state, and local laws requiring any required licenses, permits, and certificates necessary to perform the services.
- Workers' Compensation - Responsibility of providing workers' compensation insurance.
- Confidentiality & Proprietary Information – The disclose or use of any proprietary or confidential information either during or after the term of this Agreement.
- Governing Law –This Agreement shall be governed under the laws of the State.
- Additional Terms and Conditions.

Construction Law of the People's Republic of China:

This Law is enacted for the purpose of tightening supervision over and administration of construction activities, maintaining order of construction market, ensuring construction quality and safety, and promoting sound development of the construction industry. This Law shall be abided by in supervision over and administration of the construction activities carried out within the territory of the People's Republic of China.[4]

1) Construction Permit:

Before a construction project is started, the project owner shall, in accordance with relevant State regulations, apply for construction permit to the competent administrative department for construction of the people's government at or above the county level in the place where the project is located.[5]

2) Construction Safety Control:

The design of a construction project shall conform to the rules of construction safety and technical standards formulated in accordance with State regulations and ensure safety of the project. Construction enterprises shall take measures for construction sites to ensure safety and prevent dangers and fires. Where the construction site may do harm to the buildings, structures, and special working environments in the neighborhood, the construction enterprise shall take protective, safety measures. Construction enterprises shall abide by laws and rules and regulations regarding environmental protection and safe production and take measures to control and dispose of the various kinds of dust, waste gas, wastewater and solid waste, and noise and vibration emitted from the construction site that pollute the environment.[6]

3) Construction Quality Control:

Where an enterprise undertakes the contract for construction of a whole project, it shall be responsible for construction quality of the whole project; if it sublets the contract to other enterprises, it shall bear joint and several liability for construction quality with them. The subcontractors shall be subject to quality control by the general contractor. Surveying and designing units of a construction project shall be responsible for the quality of the survey and design. The construction enterprise shall carry out construction in accordance with the design drawings and the technical standards for construction of the project; it may not cheat on workmanship or material.[7]

Railway Law of the People's Republic of China:

Railways as referred to in this Law include State railways, local railways, industrial railways, and railway private sidings. Railway private sidings refer to the branch railway lines which are administered by enterprises or other units and are connected to a state railway line or any other railway line. The construction plan of local railways, industrial railways or railway private sidings must conform to the national railway development plan and must obtain approval from the competent department in charge of railways under the State Council or an agency authorized by this department. The planning of any railway track, station, junction area and other related facilities within a planned urban area of a city shall be brought in line with the overall plan of this city. The land-use plan for railway construction shall be incorporated in the relevant overall land-use plan.[8]

5. ENVIRONMENTAL FEASIBILITY

While a warehouse facility offers necessary services, poorly constructed project can have a negative impact on the environment and nearby communities. A feasibility study is performed considering the environmental factors that can influence the decision-making process for a project. Environmental approvals are obtained as per the below regulatory and legal aspects.

Law of the People's Republic of China on Evaluation of Environmental Effects:

This Law is enacted in order to implement the sustainable development strategy, to take precautions against adverse effects on the environment after implementation of plans and completion of construction projects, and to promote the coordinated development of the economy, society, and environment.[9]

1) Evaluation of Environmental Effects of Plans:

When making arrangements for formulating plans for the utilization of land for construction in or development and utilization of certain areas, river basins and sea areas, the relevant departments under the State Council, local people's governments at or above the level of the city divided into districts and the relevant departments under them shall see to it that environmental effects are evaluated in the process of formulation and that in the plan is devoted to such effects an explanation on the effects is given.

2) Evaluation of Environmental Effects of Construction Projects:

On the basis of the extent of the effects exerted on the environment by construction projects, the State exercises, in a classified manner, control over the evaluation of the effects of construction projects on the environment. A construction unit shall, in accordance with the provisions, make arrangements for preparing a written report on the environmental effects or a statement on such effects or filling out a registration form of environmental effects.

At Golden Seed, we aspire to build a green warehouse with specific approaches that can reduce carbon footprints. We intend to implement the following strategies.

1. Invest in Electric Equipment
2. Installing more eco-friendly lighting
3. Deploy Rooftop Solar Panels
4. Initiate a Recycling Program
5. Rainwater harvesting

6. DISTRIBUTION IN CHINA

African and Chinese markets will both be served by a new warehouse in China. Depending on demand, the three types of oil are sold in both markets. Figures 4 and 5 below describe the amount of oil that China consumed in 2022 and Africa imported in 2021, respectively.

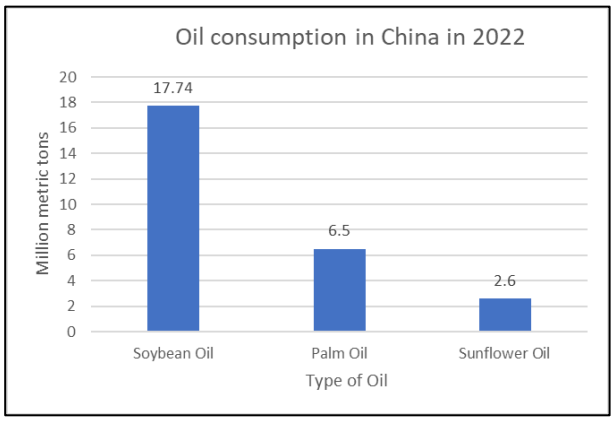


Figure 4: Oil consumption in China in 2022

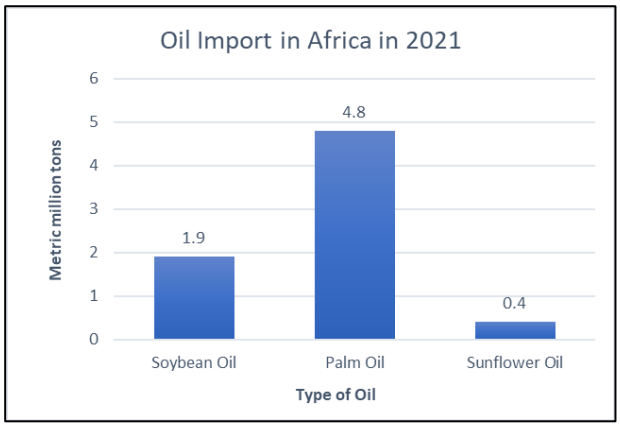


Figure 5: Oil Import in Africa in 2021

Based on the knowledge we have concerning the oil consumption in China and Africa; Golden Seed intends to distribute the oils in the quantities depicted in the image below.

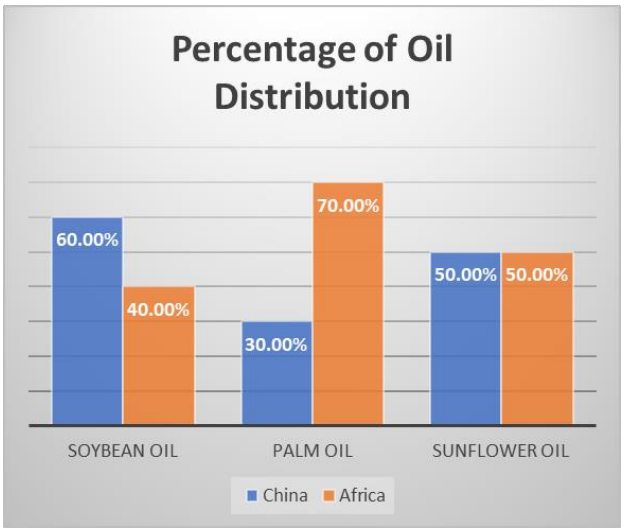


Figure 6: Oil Distribution percentage in China & Africa

Mode of transportation:

This warehouse is using multimodal ways of transportation including:

- Sea shipping for shipments to Africa.
- Railway distribution across China.
- Road distribution in Qingdao Region

In China, the company will sell oil in significant cities that are close to its storage facility. The cities are selected based on the demand for particular oils, size/location, population, and economic development. Following are the cities where our company will be distributing oils in China.

- Beijing
- Hubei - Wuhan
- Shanghai
- Qinghai
- Guangdong
- Shandong

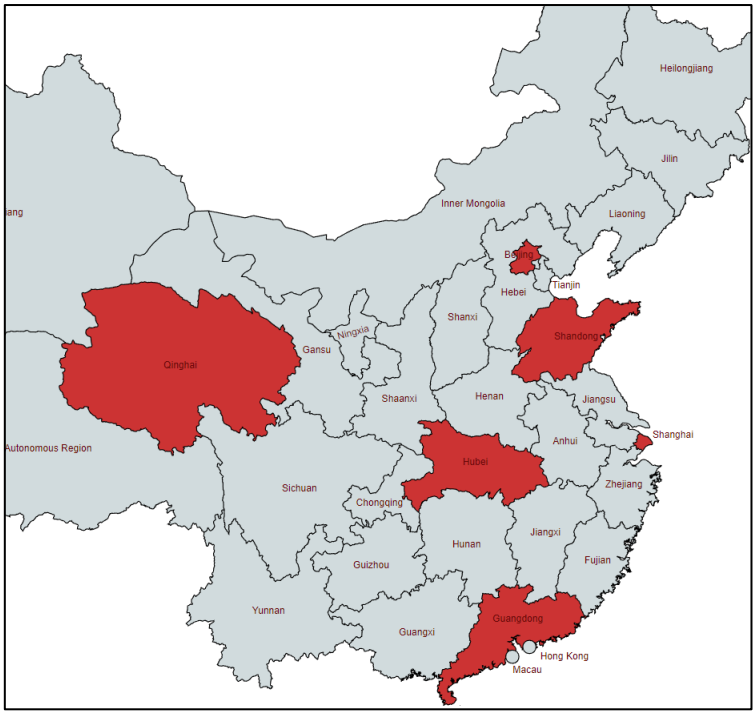


Figure 7: Regions for oil distribution in China

The distribution of oil to China's cities is depicted on the map. We are attempting to distribute oil in China's major provinces so that it can then be transported to nearby wholesalers. These provinces all make it affordable to ship goods by rail to their intended destinations. Road transportation with special rates and containers is an option for distribution in Shandong. Company is outsourcing truck service in order to distribute production in Shandong region. The company outsources truck service and isometric vans for the transportation of oil.

Procurement of Oil:

In order to benefit from movement via the railway network, oil is purchased from Chinese manufacturers. For sale in China and export to Africa, oil is purchased in the form of packed bottles and flexi tanks respectively.

7. EXPORT TO AFRICA

After the oil is loaded onto the wagons, the export is brought to the port of Qingdao to be transported by sea to Africa because sea shipments are much less expensive than air shipments and water-type routes are especially adaptable because they don't need to be connected to road routes when they are built, making this kind of distribution very predictable. Moreover, oil cannot be transported by air. After thorough investigation, Qingdao port appears to meet all criteria and rules for our supply chain, including:

- In addition to being a significant international economic hub in the Western Pacific, Qingdao Port is the core of the Northeast Asian port circle. One of the biggest integrated ports in the world at the moment. This port has got a throughput rate of eighth globally and sixth in China in 2017. It has a surface area of 165.8 square kilometers, has four port areas, runs 84 berths, and is accessible from more than 700 ports in more than 180 different nations and regions.
- In terms of overall strength, the Port of Qingdao is among the best ports in the world. The port can handle the biggest ships in the world and boasts the biggest facilities for containers, crude oil, iron ore, coal, and bulk grain.
- Industry insiders recently said that a new automated container terminal in Qingdao, Shandong province, that uses hydrogen energy and 5G technology reflects the future trend of port operation with highly efficient and ecologically friendly features [10].
- Connected to the hinterland by rail and two expressways.
- Provides specialized container storage services for non-standard cargo, refrigerated goods & dangerous good.

After goods are received in Qingdao port, they are transported into shipping containers which will be shipped to the following destinations: Mombasa (20-28 days), Suez (35 days), Cape town (25 days), Accra (40-60 days). We are considering engaging an international freight forwarder for the shipments to Africa. Transportation is made by “COSCO” company which is one of the biggest container shipping companies in the world. All negotiations are reflected in a freight forwarding agreement. This agreement sets clear terms services, payments, and liabilities. Working with a freight forwarding firm has several advantages.

- A network of several logistics firms that assists in price reduction and pricing diversity.
- Pricing is more transparent since the majority of freight forwarders give clients comprehensive analyses of all costs.
- Maintain information on specialty routes and optimize the route to reduce delays and guarantee that the goods arrive on time.
- In addition to these advantages, freight forwarders also manage all the accompanying paperwork, such as letters of invoice, bills of lading, shipper's export declarations, insurance forms, and customs documents.

Oil, like any other bulk cargo, can be transported as follows:

- Packaged or bottled oil - A form in which it is required by the end consumer
- In tanks or barrel
- cubic containers or IBC containers.
- Tank container
- Flexi-tank

Flexi-tanks have numerous advantages for our transportation. We will dwell on it in more detail and understand why have chosen this type of container.

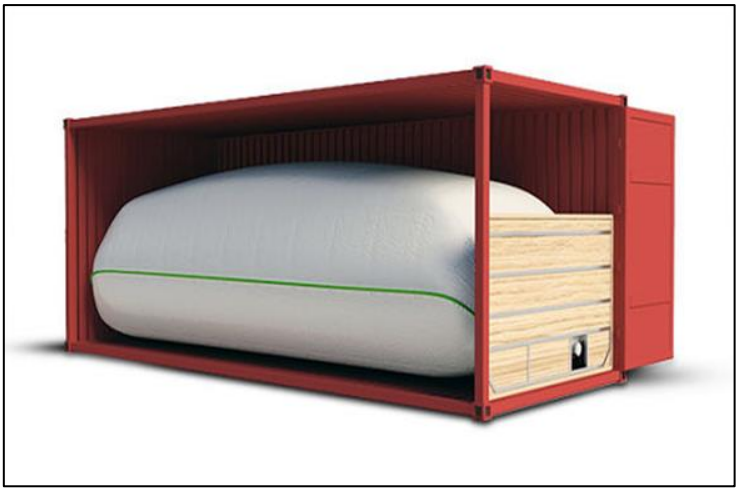


Figure 8: Flexi-Tank used for oil transportation

Flexi-tank is an elastic loose tank made of special polymeric materials, with a volume of 14 to 24 thousand liters, which is used for the transportation and storage of bulk liquid food as well as industrial bulk liquid cargoes that do not pose a danger. The name comes from the abbreviation of the phrase "flexible tank", which literally translates as "elastic tank". The most optimal use of flexi-tank is achieved when transportation is multimodal, like combination of several types of transport - sea, rail, road which is perfectly suiting our supply chain [11].

The flexi-tank is typically installed in a typical 20-foot container. It's critical to pick the appropriate container. It needs to be spotless and unharmed. It is thoroughly examined for any potential roughness and irregularities that could harm the liner. After selecting the equipment, corrugated cardboard is used to sheath the walls. The installation of metal beams adds additional rigidity during transportation. Following the installation of the flexi-tank itself, a shield is fastened to the front wall. This procedure typically takes 30 minutes. The supply hose is attached at the conclusion of the installation, and the electric pump is turned on to supply the liquid. The flexi-tank fills at a rate of 700 liters per minute on average. The container will be prepared for transport in about 30 minutes [11].

Benefits of using a flexi-tank for cargo transportation:

- Because the required tank cleaning procedure is skipped and the installation of the flexi-tank only requires 30 minutes, the transportation time is significantly reduced.
- Quick loading and unloading compared to other container types.
- Possibility of "door to door" delivery of bulk cargo without further repackaging & no requirement to keep a full warehouse for packaged goods storage.
- The cargo is sealed to ensure the safety of all of its properties, and there is no chance of contamination.
- Flexi-tanks are entirely recycled and disposed of after transportation. Since the container does not need to be returned, there are no associated fees.
- The flexi-tank's light weight enables maximum use of the container's load capacity.
- Shipping and installation costs are relatively low.
- Heating may be possible upon unloading with the aid of a special cushion installed under the flexi-tank, into which steam, or hot water is supplied. This reduces the unloading time at low ambient temperatures.
- Some products are only offered in bulk by the manufacturers. Thus, traveling in flexi-tanks creates more opportunities.

7.1 Incoterms

Incoterms is an acronym standing for international commercial terms. The Incoterms rules are standard sets of trading terms and conditions designed to assist traders when goods are sold and transported.

Each Incoterms rule specifies:

- The obligations of each party (e.g., who is responsible for services such as transport; import and export clearance etc.)
- The point in the journey where risk transfers from the seller to the buyer

Therefore, the buyer and seller may establish a specific understanding of what each party is required to do and where responsibility falls in the case of loss, damage, or other accident by agreeing on an Incoterms rule and implementing it into the sales contract. The Incoterms rules are created and published by the International Chamber of Commerce (ICC). The most recent revision is Incoterms 2020 which came into force on 1st January 2020[12].

Both the parties, Golden Seed, China & Golden Seed, Africa are proposed for using the incoterm Cost, Insurance and Freight (CIF). In international trade, CIF agreement is a binding contract between a buyer and a supplier. The regulation is applicable to products being shipped by water. Golden Seed, China will be responsible for all arrangements and transport costs for shipping goods to the agreed-upon destination port. Golden Seed, Africa then assumes all cost responsibilities

once the ship has reached port. Additionally, the products being sent must be covered by a minimum level of maritime insurance from the seller. The insurance coverage amount is decided by Golden Seed, China & Golden Seed, Africa. Any additional fees associated with transporting the products are also the responsibility of the seller. This covers any additional paperwork needed for inspections, customs, or any necessary rerouting during transport.

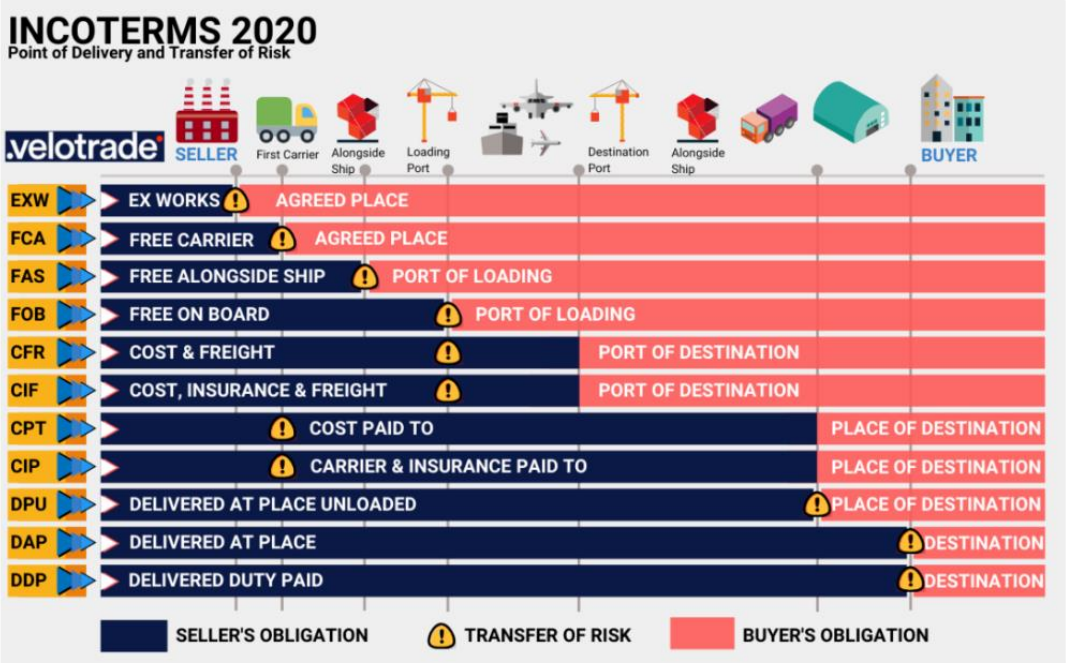


Figure 9: Incoterms 2020 – Point of Delivery and Transfer of Risk

7.2 Custom Clearance

Importing is the process of bringing products or services into a customs territory from a foreign country. Prior to shipping products, import procedures must be followed to ensure licensing and compliance. Arrangements must be made for transporting and warehousing after goods are unloaded and obtaining customs clearance and paying taxes before products are released. A required step in allowing the entry of commodities delivered into a nation by a licensed customs broker is customs clearance. Every nation has its own set of government-established rules, and shipping companies and freight forwarders should be aware of this and keep track of any new customs-related legislation to avoid skipping any necessary paperwork while engaging in international trade.

In recent years, African countries have made significant attempts to catch up to other economic regions (the EU, the Americas, and Asia) in terms of safeguarding their citizens against dangerous and subpar goods. The import procedure differs from one nation to another, depending on the import, customs, and other legal requirements of that nation. Below are the general documents that are common among most of the countries,

- Proforma Invoice
- Customs packing list
- Country of Origin (COO) Certificate
- Customs Invoice
- Shipping Bill
- Bill of Landing
- Import License and others.

The table below lists the import duties levied on oils entering the five African nations.

	Ghana	Kenya	South Africa	Egypt	Rwanda
Soybean Oil	20.00%	35.00%	10.00%	20.50%	25.00%
Palm Oil	35.00%	35.00%	10.00%	20.50%	25.00%
Sunflower Oil	20.00%	35.00%	10.00%	20.50%	25.00%

Table 4: Import Duty Rates

8. DISTRIBUTION IN AFRICA

Sub-Saharan Africa is a commodity driven economy with agricultural products, minerals, natural gas, including automotive manufacturing, and financial services. With 1.14 billion population, this region is a net importer of oils and fats. In 2020, Sub-Saharan Africa produced 6 million MT of oils and fats and their local consumption was 11.2 million MT. Hence, to fill the gap they imported a total of 7.4 million MT of oils and fats.[13] Due to the growing demand for oil in Africa, the company intends to market three different oil varieties in five nations across Africa, viz. Ghana, Kenya, South Africa, Egypt & Rwanda. The demand data presented in the figure 5 is used to determine how much oil will be delivered in Africa.

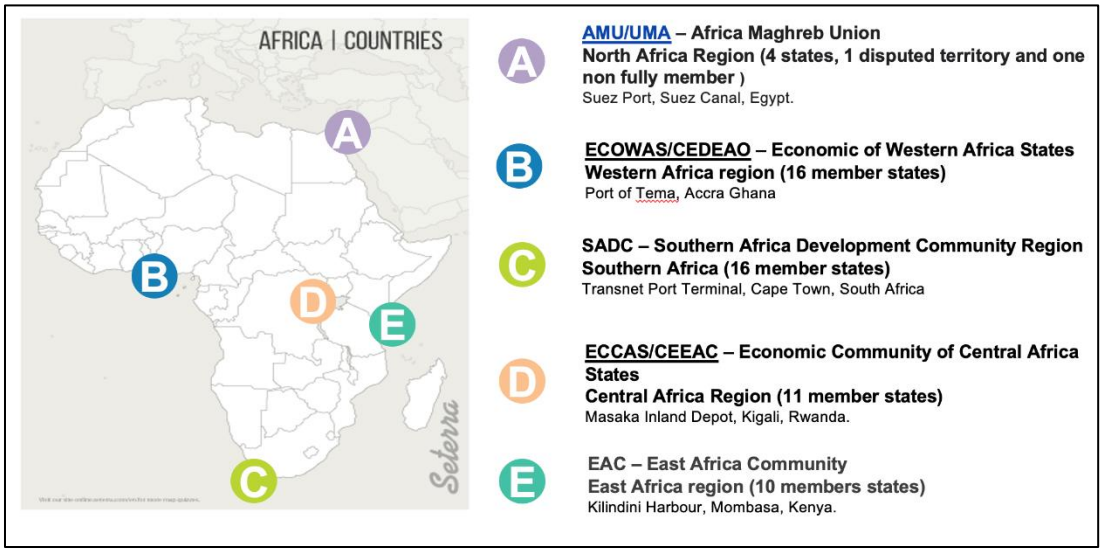


Figure 10: Regions for oil distribution in Africa

Golden Seed is planning a mutual agreement with 4 established co-packers distributors in Africa. Distributors will take pride in being the contract packager to some of the world's leading retail and wholesale hypermarkets, as dynamic partners with Golden Seed. A partnership in its truest sense means that information is shared, and marketing goals and sales strategies are established and agreed by both parties. These distributors are specialized in handling edible oils in Africa. The business collaboration between Golden Seed and distributors will be a mutually beneficial partnership. These distributors represent the Golden Seed brand to potential customers.

Golden Seed plans to engage with United Oil Processing & Packaging Ltd., Bidco Africa Ltd., Avnash Industries Ghana Ltd., Oil and More Foods Service Distributor Ltd for packaging and distribution in Egypt, Kenya & Rwanda, Ghana and South Africa respectively.

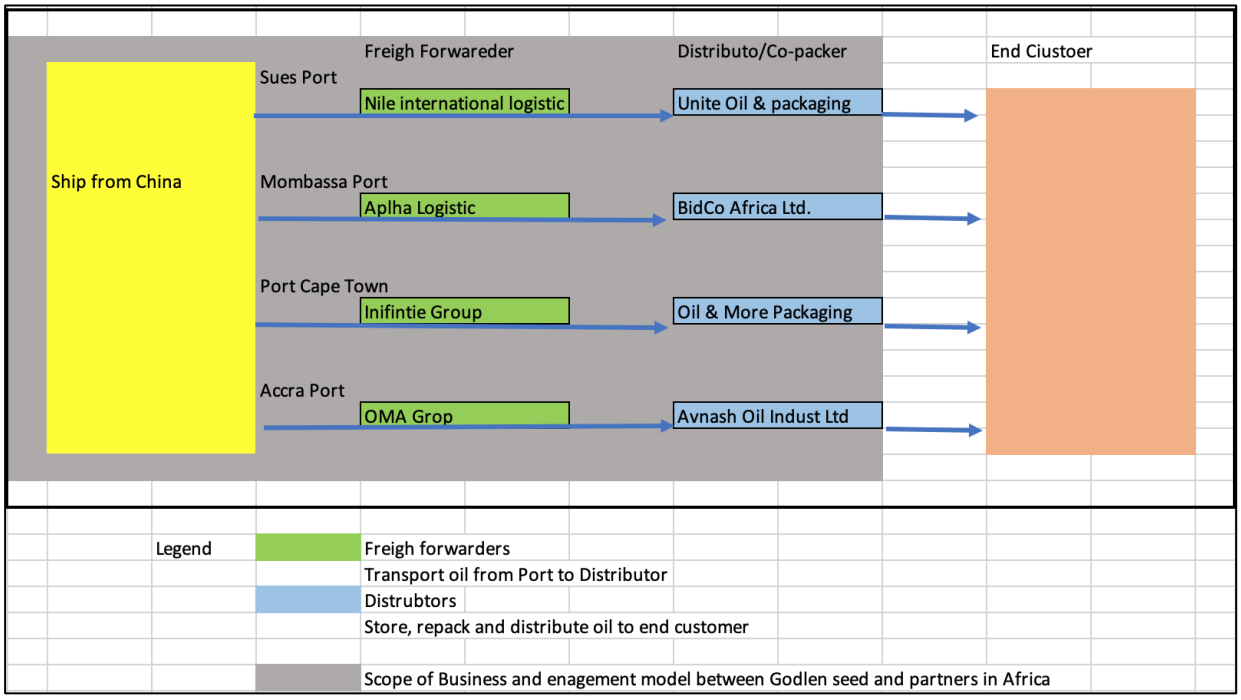


Figure 11: Distribution plan in Africa

9. FINANCIAL ANALYSIS

Financial analysis refers to examining the project's potential financial performance while considering a new warehousing investment project. This involves assessing the project's estimated return on investment (ROI), net profit value (NPV), and profits before interest and taxes (EBIT) to determine whether it is a viable and profitable investment. It enables the company to assess the project's future financial performance and make informed decisions about whether to proceed with the investment. Financial analysis can assist a firm in identifying potential risks and possibilities, as well as determining if a project is financially sustainable and aligned with the organization's overall financial and strategic goals. Financial analysis can help a company in obtaining finance or investment coming from external sources such as lenders or investors by giving comprehensive information about the project's estimated financial performance.

As an oil distribution company, our Golden Seed needs to conduct a thorough financial analysis before launching on this project to build a new warehouse in Qingdao, China. This research can also assist our organization in attracting investors, lenders, and other financial partners by offering precise information about our financial performance and future prospects. Furthermore, the investigation might shed light on the efficacy of the company's pricing strategy, cost structure, and other operational aspects that influence profitability.

Financial Cycle of a business:

Before starting the financial analysis for our project, let’s learn about how the money circulates through different stages of a business. A business's financial cycle includes various stages closely related to the management of capital, fixed assets, sales, and profit. These stages can be broadly categorized as follows:

1. Capital: At this stage, finance for the company is secured, often through a combination of debt and equity. The business may raise money in a number of ways, including by issuing bonds, borrowing money, or issuing stock.
2. Fixed Assets: The tangible assets required for the operation of the business are procured and maintained at this stage. This covers things like lands, structures, tools, and vehicles.
3. Sales: During this phase, clients are approached in order to purchase goods or services. To increase sales or maximize the profit, the company must manage its price strategy, marketing, and sales initiatives, and client connections.
4. Profit: This stage involves using the revenue generated from sales to cover the company's expenses and generate a profit. This includes paying for the costs of goods sold, operating expenses, and interest on any debt the company has incurred.

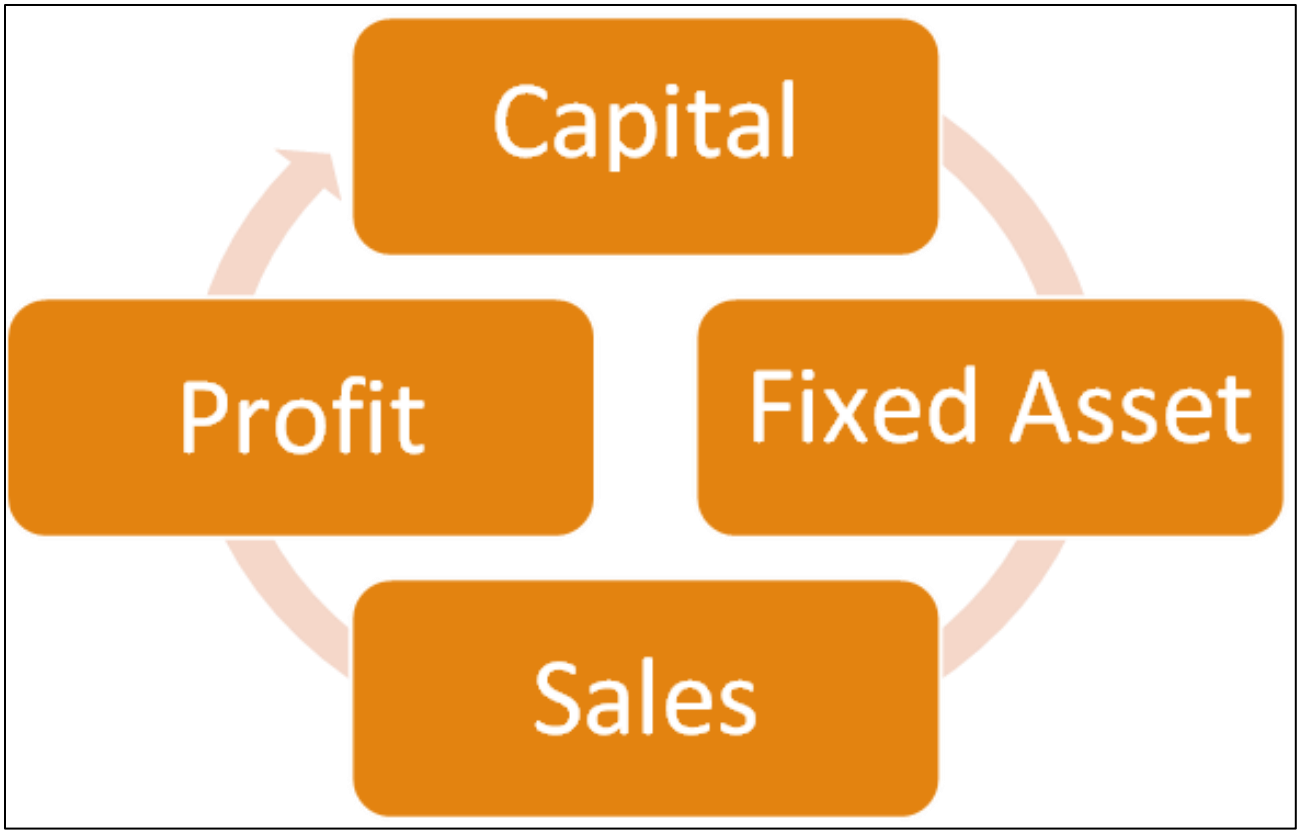


Figure 12: Financial Cycle of a business

During the financial cycle, the company must manage its cash flow to ensure that it has enough money to cover its expenses at each stage. Additionally, it must also manage its capital, fixed assets, and working capital to ensure that it has the right mix of resources to support its operations.

Key Objectives:

The main objectives of doing financial analysis include the following:

9.1 Setting the Budget, Revenue and Profit Goal

Setting the budget, revenue, and profit goals is the process of determining the financial targets that a company hopes to achieve over time.

- Setting the budget: This step involves determining the amount of money that the company plans to spend for a given period of time. This includes determining the costs of operating the business, such as wages, rent, and materials, as well as any investments or expansions the company may be planning. For our new warehouse and distribution planning we are setting a budget for four consecutive years starting from the project in 2023. The budgets for 2023, 2024, 2025, and 2026 will be **4.5 million Euro, 5.06 million Euro, 5.05 million Euro, and 5.348 million Euro** respectively.

- Setting revenue goals: This step involves determining the amount of money that the company hopes to earn in a given period of time. This includes estimating the number of sales or revenue streams and determining the prices and sales volume that will be necessary to achieve these goals. Our company's current revenue from one warehouse in 2022 and 2023 is 4.5 million euros and the goal is to make 25% more sales compared to already established warehouse. Therefore, our expected revenue is 5.625 million euros from new warehouse in China.
- Setting profit goals: This step involves determining the amount of money the company hopes to earn after all expenses have been considered. This is calculated by subtracting the total expenses from the total revenue. Our goal is to achieve positive profit as soon as our company can cover up the investment cost.

Once the budget, revenue, and profit goals have been set, the company can use these targets to guide its decision-making and to evaluate its performance over time. It's also important to regularly review and update these goals to ensure they are still aligned with the company's overall strategy and to adjust to any external changes that might affect the performance.

9.2 Allocation of the Financial resources

The allocation of financial resources for our company will be set between different areas of a business, such as labor, maintenance, finance, oil warehouse, distribution logistics, and marketing, depending on our specific revenue and profit goals and priorities. The specific Budget for each year will be distributed according to the following percentage:

- **20% personnel:** It Includes the people's salary with benefits. Proper allocation of resources to labor is important because it ensures that the company has the necessary personnel to operate the warehouse. We will allocate 20% of our budget for distributing salaries among the warehouse workers in Qingdao, China according to the following table.

Personnel Salary Distribution in Qingdao,China					
Labour cost in Qingdao,China	**No. Resources**	**Monthly salary**	**Cost,China(year-2024)**	**cost(year-2025)(6% increase)**	**cost(year-2026)(6% increase)**
Logistic Manager	1	€ 3,596	€ 43,150	€ 45,739	€ 48,328
The Material Handlers			€ 0	€ 0	€ 0
Packing Supervisor	1	€ 2,882	€ 34,584	€ 36,659	€ 38,734
Packer	10	€ 640	€ 76,800	€ 81,408	€ 86,016
Warehouseing			€ 0	€ 0	€ 0
Supervisor	1	€ 3,211	€ 38,532	€ 40,844	€ 43,156
Warehouse Manager	1	€ 2,800	€ 33,600	€ 35,616	€ 37,632
Forklift Operator	6	€ 600	€ 43,200	€ 45,792	€ 48,384
Inventory Clerk	1	€ 766	€ 9,192	€ 9,744	€ 10,295
Machine Operator	8	€ 800	€ 76,800	€ 81,408	€ 86,016
Receiving			€ 0	€ 0	€ 0
Supervisor	1	€ 2,500	€ 30,000	€ 31,800	€ 33,600
Order Picker	3	€ 1,200	€ 43,200	€ 45,792	€ 48,384
Operator	3	€ 750	€ 27,000	€ 28,620	€ 30,240
Internal (storing/biniing)			€ 0	€ 0	€ 0
Supervisor	1	€ 2,500	€ 30,000	€ 31,800	€ 33,600
Quality control inspector	1	€ 3,000	€ 36,000	€ 38,160	€ 40,320
Safety Manager	1	€ 1,824	€ 21,888	€ 23,201	€ 24,515
Laboratory Technicians	2	€ 1,500	€ 36,000	€ 38,160	€ 40,320
Tank Farm Operators	4	€ 1,000	€ 48,000	€ 50,880	€ 53,760
Finance &Admin	1	€ 3,143	€ 37,716	€ 39,979	€ 42,242
HR & Procurement	2	€ 3,800	€ 91,200	€ 96,672	€ 102,144
Sales & Marketing profes	3	€ 4,000	€ 144,000	€ 152,640	€ 161,280
Legal Advisor	1	€ 3,500	€ 42,000	€ 44,520	€ 47,040
Other Additional workers		Construction labor cost in 2023	69,139 €	10,567 €	13,596 €
Total			1,012,001 €	1,010,000 €	1,069,601 €

Table 5: Personnel Cost Distribution in China

Moreover, we also consider the one-time construction labor cost for building the warehouse in 2023 as 69,139 Euro which has been added to the total labor cost in 2024.

Therefore, the overall budget distribution for personnel over three years 2024, 2025 and 2026 is **1.012 million Euro,1.01 million Euro and 1.07 million Euro** respectively.

Labor Budget in China Warehouse(20% of Total Budget)			
	Year-2024	1,012,001 €	1.01
	Year-2025	1,010,000 €	1.01
	Year-2026	1,069,601 €	1.07

Table 6: Labor Budget

- **10% Marketing:** Golden Seed company's common costs for marketing may include advertising, campaigning, conducting trade shows and events, developing websites, Marketing research and training, and also cost for Digital Marketing in the Chinese Market. It will take 10% of the total budget.

Cost Breakdown for Marketing(10%)			
Strategies	Cost(year-2024)	Cost(year-2025)	Cost(year-2026)
Online advertising campaigns	70,840 €	70,700 €	74,872 €
Website/SEO/Content Marketing	101,200 €	101,000 €	106,960 €
Television Advertisement	101,200 €	101,000 €	106,960 €
Print Media Advertisement	30,360 €	30,300 €	32,088 €
Social media management	75,900 €	75,750 €	80,220 €
Trade publications,Branding	50,600 €	50,500 €	53,480 €
Paid digital advertising	25,300 €	25,250 €	26,740 €
Marketing Research and Training	50,600 €	50,500 €	53,480 €
Total	506,000 €	505,000 €	534,800 €

Table 7: Marketing Cost

- **50% logistics:** The logistics in this project involve constructing a new edible warehouse in China and also distributing the oils in the Chinese and African Markets. This sector requires 50% of our budget since it involves complicated oil procurement logistics, import-export procedures, and various different contracts with oil transportation, distribution, and 3PL logistics companies in China and Africa. We will discuss the overall logistics cost breakdown in two parts: one is Logistic Cost distribution in China, and another is Logistics cost distribution in Africa.

Logistic Cost distribution in China:

The logistics cost for oil warehousing and distributing in China involves the following key steps:

1. **Construction and Machinery Cost:** The fast and foremost step in starting this new project is constructing the proposed warehouse in Qingdao, China. The cost of constructing an oil warehouse involves Site preparation, foundation and infrastructure, Building construction, equipment and machinery purchase cost, etc. This will be one time investment in the beginning of the project in 2023 only.

Cost Distribution	Per Unit Cost	year-2023
Construction and Machinery Cost	Per Unit Cost	One time Cost
Land cost(1000 meter square)	€ 71	€ 70,760
Warehouse construction cost	€ 18	€ 18,350
pallets(16025 units)	€ 4	€ 64,100
Oil tanks(18 units)	€ 400	€ 7,200
stacker crane(2 units)	€ 1,000	€ 2,000
forklift(5 units)	€ 280	€ 1,400
Installation and others		€ 40,000
Total:		€ 203,810

Table 8: Construction & Machinery cost

2. **Oil Procurement Cost:** Our company will purchase three different types of oil: Soyabean oil, Palm Oil, and Sunflower Oil from several companies named: Shandong Bohi Oils and Fats Industry, Dayang Chem (Hangzhou) Co., Golden Agri-Resources (GAR) / Sinar Mas, Standard Food, Yihai Kerry Jinlongyu Grain, Oil and Food Co. and COFCO Corporation in China.

Oil Procurement cost	soyabean			palm			sunflower			Total yrealy cost
	30%			35%			0.35			
Company	Shandong Bohi Oils and Fats Industry	DAYANG CHEM (HANGZHOU) CO., LTD	COFCO Corporation	COFCO Corporation	Shandong Bohi Oils and Fats Industry	Golden Agri-Resources (GAR) / Sinar Mas	Standard Food	Yihai Kerry Jinlongyu Grain, Oil and Food Co.	COFCO Corporation	
Amount	50%	30%	20%	50%	30%	20%	50%	30%	20%	
Year-2024	164,835 €	98,901 €	65,934 €	207,900 €	124,740 €	83,160 €	259,875 €	155,925 €	103,950 €	**1,265,220 €**
Year-2025	230,048 €	138,029 €	92,019 €	290,150 €	174,090 €	116,060 €	362,688 €	217,613 €	145,075 €	**1,765,770 €**
Year-2026	243,645 €	146,187 €	97,458 €	307,300 €	184,380 €	122,920 €	384,125 €	230,475 €	153,650 €	**1,870,140 €**

Table 9: Oil Procurement cost

Therefore, the total costs for Oil Procurement are **1.27 million euros**, **1.77 million euros**, and **1.87 million Euros** for the years 2024, 2025, and 2026 respectively.

3. **Storage Cost:** This cost involves facilitating all types of systems to store edible oil such as providing large cylindrical made of stainless steel or epoxy-coated steel to prevent corrosion, pumps, valves, and automation systems to transfer the oil from the storage tank

to other parts of the warehouse, temperature control system to maintain a consistent temperature within the storage tanks, etc.

Storage Cost			Year-2024	Year-2025	Year-2026
pumps and valves for oil transfer			38,863 €	53,025 €	56,154 €
Tanks storage			29,147 €	39,769 €	42,116 €
Temperature control system			48,579 €	66,281 €	70,193 €
Automation system			36,920 €	50,374 €	53,346 €
Other facilities			40,806 €	55,676 €	58,962 €
Total:			**194,317 €**	**265,125 €**	**280,770 €**

Table 10: Storage Cost

4. **Distribution Cost:** The stored oil should be distributed to wholesalers and retailers in the Chinese domestic via pipeline, tanker truck, and train. The oil export will be done by shipment from Qingdao port to 5 different ports in Africa. The cost here will depend on the time, place, distance, quantity, shipping facilities, etc. Our company will do contract and pay the 'COSCO' shipping company for taking care of these responsibilities.

Transportation and Distribution Cost(52%)	Euro/Metric Ton-kilometer		Year-2024	year-2025	year-2026
Domestic oil Distribution in China					
Using pipeline and tanker truck in Qingdao	0.0025€/mt-km		28,870 €	39,390 €	41,714 €
Contract with Chinese Railway for oil logistics	0.0050€/mt-km		57,740 €	78,780 €	83,429 €
International oil distribution for import to Africa					
Shipping cost from Qingdao port to Port Suez, Egypt	275€/mt		28,870 €	39,390 €	41,714 €
Shipping cost from Qingdao port to Port of Tema, Ghana	260€/mt		23,096 €	31,512 €	33,372 €
Shipping cost from Qingdao port to Transnet Port, South Africa.	306€/mt		77,949 €	106,353 €	112,629 €
ipping cost from Qingdao port to Masaka Inland Container Depot,Rwan	300€/mt		37,531 €	51,207 €	54,229 €
Shipping cost from Qingdao port to Kilindini Harbour,Kenya	293€/mt		34,644 €	47,268 €	50,057 €
Total:			**288,699 €**	**393,900 €**	**417,144 €**

Table 11: Transportation Cost

5. **Legal & Compliance Cost:** This includes the cost of complying with any regulations and industry standards and obtaining the necessary licenses and permits that may apply to the warehousing, storage, transportation and distribution, and import-export procedures in China.

Legal & Compliance Cost			Year-2024	year-2025	year-2026
Building permits and inspections			7,939 €	10,832 €	11,471 €
Industry Regulation			11,548 €	15,756 €	16,686 €
Import licenses and permits			15,157 €	20,680 €	21,900 €
Complying with Customs Regulations			13,713 €	18,710 €	19,814 €
oil Trade Agreement			10,104 €	13,787 €	14,600 €
Safety and other Environmental compliance			13,713 €	18,710 €	19,814 €
Total:			**72,175 €**	**98,475 €**	**104,286 €**

Table 12: Legal & Compliance Cost

Therefore, the total Logistics cost allocation for China is **2.024 million Euro, 2.070 million Euro and 2.193 million Euro** for the years 2024,2025 and 2026 respectively.

Logistics Cost distribution in Africa:

Golden Seed Company's logistics cost for Africa is mainly based on the contract with several freight forwarder and distributor/co-packer companies. The freight forwarder will solely help Golden Seed company with transportation services for carrying exported oil from ports to the distribution centers, then the distributer companies will provide the corresponding supports for storing, repacking from flexi-tanks to bottles, distributing oil to the local market etc.

Total logistics cost for china	Year-2024	Year-2025	Year-2026
oil warehousing and transportation	759,000 €	303,000 €	320,880 €
cost of goods sold(COGS(oil))	1,265,000 €	1,767,500 €	1,871,800 €
total:	**2,024,000 €**	**2,070,500 €**	**2,192,680 €**

Table 13: Total Logistics cost for China

1. **Service plan & Details contract fees for Freight Forwarders:**

Golden Seed plans to engage with 4 different Freight providers for the services by each region in Africa namely: Nile International Logistics, Egypt; Alpha Logistic, Rwanda; OMA Group, Ghana and Infinite Group, South Africa. They will charge fees for the flow of the inbound and outbound cargo transactions with different shipping Modes (Air–Sea–Road) within their respective regions.

Cost Distribution	Year-2024	year-2025	year-2026
Service plan & Details contract fees for Freight Forwarders:			
Nile International Logistics, Egypt	18,216 €	16,362 €	17,328 €
Alpha Logistic, Rwanda	27,324 €	24,543 €	25,991 €
OMA Group, Ghana	37,950 €	34,088 €	36,099 €
Infinite Group, South Africa	68,310 €	61,358 €	64,978 €
Total	**151,800 €**	**136,350 €**	**144,396 €**

Table 14: Freight Forwarders Cost

2. **Service plan & Details contract fees for Distributors:**

Golden Seed plans to engage with 4 different distributors the services by each region in Africa namely: United Oil Processing & Packaging Ltd, Egypt; Bidco Africa Ltd, East Africa; Avnash Industries Ghana Ltd, Ghana; Oil and More Foods Service Distributor Limited, Cape Town. The overall estimation of the cost and operation for the contract packing and distributing partners will be based on outsourcing engagement. There services will include Storage and warehousing of oil products, Wholesale distribution of oil products to retail outlets and businesses, Supply chain management and logistics services, Quality assurance services, Emergency response and spill management services, etc.

Cost Distribution	Year-2024	year-2025	year-2026
Service plan & Details contract fees for Distributors:			
United Oil Processing & Packaging Ltd, Egypt	Year-2024	year-2025	year-2026
Onboarding and set up	6,021 €	5,409 €	5,728 €
Storage and warehousing	8,430 €	7,572 €	8,019 €
Inbound fees for receiving goods	6,021 €	5,409 €	5,728 €
Outbound fees for customer distribution	13,247 €	11,899 €	12,601 €
Warehouse Management System access fees	9,634 €	8,654 €	9,164 €
Value Added Services (VAS)	5,419 €	4,868 €	5,155 €
Quality assurance services	7,828 €	7,031 €	7,446 €
Emergency response and spill management	4,817 €	4,327 €	4,582 €
Total	60,214 €	54,086 €	57,277 €
Bidco Africa Ltd, East Africa	Year-2024	year-2025	year-2026
Onboarding and set up	8,855 €	7,954 €	8,423 €
Storage and warehousing	12,397 €	11,135 €	11,792 €
Inbound fees for receiving goods	8,855 €	7,954 €	8,423 €
Outbound fees for customer distribution	19,481 €	17,498 €	18,531 €
Warehouse Management System access fees	14,168 €	12,726 €	13,477 €
Value Added Services (VAS)	7,970 €	7,158 €	7,581 €
Quality assurance services	11,512 €	10,340 €	10,950 €
Emergency response and spill management	7,084 €	6,363 €	6,738 €
Total	88,550 €	79,538 €	84,231 €
Avnash Industries Ghana Ltd, Ghana	Year-2024	year-2025	year-2026
Onboarding and set up	€ 8,147	€ 7,317	€ 7,749
Storage and warehousing	€ 11,405	€ 10,244	€ 10,849
Inbound fees for receiving goods	€ 8,147	€ 7,317	€ 7,749
Outbound fees for customer distribution	€ 17,923	€ 16,098	€ 17,048
Warehouse Management System access fees	€ 13,035	€ 11,708	€ 12,399
Value Added Services (VAS)	€ 7,332	€ 6,586	€ 6,974
Quality assurance services	€ 10,591	€ 9,513	€ 10,074
Emergency response and spill management	€ 6,517	€ 5,854	€ 6,199
Total	€ 81,466	€ 73,175	€ 77,493
)il and More Foods Service Distributor Limited, S	Year-2024	year-2025	year-2026
Onboarding and set up	€ 12,397	€ 11,135	€ 11,792
Storage and warehousing	€ 17,356	€ 15,589	€ 16,509
Inbound fees for receiving goods	€ 12,397	€ 11,135	€ 11,792
Outbound fees for customer distribution	€ 27,273	€ 24,498	€ 25,943
Warehouse Management System access fees	€ 19,835	€ 17,816	€ 18,868
Value Added Services (VAS)	€ 11,157	€ 10,022	€ 10,613
Quality assurance services	€ 16,116	€ 14,476	€ 15,330
Emergency response and spill management	€ 9,918	€ 8,908	€ 9,434
Total	€ 123,970	€ 111,353	€ 117,923
Total Distributors cost	€ 354,200	€ 318,150	€ 336,924

Table 15: Cost for Distributors

Therefore, the total logistic cost allocation for Africa **is 0.506 million Euro, 0.455 million Euro and 0.481 million Euro** for the years 2024, 2025 and 2026 respectively

Total logistics cost for Africa	Year-2024	Year-2025	Year-2026
contract fees for Freight Forwarders	151,800 €	136,350 €	144,396 €
contract fees for Distributors	354,200 €	318,150 €	336,924 €
total:	**506,000 €**	**454,500 €**	**481,320 €**

Table 16: Total Logistics cost for Africa

- **10 % Finance:** Finance includes Loan Payment with interest cost. For setting up a new oil warehouse in China and new distribution plan in Africa, Golden Seed company is going to take loan from a Chinese bank following some important steps including:
  - Preparing a detailed business plan outlining the proposed oil warehouse and distributing project, including projected costs, revenue, and income statement.
  - Gathering financial documents such as tax returns, financial statements, and credit reports for the warehouse distribution and logistics business.
  - Meeting with a loan officer at the bank and presenting the business plan and financial documents.
  - Negotiate the loan terms, including the interest rate and repayment schedule. In general, interest rates on loans from Chinese banks are determined by the People's Bank of China (PBOC), the central bank of China. The PBOC sets benchmark interest rates for different types of loans, and commercial banks are required to use these rates as a guide when setting interest rates for their own loans. According to recent data, China Bank Lending Interest Rate was reported at 3.650 % pa (Per annum) in Feb 2023.
  - Signing a loan agreement and providing any necessary collateral or co-signers.
  - Using the loan funds to set up the new oil warehouse and new logistics plan.

Financial Cost Distribution(10%)			
Cost Distribution	Year-2024	Year-2025	Year-2026
Loan Cost	506,000 €	505,000 €	534,800 €
Loan Interest(3.650%)	18,469 €	18,433 €	19,520 €
Total	**524,469 €**	**523,433 €**	**554,320 €**

Table 17: Financial Cost

- **10% maintenance cost:** It includes costs for warehouses, transport fleets, buildings, and sale points, etc. Some of the main maintenance costs that may be incurred related to our new warehouse and distribution facility include:

- Building and Facility maintenance: This includes regular cleaning, repairs, and upgrades to the oil warehouse and distribution facility, such as painting, roofing, and electrical or plumbing repairs.
- Machinery maintenance: This includes regular maintenance and repairs of equipment used in the warehouse and distribution operations, such as forklifts, cranes, and loading/unloading equipment.
- Insurance: This includes costs for insurance coverage, including property insurance, liability insurance etc.
- Energy Consumption costs: This includes costs for utilities such as electricity, gas, and water.
- Technology and IT: This includes costs for any technology and IT systems used in the warehouse and distribution operations, such as warehouse management systems and tracking systems.
- Security: This includes costs for security systems, surveillance, and personnel to protect the warehouse and distribution facility and its contents.

Maintenance Cost Distribution(10%)			
Cost Distribution	Year-2024	Year-2025	Year-2026
Building and Facility maintenance	65,780 €	65,650 €	69,524 €
Machinery maintenance	86,020 €	85,850 €	90,916 €
Energy Consumption costs	80,960 €	80,800 €	85,568 €
Technology and IT	91,080 €	90,900 €	96,264 €
Insurance and Security	60,720 €	60,600 €	64,176 €
Others	121,440 €	121,200 €	128,352 €
Total	**506,000 €**	**383,800 €**	**406,448 €**

Table 18: Maintenance Cost Maintenance Cost

9.3 Revenue Estimation

Being a well-known international oil distributing company, Golden Seed mainly generate revenue by purchases edible oil products direct from oil production factory and suppliers at a certain price and then sells them to retail customers at a higher price, resulting in a profit margin. For this new project, the company is going to expand its business by opening a new warehouse in China and entering into new markets in Africa. It is expected that Golden Seed can increase sales in both the Chinese and African Markets by directly distributing three types of oil in the wholesale and retail markets whole around China and also exporting and distributing oils to 5 bigger African regions. The overall revenue estimation is shown below:

oil distribution	country	Revenue-2024	Revenue-2025	Revenue-2026	Revenue by oil Types
	China	880,000 €	1,010,400 €	1,125,000 €	3,015,400 €
	Africa	528,000 €	606,240 €	675,000 €	1,809,240 €
soyabean oil	total	1,408,000 €	1,616,640 €	1,800,000 €	4,824,640 €
	China	484,000 €	555,720 €	618,750 €	1,658,470 €
	Africa	1,188,000 €	1,364,040 €	1,518,750 €	4,070,790 €
Palm Oil	total	1,672,000 €	1,919,760 €	2,137,500 €	5,729,260 €
	China	572,000 €	656,760 €	731,250 €	1,960,010 €
	Africa	748,000 €	858,840 €	956,250 €	2,563,090 €
Sunflower Oil	total	1,320,000 €	1,515,600 €	1,687,500 €	4,523,100 €
Total Revenue		**4,400,000 €**	**5,052,000 €**	**5,625,000 €**	

Table 19: Revenue Estimation

Therefore, the overall revenue estimation over three years 2024,2025 and 2026 is **4.4 million Euro, 5.05 million Euro and 5.63 million Euro** respectively. The revenue breakdown between two countries and different types of oil is shown below

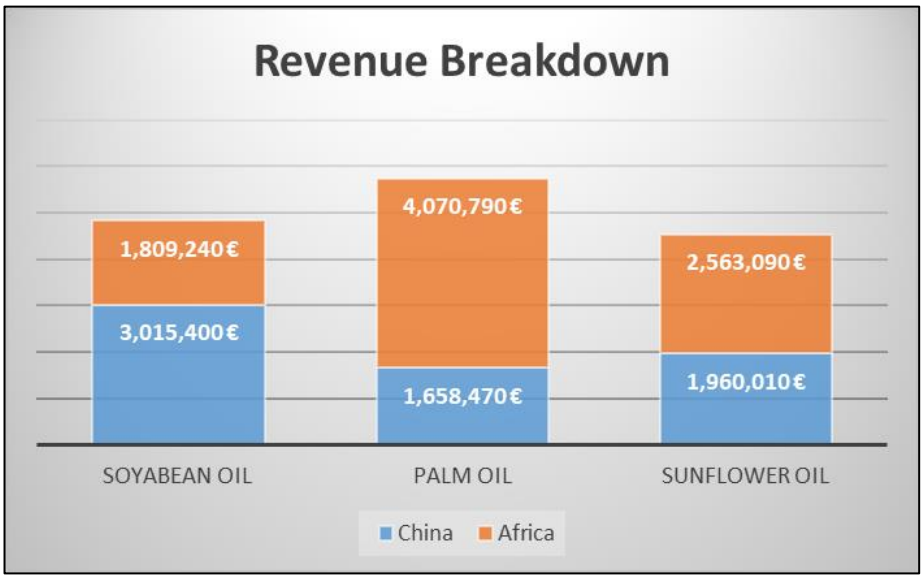


Figure 13: Revenue Breakdown

We can see that the biggest revenue **4.07 million Euro** comes from palm oil Export and distribution in African market from China, since its demand is higher there, also a 2nd largest revenue **3.02 million Euro** comes from Soyabean oil distribution in Chinese market according to its high consumption rate for Soyabean oil in China.

9.4 Financial Feasibility study

The feasibility study for setting up a new oil warehouse in China would involve analyzing a number of economic factors to determine whether the project is viable and likely to generate a positive return on investment. Some of the key factors that would be considered in such a study include:

- Market demand: The study would need to assess the current and projected demand for oil storage in the region where the warehouse is planned. This would involve analyzing trends in oil consumption, production, and imports/exports, as well as assessing the competitiveness of the oil storage market in the region.
- Cost of construction and operation: The study would need to estimate the costs associated with building and operating the warehouse, including the cost of land, construction materials, labor, and equipment. It would also need to consider ongoing operational costs such as maintenance, insurance, and security.
- Revenue potential: The study would need to estimate the potential revenue that the warehouse could generate through oil storage fees and other related activities. This would involve analyzing factors such as the capacity of the warehouse, the length of time oil would be stored, and the price of oil storage in the region.
- Government regulations and policies: The study would need to assess the impact of government regulations and policies on the project, including environmental laws, safety regulations, taxes, and tariffs. This would include compliance with international and bilateral agreements related to oil trade.
- Competition: The study would need to evaluate the level of competition in the region, including the presence of existing oil storage facilities and the potential for new competitors to enter the market.
- Economic indicators: The study would also need to consider the economic indicators of the country and the region such as GDP, inflation, and interest rate.
- Risk analysis: The study would need to evaluate the potential risks associated with the project, such as changes in oil prices, supply disruptions, and potential regulatory changes.

We are going to use here some of the widely used financial metrics such as an evaluation of the return on investment (ROI), gross profit percentage (GP%), earnings before interest and taxes (EBIT) margin, and net profit to estimate the profitability of our project. We will use projections of these financial metrics over a period of time, such as 3 years, to determine whether our proposed investment is financially viable and whether it is likely to generate a positive return for the investor over the years. To do this analysis we need to analyze the complete balance sheet which is shown in next table:

Complete Financial Model					
Fixed Assets					
Logistic Cost(procurement+Storage+Distribution)(50%)					
years			2024	2025	2026
COGS(oil)			1.265	1.7675	1.8718
oil warehousing and transportation			1.265	0.7575	0.8022
total			2.53	2.525	2.674
Total Budget:			5.06	5.05	5.348
Income statement					
years			2024	2025	2026
Net Revenue			4.4	5.052	5.625
Gross Profit			3.135	3.2845	3.7532
GP %			71%	65%	67%
Operating Expenses					
years			2024	2025	2026
oil warehousing			0.714	0.7575	0.8322
Maintenance cost(10%)			0.506	0.505	0.5348
Labor Cost(20%)			1.012	1.01	1.0696
Marketing Cost(10%)			0.506	0.505	0.5348
Loan Cost(10%)			0.506	0.505	0.5348
Total			3.244	3.2825	3.5062
Income Tax			25%	25%	25%
years			2024	2025	2026
Operating Income(EBIT)			-0.109	0.002	0.247
Operating margin %			-2%	0%	4%
Tax					0.06175
Loan Interest(3.650%)			0.018469	0.018433	0.01952
Net Income=			-0.12747	-0.01643	0.16573
NI %			-3%	0%	3%
ROI %			-3%	0%	3%
years			2024	2025	2026
Net Revenue for new warehouse			4.4	5.052	5.625
current revenue(2022)			4.5	4.5	4.5
			-0.1	0.552	1.125
Sale increase compared to 2022			-2%	12%	25%

Table 20: Complete Financial Model

- **Return on Investment (ROI)**

The ROI is a measure of the profitability of an investment, calculated as the ratio of the net profit to the initial investment. It is usually expressed as a percentage and is used to determine whether an investment is worth pursuing. The higher the ROI percentage, the higher the profitability will be for the company.

Formula: **ROI = (Net Profit / Cost of Investment) x 100%**

Analysis from the income Sheet: The cost of investment over the years 2024,205 and 2026 is 5.06 million Euro, 5.05 million Euro and 5.348 million Euro respectively and the corresponding net profits are -130,000 Euros, 0 and 165,729 Euros respectively. We can calculate the ROI percentage from these data and understand that: Since In 2024, ROI is negative, so the investment will be generating a loss because of not being able to come up with the invested money; In 2025, ROI = 0%, this situation is called Break-even point, where we will neither get profit nor get loss, but all the cost is covered; in 2026, ROI is Positive, which means the revenue from the investment will earn profit.

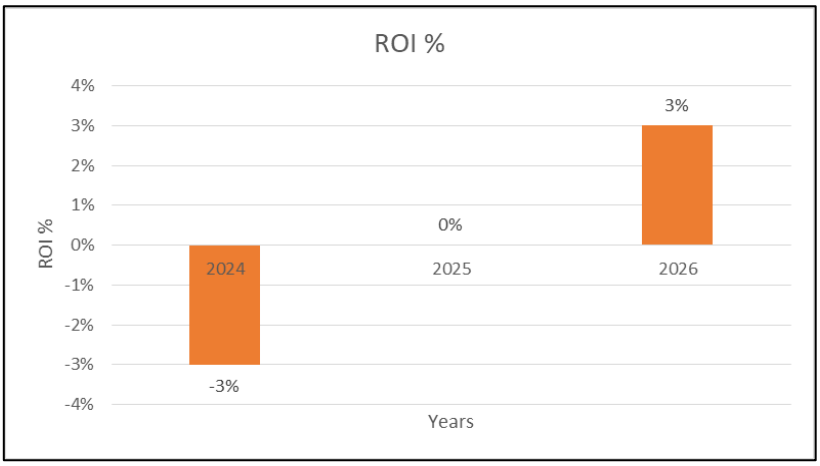


Figure 14: Return on Investment

- **Gross Profit Percentage (GP%)**

GP% is a measure of profitability that calculates the percentage of revenue remaining after deducting the cost of goods sold. It is calculated by dividing gross profit by revenue and is used to determine the efficiency of a company's operations. It helps to track company performance in terms of its goods. We can say a lower percentage may indicate that the company is struggling to generate profits for this kind of products. It does not include the income from other means.

Formulae:

Gross profit = Net Revenue - Direct Cost (COGS)

Gross profit percentage = (Gross profit/revenue) * 100%

Analysis from the balance Sheet: The cost of Goods Sold over the years 2024, 2025 and 2026 are 1.265 million Euros, 1.7675 million Euros, and 1.8718 million Euros respectively and the corresponding revenues are 4.4 million Euro,5.052 million Euro and 5.625 million Euro respectively. We have estimated the gross profit for the new project from these data and understood that the gross profit is increasing over the years which means that after covering the cost of goods sold, the company will be able to increase its operating expenses for all other sectors such as labor, maintenance, marketing expenses etc.

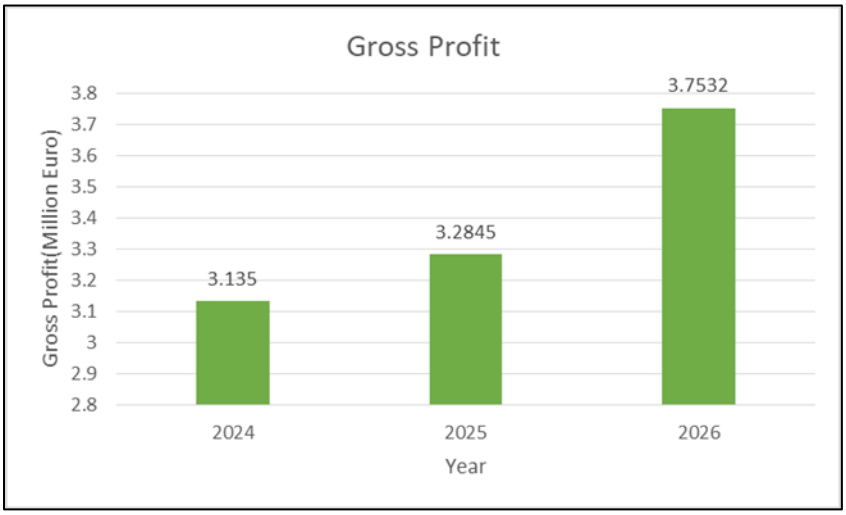


Figure 15: Gross Profit

- **Earnings Before Interest and Taxes (EBIT) Margin**

EBIT margin is a measure of a company's profitability before considering interest and taxes. It is calculated by dividing EBIT by revenue and is used to compare the profitability of different companies or projects. It's used to analyze a company's performance based on its operations so that investors can have an understanding how the company is performing but it doesn't consider if a company has huge debt or no debt at all.

Formulae:

EBIT = Gross profit-operating expenses

EBIT margin % = (EBIT/net revenue) * 100%

Analysis from the balance Sheet: The gross profits over the years 2024, 2025 and 2026 are 3.135 million Euro, 3.285 million Euro and 3.753 million Euro respectively and the corresponding operating expenses are 3.244 million Euro, 3.2825 million Euro and 3.5062 million Euro respectively. We have estimated the EBIT cost and EBIT Margin for the new project from these data and understood that in first year the EBIT will be negative, while in the 2nd year of investment, it will be zero and from the third year (2026) the company will be gaining positive EBIT margin, therefore the company's performance will be going to be better over the years.

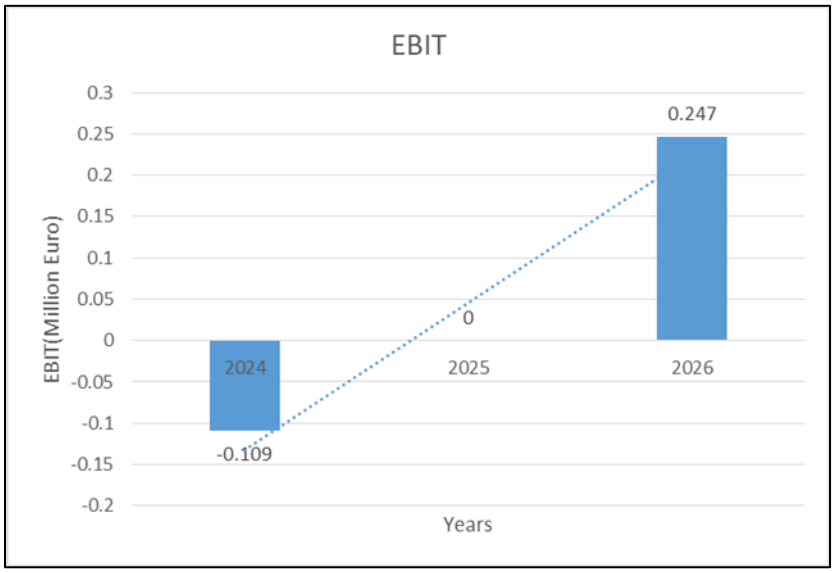


Figure 16: Earnings Before Interest and Taxes (EBIT) Margin

- **Net Profit**

Net profit is the final measure of profitability, calculated as revenue minus all expenses, including taxes and interest. It is used to determine the overall financial performance of a company or project.

Formula:

Net Income or Net Profit = EBIT- (Tax + loan interest)

Net income % = (Net income/Net Revenue) * 100%

Analysis from the balance Sheet: The EBIT over the years 2024, 2025 and 2026 are -0.109 million Euro, 0 and 0.247 million Euro respectively and the 3.65% loan interested will be deducted every year though the 25% income tax will be deducted in 2026 only since from 2026 the company is going to income from its investment. From these data, we have estimated the net Income and Net profit % for the new project and understood that in the first year, there will be a 3% loss in this project, though from 2nd year it will level up the loss and expect for a 3% increased profit from 2026 and the estimated net profits in 2026 will be 165,730 Euro.

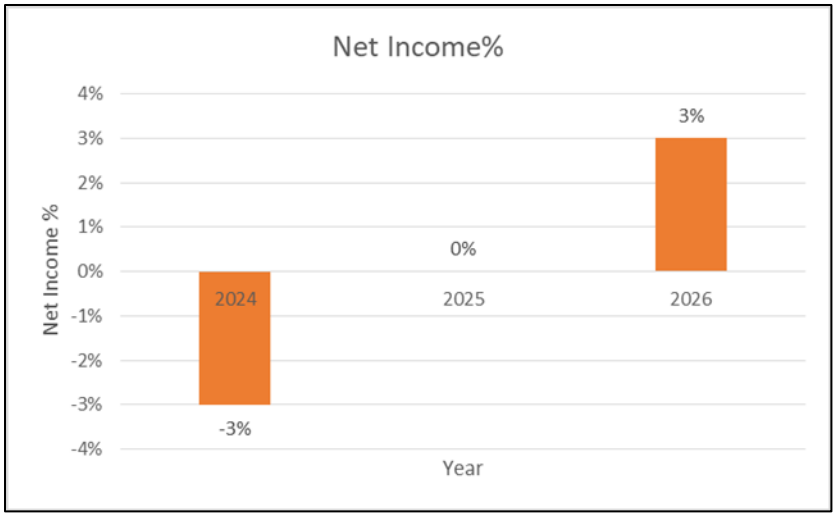


Figure 17: Net Profit

9.5 Revenue Growth Analysis

Revenue growth analysis for a company involves evaluating the company's financial performance over a period of time, specifically focusing on the growth of its revenue. This can be done by comparing the company's revenue figures from one period to another, such as from quarter to quarter or year to year. We can estimate the revenue growth from the balance sheet over three years 2024, 2025 and 2026. We assume that since our company is already involved in distribution edible oil for a long time, it's already having 4.5 million revenues in 2022. In 2023, the company is going to take this project to expand its business volume and revenue growth as well.

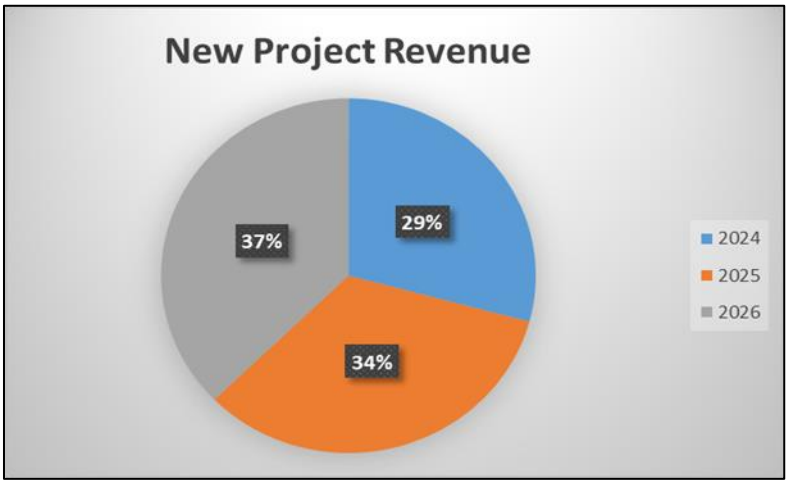


Figure 18: New Project Revenue

From three-year analysis, we can observe that the new project revenue will be increasing over the years, so Golden Seed Company can expect potentially greater sales volume from this new investment. Also, according to the pre-investment state (in 2022), we can compare the increased revenue as following:

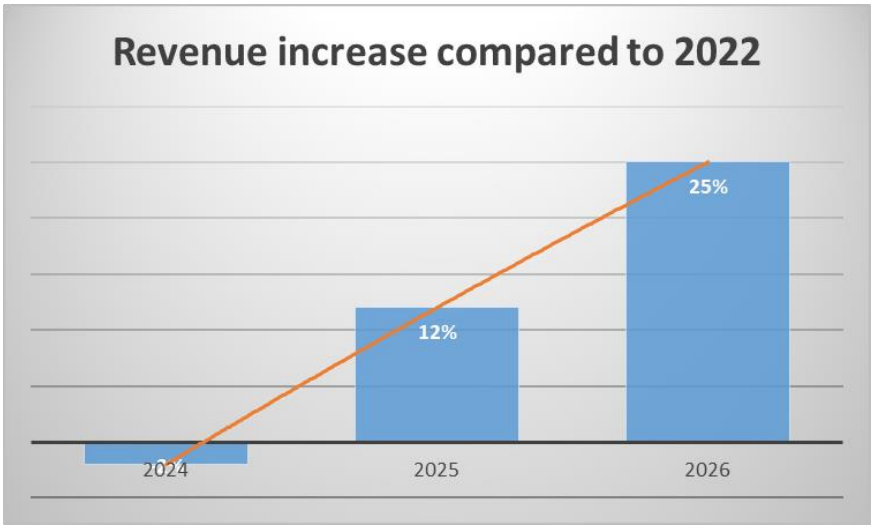


Figure 19: Revenue Growth analysis

Therefore, the company can achieve **25% more revenue** from this new warehouse compared to already established warehouse after 3 years of investment. The biggest revenue can be estimated as **5.625 million Euro in 2026.**

10. RISK MANAGEMENT

- An uneven trend rebound:

Following a significant decline during the worst of the pandemic, exports in Africa have increased ever since, surpassing pre-Covid levels and reaching US$150.1 billion in the first quarter of 2022.

- Pipeline diplomacy and ESG considerations:

Another effect of Russia's war in Ukraine is that it has rekindled European interest in projects that had previously been abandoned because of prices and climate change worries. This is because European demand for African fossil fuels has increased.

- Higher inflation:

At 12.2 percent and 9.6 percent respectively in 2022 and 2023, this region's inflation is predicted to stay high. This will be the highest regional average inflation since 2008, on average.

- Foods Insecurity:

The region's oil importers will pay an additional $19 billion in import expenditures as a result of higher oil prices, aggravating trade imbalances and driving up transportation and other consumer costs. Fragile states that import oil will be severely hurt, with fiscal balances predicted to decline by about 0.8 percent of GDP.

- Poor Infrastructure:

Africa is one of the continents that appears to be lagging behind the rest of the world, and there are a variety of explanations for this. Africa lags behind the rest of the globe in terms of digital technology for a variety of reasons, including poor connection, trade infrastructure, knowledge ecosystems, etc.

- Long dwelling time of custom clearance:

The overall lead time of the shipment to Africa may be affected by the long dwell time of the cargo clearance at the African port.

- Outdated Government Policies & corruption:

In terms of funding for research and technology, African governments fall behind the rest of the globe. African governments have invested far less than the global average of 2.6% of GDP in scientific and technological research and innovation. A corrupt government causes bad healthcare, inadequate education, poverty, the wealth disparity between classes of society, and malnutrition.

11. PROJECT PLAN

A project plan is a document that outlines each step needed to complete a project from A to B. It is sometimes portrayed as a Gantt chart. It acts as a roadmap by outlining the project phases, important project tasks, their start and end dates, interdependencies, and project milestones. This report is filled with all the information from the feasibility study and is predicated on the idea that we have already been given the project to build a new warehouse and instructed to do a feasibility analysis from all perspectives.

Work Breakdown Structure (WBS):

The work breakdown structure shown below depicts the entire project. The status date of this WBS is 14 January 2023, the day following our presentation of the feasibility study's results to management. The checked mark next to each activity on the left indicates that it has been finished as of the status date. This WBS details the titles of the tasks, their subtasks, their start and end dates, and the duration of the overall project. The predecessors of the current activity and the WBS ID of each activity are explained in WBS columns 7 and 8, respectively. The WBS ID GS_W1 stands for Golden Seed Warehouse establishment and letters succeeding them are activities in chronological order and numerical after letters represents sub-tasks.

		Task Mode	Task Name	Duration	Start	Finish	Predecessors	WBS
1			**New Warehouse Establishment**	**364 days**	**Mon 05-09-22**	**Wed 14-02-24**		**GS_W1**
2	✓		**Feasibility Study**	**75 days**	**Mon 05-09-22**	**Mon 26-12-22**		**GS_W1.A**
3	✓		Technical	45 days	Mon 05-09-22	Mon 14-11-22		GS_W1.A.1
4	✓		Operational	45 days	Wed 21-09-22	Tue 29-11-22	3SS+11 days	GS_W1.A.2
5	✓		Economical	60 days	Tue 27-09-22	Mon 26-12-22	3SS+15 days	GS_W1.A.3
6	✓		Legal	45 days	Fri 30-09-22	Thu 08-12-22	4SS+7 days	GS_W1.A.4
7	✓		Environmental	30 days	Mon 05-09-22	Mon 24-10-22		GS_W1.A.5
8	✓		**Budget Finalization**	**10 days**	**Tue 27-12-22**	**Mon 09-01-23**		**GS_W1.B**
12	✓		Stage 1 Documetation	5 days	Thu 05-01-23	Wed 11-01-23	8FS-3 days	GS_W1.C
13			Phase 1 Presentation	1 day	Fri 13-01-23	Fri 13-01-23		GS_W1.D
14			Approval	5 days	Mon 16-01-23	Fri 20-01-23		GS_W1.E
15			**Resource Hiring**	**8 days**	**Mon 23-01-23**	**Wed 01-02-23**		**GS_W1.F**
19			**Warehouse Establishment**	**195 days**	**Mon 06-02-23**	**Wed 15-11-23**		**GS_W1.G**
20			Building Construction	150 days	Mon 06-02-23	Wed 06-09-23	18FS+2 days	GS_W1.G.1
21			Machinery Purchasement	30 days	Thu 27-07-23	Wed 06-09-23	20FS-30 days	GS_W1.G.2
22			Installation	30 days	Thu 07-09-23	Wed 25-10-23	20	GS_W1.G.3
23			Inspection	15 days	Thu 26-10-23	Wed 15-11-23	22	GS_W1.G.4
24			**Logistics**	**61 days**	**Fri 17-03-23**	**Tue 13-06-23**		**GS_W1.H**
25			Railway line	60 days	Mon 20-03-23	Tue 13-06-23	20SS+30 days	GS_W1.H.1
26			Road & infrasturcture	30 days	Fri 17-03-23	Fri 28-04-23	20SF+30 days	GS_W1.H.2
27			Contract finalization - China n africa	15 days	Mon 20-03-23	Mon 10-04-23	25SS	GS_W1.H.3
28			Oil Procurement	30 days	Thu 16-11-23	Wed 27-12-23	23	GS_W1.I
29			Re-packaging & ready to export	15 days	Thu 28-12-23	Wed 17-01-24	28	GS_W1.J
30			Documentation	15 days	Thu 25-01-24	Wed 14-02-24	29FS+5 days	GS_W1.K

Figure 20: Work Breakdown Structure of Project

Figure 20 makes it quite clear that this project takes 364 days, or almost a year, assuming that it is authorized by the scheduled date. The feasibility study, stage 1 documentation, and even the presentation is all finished at this time, and we are just waiting for the company's approval to move forward with the suggested plan. Therefore, it has practically been three months since the project's foundation was set. Upon approval, all additional personnel will be hired to manage the construction of the warehouse, handle logistics, purchase the oil, and distribution in Africa. Along with them, labor required for warehouse and logistics will be hired. While the warehouse is being built, management will take care of their training.

Construction of warehouses and railway lines will be delegated to the businesses listed in section 4.2 once hiring is complete. According to our research, the building of the warehouse will be finished in 5 months, and at the same time, equipment will have been purchased. After that, the installation of the machinery will take another month, and the warehouse inspection would take an additional 15 days. As a result, the warehouse will be operational in 195 days. Construction of a railway line will be done in the meantime to carry goods to other Chinese provinces by transporting them from a warehouse to a nearby railway station. Additionally, the finalization of the road and other infrastructure needed for logistics will take another 30 days. Ahead of the warehouse's completion, contracts for 3PL services in Africa will also be finalized. Within 30 days of the warehouse being operational, oil purchase is completed. Within 15 days of the purchase, the product will be repackaged to meet the needs of various Chinese consumers and refilled for export to Africa. Therefore, starting in February 2024, our warehouse will be prepared to serve markets in China and Africa if all goes according to schedule.

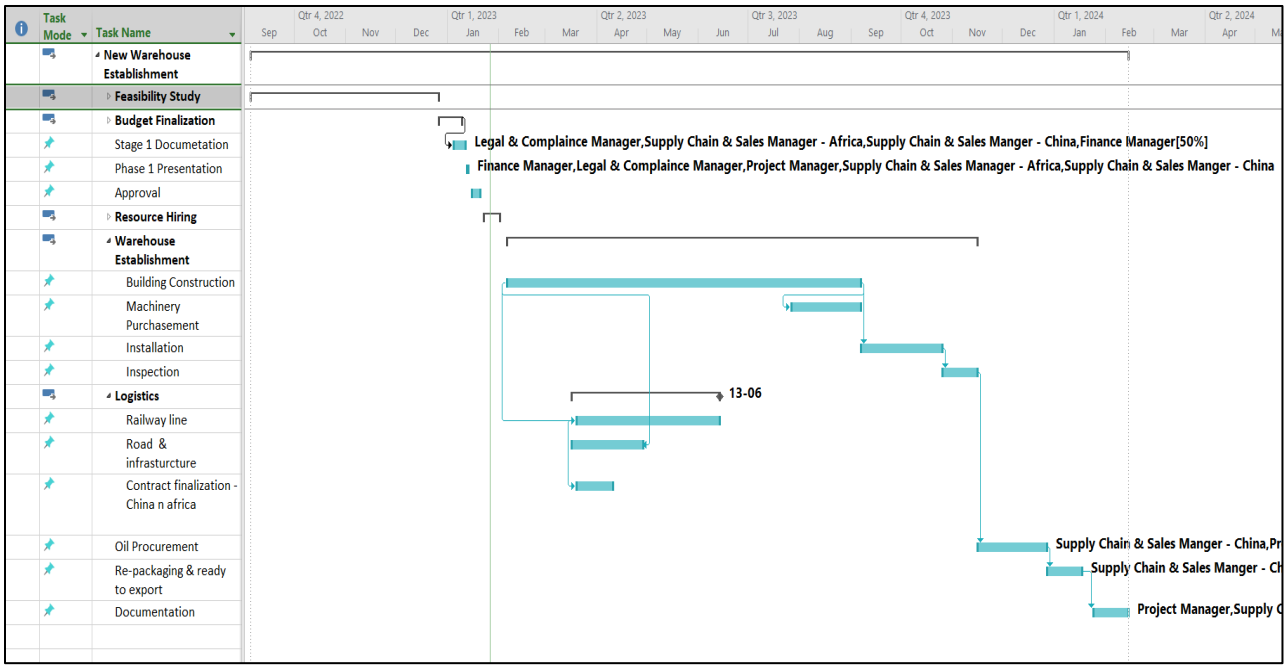
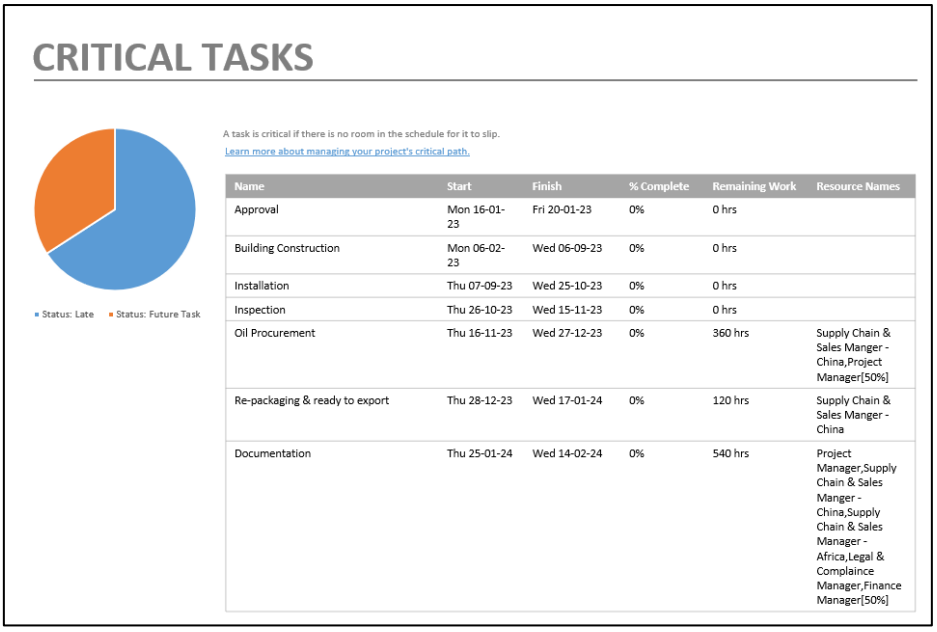


Figure 21: Gantt chart of activities

The above figure explains the whole project and interdependencies of tasks in the form Gantt chart.

Critical tasks: The critical tasks are those that cannot be delayed without changing when the project will be completed. Many jobs in a normal project contain some slack and can thus be postponed somewhat without impacting other tasks or the project's completion date.

The below figure 22 explains the critical tasks in this project as of status date. The tasks listed in the diagram are critical since they depend on one another and once activated cannot be postponed. All other tasks will be completed on time if approval is received in a timely manner.



Name	Start	Finish	% Complete	Remaining Work	Resource Names
Approval	Mon 16-01-23	Fri 20-01-23	0%	0 hrs	
Building Construction	Mon 06-02-23	Wed 06-09-23	0%	0 hrs	
Installation	Thu 07-09-23	Wed 25-10-23	0%	0 hrs	
Inspection	Thu 26-10-23	Wed 15-11-23	0%	0 hrs	
Oil Procurement	Thu 16-11-23	Wed 27-12-23	0%	360 hrs	Supply Chain & Sales Manger - China,Project Manager[50%]
Re-packaging & ready to export	Thu 28-12-23	Wed 17-01-24	0%	120 hrs	Supply Chain & Sales Manger - China
Documentation	Thu 25-01-24	Wed 14-02-24	0%	540 hrs	Project Manager,Supply Chain & Sales Manger - China,Supply Chain & Sales Manager - Africa,Legal & Complaince Manager,Finance Manager[50%]

Figure 22: Critical Tasks

Project Overview: An extensive summary of a project's aims, objectives, methods for achieving them, and anticipated results constitutes a project overview. A project overview also gives us the opportunity to describe the project's status, budget, timetable, and required resources.

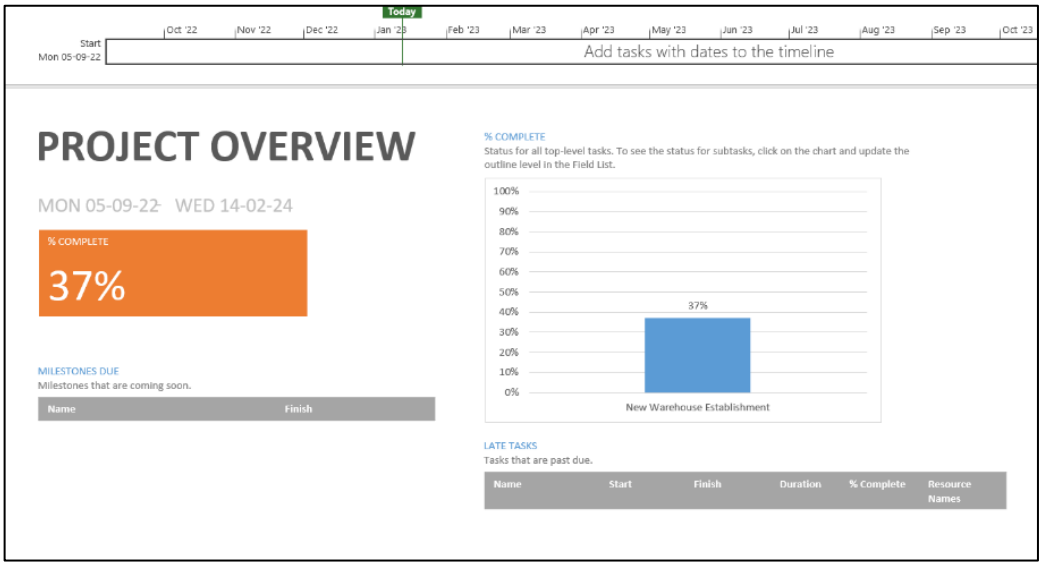


Figure 23: Project overview

The project overview is shown in Figure 23 as of the status date of 14 February 2024. It is obvious that 37% of the job has been finished, and there are no outstanding tasks at this time. Project will resume after it has been approved.

Resource Sheet: The resource sheet is the document that outlines the resources & materials required to complete the project's duties.

The list of resources assigned to this project is shown on the resource sheet seen in figure 24. Every resource is working on the project full-time. As previously noted, we have one project manager, two supply chain managers, one for each of China and Africa, one finance manager, and one for legal and compliance.

Resource Name	Type	Initials	Max.	Std. Rate	Ovt. Rate
Project Manager	Work	PM	100%	$95.00/hr	$130.00/hr
Supply Chain & Sales Manger - China	Work	SCM - C	100%	$80.00/hr	$110.00/hr
Supply Chain & Sales Manager - Africa	Work	SCM - A	100%	$80.00/hr	$110.00/hr
Finance Manager	Work	F-SM	100%	$70.00/hr	$100.00/hr
Legal & Complaince Manager	Work	L-CM	100%	$70.00/hr	$100.00/hr

Table 21: Resource Sheet

The position of team members is given in below table

Resource Name	**Position**
Akshatha Hombegowda	Project Manager
Madir Kali	Supply Chain Manager – China
Abdul Halid Bin Abdul Hamid	Supply Chain Manager – Africa
Anantha Krishna Bhat	Legal & Compliance Manager
Jamia Begum	Finance Manager

Table 22: Resources names & positions

Responsibilities of all resources:

1. Project Manager: A project manager is responsible of the project's planning, acquisition, implementation, and conclusion. The project manager is in charge of the entire undertaking and manages every aspect of it, including the project scope, the project team, and the resources allotted to it.
2. Supply Chain Manager – China: This Supply Chain Manager coordinates, organizes, and oversees all activities involved in the identification, acquisition, production, and distribution of the company's goods in China.
3. Supply Chain Manager – Africa: This Supply Chain Manager coordinates, organizes, and oversees all activities involved in the identification, acquisition, production, and distribution of the company's goods in Africa.

4. Legal & Compliance Manager: Responsible for handling legal issues, Government regulations, import export laws, Industry Standards & tracking the final numbers. Also takes care of Environment and safety regulations.
5. Finance Manager: A Finance manager distributes a firm's financial resources, plans the budget, and assists the executive management team by providing financial insights and guidance so they may make the best decisions for the organization.

12.CONCLUSION

The decision-making process for important parts of the business, such as capital investments, leasing, and resource allocation, can be made clearer with the use of a proper project plan. Planning entails goal setting, and the accomplishment of these specified goals requires the use of managerial tasks including organizing, staffing, directing, and managing. Planning offers benchmarks by which to compare real performance.

This feasibility analysis concludes by demonstrating that Qingdao is the ideal location for setting up a new warehouse in China to serve markets in China and Africa. This document provides a thorough explanation of the legal terms related to warehouse construction, railroad construction, governmental restrictions, Incoterms, and export-import rules. To accomplish this, a multi-mode of transportation is utilized. Oil distribution is carefully chosen based on demand information from both markets. For distribution in Africa, a third-party logistics company is hired, which eases the burden of opening a new warehouse there. Additionally, time can be reduced if various 3PL handle the simulative distribution of the commodities at various locations around Africa. We may change the intervals between distributing oil to China and Africa based on fluctuations in demand, which also boosts our revenue.

The proposed financial analysis provides a comprehensive explanation of how the budget is distributed across several areas, including labor costs, marketing, logistics, maintenance, and finance. We may set up this new warehouse in China with the budget of 5 million euros, part of which will come from the loan. This warehouse in Qingdao can generate revenue of 5.6 million euros in 2022, which is a 25% increase over the 4.5 million euros recorded by the already built warehouse in Malaysia. The estimated revenue from this new warehouse can be realized within three years of its creation.

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