

PONTIFICIA UNIVERSIDAD CATÓLICA DEL PERÚ
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**Business Consulting Improving of Cash Flow through the Implementation
of the Inventory Consignment Model for a Company in the Hydrocarbons
Sector**

**TESIS PARA OBTENER EL GRADO ACADÉMICO DE MAESTRA EN
ADMINISTRACIÓN DE NEGOCIOS GLOBALES**

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Abstract

The hydrocarbon (lubricants) sector is characterized by high levels of investment in fixed assets, volatility in raw material prices, and the need to manage large volumes of inventories, which directly impacts working capital and cash flow. In this context, many companies face difficulties in maintaining a balance between ensuring inventory supply and not tying up large amounts of capital that could be better used in other strategic areas. This thesis proposes the implementation of an inventory consignment model as a strategic solution to improve working capital management and optimize cash flow in a hydrocarbon company. Under this model, suppliers retain ownership of the products until they are used or sold, which allows the company to significantly reduce the amount of capital tied up in inventories, thus freeing up resources for other uses.

The study includes a comparative evaluation of the inventory consignment model that is already used by companies in other industrial sectors, such as Gloria, Alicorp, and San Miguel Industries. These companies have successfully implemented this model, reducing warehousing costs, improving operational efficiency, and optimizing their cash conversion cycle. In order to evaluate the feasibility of implementing the consignment model in the company that is the subject of this study, qualitative and quantitative analysis tools were used. Interviews were conducted with the heads of key areas such as production, finance, marketing, and logistics, as well as visits to the plant facilities to understand the current inventory flows.

The implementation of the inventory consignment model in the hydrocarbon company is expected to generate the following key results: Reduction of capital tied up in inventories, which will improve the company's liquidity. Optimization of cash flow by reducing the need for large cash outlays before products are used or sold. Improved operational efficiency by having more efficient inventory control, which will reduce storage and handling costs.

Greater flexibility in inventory management, allowing the company to better adapt to changes in demand or market conditions. In conclusion, we can say that the inventory consignment model represents a key opportunity to improve working capital management in the hydrocarbon company, aligning itself with the best practices of leading companies in the industrial sector. By applying this model, the company will be able to optimize its cash flow, reduce operating costs and improve its ability to respond to market fluctuations, thus improving its long-term competitiveness. As well, the Company will be able to extrapolate this model to other operating units, in order to increase margins and profitability to consider options in an investment portfolio.



Gratefulness

We would like to express our sincere gratitude to all the people who supported us during the completion of this thesis. To the professors, for sharing their knowledge and contributing to our academic growth. To our families, for their unconditional support and motivation throughout this process, and to our fellow students, for their company and collaboration. Finally, we thank CENTRUM PUCP for providing us with the space and resources necessary to develop this research.



Dedication

We dedicate this work to our families, who have given us their love, patience and unconditional support at every step of this academic path. To our parents, for instilling in us the values of effort and perseverance, and for being our constant source of inspiration. To our friends and loved ones, for their understanding and encouragement in difficult times. Finally, we dedicate this achievement to all those who believe in education as a driving force for change and improvement, and who, with their example, motivate us to continue forward.



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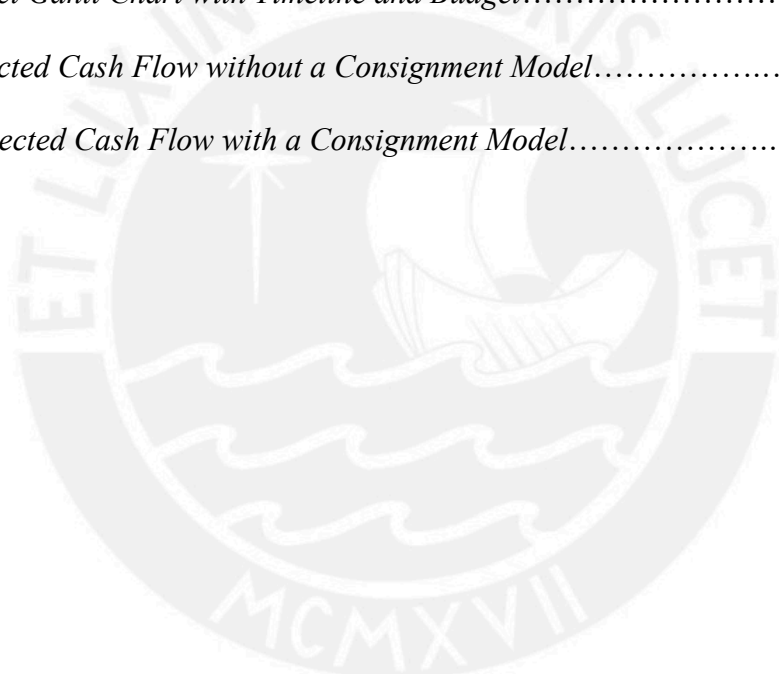
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Chapter I: Overall Company Situation

1.1. Company Presentation

The Colombian Company that we are analyzing for this thesis and consulting work belongs to the hydrocarbons sector, founded in 1963. According to the latest sustainability report (2021), the Company marked its entry into the Peruvian market in 2014, with a high commitment to excellence and innovation, and in 2018, the Company began an ambitious transformation process, which resulted in the implementation of a new format for its gas service stations and lube manufacturing plants. This visionary approach aimed to give a memorable experience to Peruvian citizens who rely on their services. Since then, the Company has experienced constant and sustained growth, consolidating itself as one of the main distributors of fuels and lubes in the country. Their commitment to quality, sustainability, and customer satisfaction has contributed significantly to their success in the competitive Peruvian market. Its management model prioritized a combination of investment in infrastructure, cutting-edge technology, and a customer-centric approach. With all this, the Company has positioned itself as a benchmark in the energy sector, providing reliable and sustainable solutions for a developing country. Its presence and contribution in Peru are a testament to the organization's commitment to international expansion and the continuous pursuit of excellence in the field of fuels and lubes.

The main milestones in the Company's history are as follows:

- 2014: Arrives in Peru with the Gazel brand.
- 2018: Begins to implement its new format of service stations.
- 2020: It reaches 41 points of sale throughout the country.
- 2022: It consolidates its position as one of the main distributors of fuels and lubes in Peru.

The Company's mission is "to generate memorable experiences, mobilizing the

country with all our brands," reflecting its commitment to delivering exceptional service across its business lines. Its vision for 2025 is to become the No. 1 service brand and to be recognized as a true Country Ally, solidifying its leadership in the energy sector. The Company's overarching purpose is "to promote and mobilize people, companies, and the country with the best energy," ensuring that it plays a pivotal role in driving progress and development through its wide range of energy solutions.

The Company is based on the following values:

- Security: Ensures the safety of their customers, employees, and suppliers.
- Sustainability: is committed to operate in a sustainable manner, respecting the environment and local communities.
- Excellence: The Company is committed to providing high-quality products and services.
- Service culture: Providing exceptional service to its customers.
- Corporate Social Responsibility: Participates in programs and projects to support local communities, promotes road safety education, and protects the environment.

In relation to the Company's culture and based on Deal and Kennedy's theory of Organizational Culture, a "Process Culture" can be identified. This type of culture is characterized by high risk aversion and insufficient feedback. As a result, it is common for this type of organization to prioritize procedures and bureaucracy, which reinforces a high resistance to change due to its deeply traditional management approach, characteristics that represent the Company we are analyzing in this study.

1.2. Business Model

Osterwalder and Pigneur (2010) define a business model as the logic by which an organization creates, delivers, and captures value. The business model encompasses how the company structures its activities, resources, customer relationships, and revenue streams to

achieve its goals and maintain profitability. This framework provides a comprehensive view of the organization's value proposition, its target market, and the internal mechanisms that enable it to compete effectively in its environment.

The business model of the Company is structured around four primary lines of business:

Lubes: The Company distributes the leading brand of lubes in Peru, offering high-quality automotive and industrial lubes. The range of lube products is available at all the Company's gas service stations and through an extensive network of distribution points across the country. The brand's market dominance is further reinforced by strategic alliances with major automotive companies, ensuring that lube products remain the top choice for consumers seeking reliable and efficient lubes (Sustainability Report from the Company, 2022).

Liquid Fuels: The Company's portfolio of liquid fuels includes gasoline, liquefied petroleum gas (LPG), and compressed natural gas (CNG), which are distributed through its extensive network of service stations across Peru. By maintaining its own supply chain and distribution infrastructure, the Company ensures a reliable and consistent fuel supply. This vertical integration allows the Company to manage costs effectively while meeting the growing demand for cleaner and more efficient energy sources (Sustainability Report from the Company, 2023).

Aviation Fuels: The Company also plays a critical role in the aviation sector by supplying jet fuels at Jorge Chavez International Airport, Peru's largest and busiest airport. This line of business is vital for the Company as it positions the Company as a key player in the aviation industry, serving both domestic and international airlines. The high demand for aviation fuel, coupled with stringent safety and quality standards, makes this a crucial and highly specialized segment of the Company's operations (Sustainability Report from the Company, 2023).

Convenience Stores: The Company operates convenience stores located within its gas service stations, offering a diverse selection of products tailored to the Peruvian consumer. These stores emphasize not only the variety of their offerings, including snacks, beverages, and essential household items, but also the high standard of customer service. The Company's commitment to providing a warm and friendly atmosphere in these stores reflects its understanding of the importance of convenience and customer satisfaction as integral components of its value proposition (Sustainability Report from the Company, 2023). Each of these lines of business contributes significantly to the Company's overall market positioning, creating a diversified revenue stream that allows the Company to maintain its leadership in the energy sector in Peru.

1.3. Industrial Sector Analysis

Porter (1979) developed the Five Forces framework to analyze the competitive environment of an industry. The model examines five key forces that shape the competitive landscape: the threat of new entrants, the bargaining power of suppliers, the bargaining power of buyers, the threat of substitute products or services, and the intensity of competitive rivalry. This framework helps businesses understand the structural factors influencing competition in their sector, allowing them to develop strategies that enhance their competitive advantage. Based on the theory of "Porter's five forces" in Peru, the lubes market is highly competitive. In this line, the main competitors are Shell, Motul, Castrol and Vistony, among others. The rivalry has intensified due to the price war, the fight for market share, and the search for competitive advantages.

According to the 2023 sustainability report, in the category of lubes for the direct automotive market, the Company increased its market share in lubes by 14 percentage points, from 30% to 44%. This growth is due to the addition of new brands in the market. In addition, they have established a new distribution model and introduced a new distributor in

Lima, focused on the segments of workshops and spare parts stores. This innovative approach will also facilitate the entry of new distributors throughout the national territory.

In the lubes industry, the Company has maintained its leading position with approximately 50% of the market share, with a specific focus on retaining its customers in key sectors such as mining and construction. This includes strengthening their relationship with heavy machinery manufacturers and expanding its presence in other emerging sectors, such as maritime, transportation and fisheries.

The purchase of lubes and raw materials is managed through global contracts, meaning that the supply chain for essential components like base oils and additives relies heavily on refineries and suppliers located outside the country. This international sourcing strategy, while offering access to high-quality materials, results in the Company having limited bargaining power with suppliers, as it is dependent on a foreign supply chain.

In contrast, the acquisition of packaging materials, which includes items such as lids, buckets, cylinders, and bottles, involves both international and local suppliers. This diverse sourcing strategy enables the Company to maintain a strong bargaining position, as it can access a broad network of suppliers who can reliably meet its needs. Consequently, the Company can secure a steady and available supply of packaging materials in the market without compromising its stringent quality standards, ensuring that packaging quality aligns with its commitment to delivering premium product

Lubes customers in Peru, which include both end consumers and distributors, have an average bargaining capacity due to the supply available in the market. Consumers can easily switch from one brand to another in search of better prices or additional services. However, the Company uses loyalty strategies and programs, and quality of service to retain its customers, through discounts, ease of transportation, guarantees, storage models, as well as

other solutions. Within the lubes business line, the Company's main customers are in the following sectors: mining, industry, automotive, distributors, and exports.

In the lubes sector, the threat of substitute products, or services is low, as there are no direct alternatives to petroleum and its derivatives for most applications. Despite this, growing environmental awareness and efforts to reduce carbon emissions could increase the demand for alternative energy sources in the future. Even so, the sector is threatened by counterfeit lubes. This problem arises when low-quality or adulterated lube products are sold as recognized brands, which can have serious consequences for both consumers and legitimate companies such as the one analyzed for this study.

According to Crowther (2018), in his article discussing the evolving future of lubes, hydrocarbons, and the rise of renewable energies, these traditional energy sources are being redefined as both nations and industries pursue more sustainable, environmentally friendly alternatives. Crowther emphasizes that the global shift toward cleaner energy is driven by increasing awareness of environmental impacts and the necessity of sustainable development. For instance, the energy transition in countries like the United Arab Emirates exemplifies this movement, as it aims to generate 44% of its domestic energy from clean sources by 2050. This ambitious goal not only highlights efforts to reduce oil dependency but also signals a broader commitment to economic diversification and the pursuit of a sustainable future.

Regarding the replacement of lubes with biolubes, Sarma and Vinu (2022) Belief: Regarding lubes, there is a trend towards biolubes, which are generated from biomass and other waste, thus reducing the carbon footprint left by manufacturing and energy generation processes. These biolubes, currently based on vegetable oils, have promising physicochemical and thermophysical properties, as well as being biodegradable. However, there is a need to further explore the use of oils derived from fossil waste, which could offer a future option for waste management and bio lube supply for various applications.

The entry of new competitors into the lubes industry is difficult, due to the high barriers to entry, which implies the need for expensive infrastructure (service stations, storage, distribution, manufacturing plants), government regulations, and the need for established relationships with suppliers and customers. This reduces the threat of new competitors. In addition to this, established brands have a strong product differentiation in the automotive, industrial, and mining markets, making it difficult for new competitors to gain market share.

External environment analysis of the Company (Opportunities and threats)

Johnson, et al. (2008) describe the PESTEL framework as a tool

for analyzing the macro-environmental factors that can impact an organization's strategy. PESTEL stands for Political, Economic, Social, Technological, Legal, and Environmental factors, and helps companies assess external pressures that could influence their operations and decision-making. By understanding these factors, businesses can anticipate changes in the environment and adapt their strategies accordingly.

Aguilar (1967) emphasized the critical role of environmental scanning in helping businesses understand the external factors that may significantly impact their operations and strategic objectives. His pioneering work focused on identifying key influences, namely political, economic, social, and technological factors, that laid the groundwork for more comprehensive frameworks such as PESTEL. These frameworks enable companies to systematically examine various influences within the macro environment, including ecological and legal dimensions, that could shape or redirect their strategic paths. By identifying and analyzing these external factors, Aguilar's framework has become fundamental in guiding companies toward more informed, resilient strategic planning in the face of changing external pressures.

Analyzing the external factors that affect the Company is essential for this study, as we will use the PESTEL model to evaluate the Company's ability to adapt to market changes and external influences. The PESTEL framework examines six key external forces: Political, Economic, Social, Technological, Legal, and Environmental factors. By systematically analyzing these dimensions, the model helps identify opportunities and threats in the external environment. This approach provides a comprehensive understanding of how political stability, economic conditions, social trends, technological advancements, regulatory changes, and environmental concerns can impact the Company's operations and strategic decisions.

1.3.1 Political

One of the fundamental tools and approaches in business strategy, specifically within the PESTEL analysis, is the examination of the political dimension. This aspect significantly impacts organizations by influencing regulatory frameworks, government policies, the level of political stability, and international relations. These factors shape the operational and strategic environment for businesses, determining the extent to which they can navigate, adapt, and thrive in various markets (Grant, 2016).

Opportunities:

Peru has several free trade agreements (FTAs) that facilitate the import and export of products for the Company, these agreements have allowed it to have a presence in new markets such as Ecuador, Panama, Colombia, Chile, and others in the region. It also takes advantage of these treaties to import its main raw materials from Central America. The country has several environmental regulations that can represent opportunities for a Company that produces and markets lubricating oils, especially if it focuses on sustainability and innovation. Some of these regulations and policies include:

National Solid Waste Management Plan (Supreme Decree No. 014-2017-MINAM):

The Company has implemented a recycling and waste management system in its production that positively affects the Company's image and reduces the impact on its carbon footprint.

Promotion of Carbon Footprint Certifications: Initiatives such as the certification of products and companies with a low carbon footprint are promoted by the Ministry of the Environment (MINAM). The Company currently boasts the third carbon footprint star and plans to be a carbon neutral Company by 2025.

In our local legislation, companies involved in the marketing of hydrocarbons and their derivatives are not governed by direct regulations specifically aimed at promoting profits within this sector. However, these companies can take advantage of general tax incentives available to various economic sectors, which may indirectly support their financial performance by reducing tax burdens and encouraging reinvestment. These incentives allow hydrocarbon companies to align with broader economic policies designed to stimulate growth across multiple industries, rather than benefiting from exclusive regulatory support. Relevant regulatory framework includes:

Income Tax Law (LIR): D.S. No. 122-94-EF:

1. Allows for deductions of operating expenses and accelerated depreciation of assets. Applicable to companies that invest in research and development (R+D).
2. Law on the Promotion of Investment in Special Economic Zones: It establishes tax benefits for companies operating in areas such as the Amazon, with tax exemptions and reductions.
3. Law No. 22342 Law on the Promotion of Non-Traditional Exports: It offers tax benefits for companies that export non-traditional products, including lubes.
4. Legislative Decree No. 1187: It promotes investment in scientific research, technological development and innovation, applicable if lube companies invest in these areas.

5. General Environmental Law (Law No. 28611): It encourages the adoption of environmentally friendly practices, which could offer tax incentives if lubes meet strict environmental standards.

Threats:

Corruption remains a significant problem in Peru, which can complicate the Company's business operations and increase transaction costs (Transparency International, 2020). Not only does this phenomenon affect operational efficiency, but it can also damage the Company's reputation if it is involved in corrupt practices, either directly or indirectly. In addition, corruption can lead to inefficient allocation of resources, distort competition, and create an environment of uncertainty that discourages foreign investment.

Another significant threat is political instability. Frequent changes in the Peruvian government have created an environment of uncertainty that can affect the Company's long-term strategic planning. Changes in management are often accompanied by changes in economic, fiscal, and regulatory policies, which can negatively impact the business climate. Although there have been no significant setbacks in private investment up to now, the possibility of changes in foreign investment policy, tax reforms, or new environmental regulations remains a latent risk.

On the other hand, trade conflicts in other countries such as Ukraine and Russia put the oil supply chain, one of the most important raw materials for the manufacture of lubes, at risk. Likewise, the Company has several customers in Peruvian territory, so its distribution operations are exposed to protests, or work stoppages. In this regard, it should be noted that the Ombudsman's Office, in its Active Conflicts 2024 report, reports that there are 116 active cases in Peru, the segmentation of which is shown below:

1.3.2. Economic

Companies require a comprehensive strategic analysis to effectively navigate their

business environments. This analysis often includes the use of the PESTEL framework, which allows for a detailed evaluation of economic factors. Key economic elements such as economic growth, interest rates, inflation, and related variables play a crucial role in shaping organizational strategies. By assessing these factors, companies can anticipate shifts in their external environment and make informed decisions that enhance their resilience and adaptability in the market (Johnson et al., 2017).

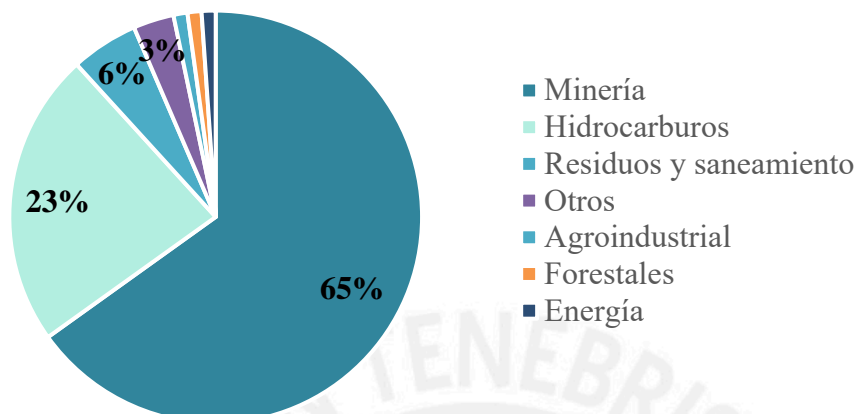
Opportunities:

According to an article in *Desde Adentro de la Sociedad Nacional de Minería, Petróleo y Energía*, published in April 2024, Peru's portfolio of mining projects surpasses US\$54 billion, highlighting the mining sector's vital role in the country's economy and its attraction for substantial domestic and international investment.

In addition, the Peru Economic Outlook report by BBVA, released in March 2024, projects a downward trend in inflation, expected to reach 2.6% by the end of 2024 and 2.4% by 2025. This decline suggests improved economic stability, supporting consumer purchasing power and investor confidence, which are beneficial to industries like mining. Together, these indicators show a favorable economic environment for continued growth in Peru's resource sectors.

Figure 1

Percentage Distribution of Active Socio Environmental Conflicts

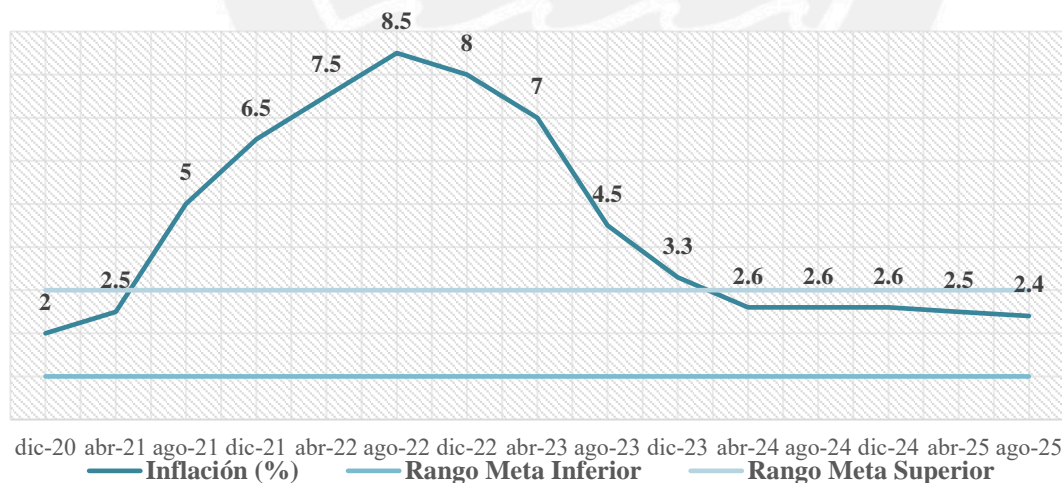


Note. Data from *Defensoría del Pueblo*, by SIMCO, 2024.

<https://www.defensoria.gob.pe/wp-content/uploads/2024/03/Reporte-Mensual-de-Conflictos-Sociales-n.%C2%B0-240-Febrero-2024.pdf>

Figure 2

Inflation Projection in Peru (2020 – 2025)



Note. Data from *Informe de tasas de interés y depósitos a plazo fijo*, by BCRP, 2024.

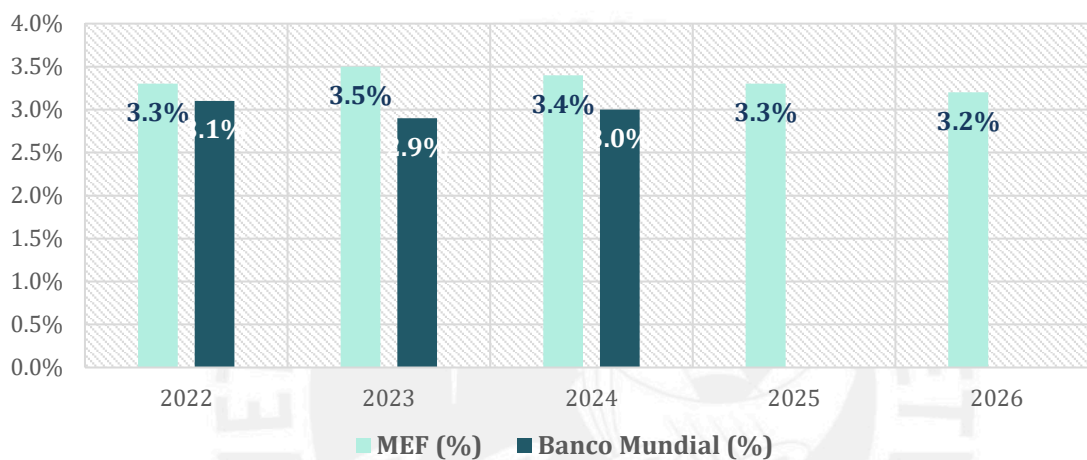
<https://www.bcrp.gob.pe/>

According to Peru's foreign trade chamber, COMEX, an economic growth projection of 3.4% is anticipated for 2024, assuming a scenario of socio-political and macroeconomic

stability. This optimistic forecast reflects expectations that favorable conditions will support steady economic expansion. In contrast, a report from the World Bank projects a slightly lower growth rate, estimating that Peru's GDP will grow by 3% by the end of 2024. This variation in projections highlights the importance of stability in achieving growth targets and indicates cautious optimism regarding Peru's economic outlook for the year.

Figure 3

GDP Growth Projection in Peru 2022–2026 (Annual % Change)



Note. Data from *GDP Growth Projection in Peru*, by MEF and World Bank, 2024.

Threats:

On the other hand, the conflicts of the war in Ukraine have also significantly affected energy, and raw material prices globally. These price fluctuations have affected lube production costs.

Likewise, during the COVID-19 pandemic, the demand for containers increased dramatically, causing a global shortage. Container restrictions and unavailability could persist, affecting logistics and transportation costs. In addition, droughts in Panama have reduced the water level in the canal, limiting the number of ships that can cross, and the cargo they can carry. This has caused congestion and delays on a crucial global trade route, leading to increased costs and expenses in the global supply chain. These conditions have forced

Panama Canal authorities to implement restrictions on vessel draughts, meaning ships must reduce the amount of cargo they carry to cross the canal. As a result, many ships have chosen to divert their routes, rather than having to face long waits to cross, which increases delivery times and destabilizes supply chains.

1.3.3 Social

Based on Kotler and Keller (2016), to gain a comprehensive understanding of an organization's social environment, it is essential to examine the influence of various social factors on its marketing strategies and overall business management. Key factors such as demographic shifts, cultural norms, and behavioral trends play a significant role in shaping consumer preferences and expectations. By analyzing these elements, organizations can adapt their strategies to meet the evolving needs of their target markets, ensuring greater alignment with societal changes and enhancing their competitive positioning in the marketplace.

Opportunities:

The improvement in the standard of living and the growth of the middle class has increased the purchase of personal vehicles, which in turn increases the demand for lubes (National Institute of Statistics and Informatics [INEI], 2020). This phenomenon not only translates into a higher volume of lube sales, but also into the possibility of diversifying the products offered to meet the needs of different market segments. As more people procure their own vehicles, the opportunity arises to offer high-end, and specialized lubes, such as those designed to improve engine performance or extend vehicle life.

Growing environmental awareness among consumers is driving the demand for greener and more sustainable products, representing an opportunity for innovation in the development of eco-friendly lubes (INEI, 2020). The trend towards responsible consumption is leading more consumers to seek out products that minimize their environmental impact, creating an expanding market for lubes that use biodegradable ingredients, produce less

waste, and have a more sustainable life cycle. To capitalize on this trend, the Company has developed a line of products and packaging with lower CO₂ emissions, which not only responds to consumer demands, but also improves the corporate image by positioning itself as a brand committed to sustainability. According to the Update Report of Macroeconomic Projections of the Ministry of Economy and Finance 2024-2027, the economic sectors are in the recovery phase and have an estimated growth of 3.4%, which translates into an increase in jobs and greater purchasing power for Peruvian people.

Threats:

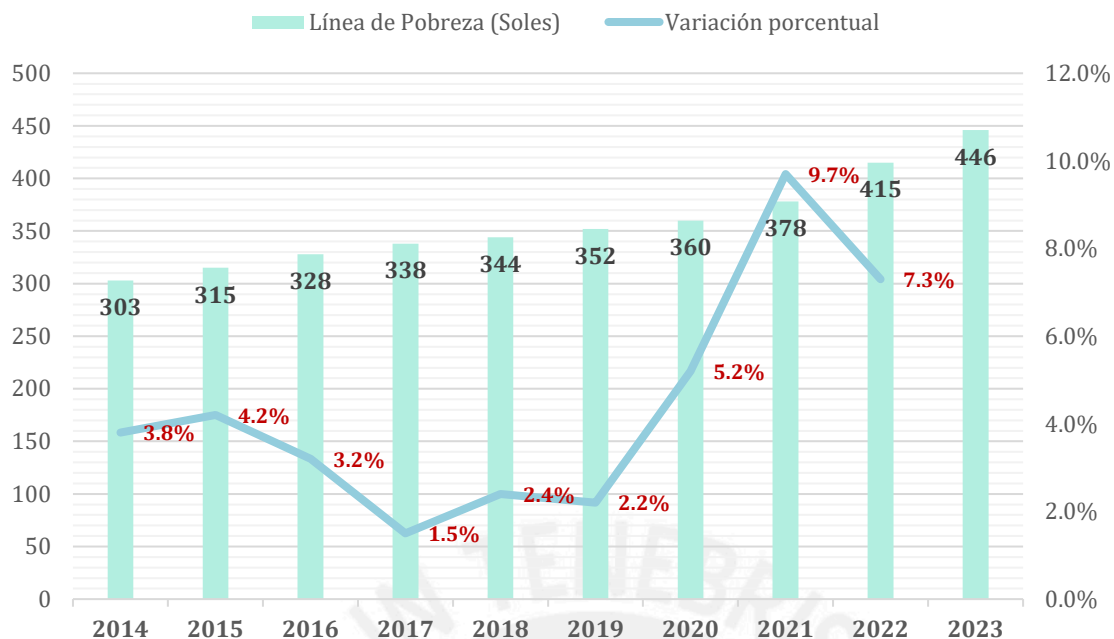
Consumer preferences are shifting towards more sustainable products. Traditional lube companies must adapt quickly so as not to lose market share (INEI, 2020). Economic and social inequality can limit the access of certain segments of the population to quality products, affecting the overall demand for lubes (INEI, 2020).

1.3.4 Technological

The adoption of new technologies allows for the development of more efficient and sustainable lubes, differentiating the Company from its competitors and meeting the growing demand for ecological products (Ministry of Production [PRODUCE], 2021). This trend towards sustainability not only responds to consumer expectations, but also positions the Company as an industry leader in adopting environmentally responsible practices. By investing in research and development to create lubes that offer better performance with less environmental impact, the Company under analysis can capture a growing market share among environmentally conscious consumers.

Figure 4

Evolution of the total poverty line and per capita food basket



Note. Data from *Encuesta Nacional de Hogares*, by INEI, 2024.

Based on Schilling (2019), strategic management of technological innovation, including the analysis of technological factors in the business environment, examines how innovations, technological development and adaptation affect the competitiveness and sustainability of organizations.

Digitalization and information technology adoption improve supply chain management and optimize production and distribution processes (PRODUCE, 2021). By implementing advanced technologies such as the Internet of Things (IoT) and artificial intelligence (AI), the Company can achieve greater operational efficiency, reduce costs, and minimize errors in the supply chain. In addition, these technologies allow for greater flexibility and responsiveness to changes in demand, which is crucial in a dynamic market.

The growth of e-commerce for lubes is another significant opportunity. With the expansion of online sales platforms, the Company can expand into a wider and more diversified market, reaching customers who prefer to make purchases from the comfort of their homes. E-commerce also offers the ability to personalize the customer experience, using data to offer product recommendations and targeted promotions, which can increase customer

loyalty and sales.

In 2023, the Company began its digital transformation process in the operational areas, which involved the implementation of robots in its filling and storage lines in its warehouses. It also acquired real-time monitoring software programs for its operating lines, to compile data for better and faster decision-making. By 2026, the Company plans to complete its digital transformation process, with major projects in areas such as Blending, Winery and Maintenance.

Threats:

Rapid technological evolution can make current products obsolete. Constant investment in Research and Development is crucial to stay competitive (PRODUCE, 2021). In an environment where technology is advancing rapidly, a risk that The Company's products will become outdated without continued investment in innovation exists. Companies that fail to keep up with technological trends may lose market share to more agile and technologically advanced competitors.

On the other hand, the implementation of new technologies can be costly, especially for companies that do not have sufficient financial resources to invest in continuous innovation (PRODUCE, 2021). The Company could face significant financial challenges if it tries to adopt new technologies at a pace that exceeds its investment capacity. In addition, the return on investment (ROI) in these technologies is not always immediate, which can put additional pressure on profit margins. This situation could limit the Company's ability to compete in a market where technological advances are a key differentiator.

In conclusion, while the adoption of new technologies and digitalization present exciting opportunities for growth and differentiation, The Company must balance these initiatives with careful cost management and strategic planning to mitigate the risks associated with rapid technological evolution and the investment required to stay competitive.

The rapid growth of new business models, focused on their value enhancement through offering multichannel services, mainly developed in technology, forces the Company to not only continue to meet its current requirements, but to also invest in comprehensive solutions at a speed that the sector demands.

1.3.5 Legal

On the legal front, the opportunities and threats for the Company can be analyzed considering the current legislation, the regulatory environment, and the trends in public policies that affect the lubes and hydrocarbons industry throughout the country.

For Worthington and Britton (2015) the impact of legal factors, such as regulations, labour laws, and compliance policies, on organizations. Explains how PESTEL analysis can help identify and assess legal risks and opportunities in the business environment.

Opportunities:

Stricter environmental laws and regulations, both domestically and internationally, can represent opportunities for the Company. The implementation of regulations that favor the use of sustainable products can encourage the creation and marketing of ecological lubes. Proactively complying with these regulations can enhance the Company's reputation as an entity committed to sustainability, opening new market opportunities and strategic alliances with government entities and non-governmental organizations (NGOs) oriented to environmental protection.

The Peruvian government could implement tax incentives for companies that invest in clean technologies and sustainable practices. The Company could take advantage of these incentives to reduce investment costs in Research and Development, and in the adoption of green technologies. Additionally, participating in sustainability-oriented government programs could provide access to preferential financing and other benefits that support the expansion of your green product line.

A robust legal framework in intellectual property offers an opportunity for the Company to protect its innovations and technological developments. An environment that adequately protects patents and trademarks allows the Company to maintain a competitive advantage by ensuring that its innovations are not easily replicated by competitors.

Threats:

The hydrocarbons and lubes industry are subject to a changing regulatory environment. Changes in legislation, such as the implementation of new environmental laws, additional taxes on petroleum products, or stricter regulations on the production and marketing of lubes, can increase operating costs and make compliance more difficult. These modifications can generate uncertainty and require additional investments to adapt processes to adhere to the new regulations.

The hydrocarbon industry is exposed to a high risk of litigation, especially related to environmental, labor, and public health issues. The Company could face lawsuits if its operations are perceived as harmful to the environment, or public health, which would involve significant costs and a negative impact on its reputation. Exposure to legal risks, including those arising from potential industrial accidents, or non-compliance with regulations, is a threat that the Company must proactively manage.

1.3.6 Environmental

Opportunities:

The growing awareness of sustainability and environmental protections present opportunities to develop and market environmentally friendly lubes, enhancing the Company's image and attracting environmentally conscious consumers (Switzerland Global Enterprise [S-GE], 2020). Regulations that promote sustainability can open new markets and opportunities for innovative and eco-friendly products (S-GE, 2020).

Grant, et al. (2017) states that environmental factors such as sustainability, climate

change and resource management affect logistics and supply chains. PESTEL analysis provides an understanding of the environmental challenges and opportunities that impact businesses and their sustainable strategies.

In the last two years, the Company has drawn up a Sustainability Plan that involves new management practices and environmental awareness, in this sense, it began this program in 2023, through the assessment and measurement of the Carbon Footprint, such as the inclusion of the production of new packaging such as the doypack, and the use of recycled raw materials and dual use. According to this, the Company changed the use of its energy source at the beginning of 2024, migrating from Diesel to natural gas.

Threats:

Climate change poses a significant threat, as it can affect operations, and the availability of resources needed for lube production (World Bank, 2021). Pressure from environmental groups can force the Company to adopt more sustainable practices, which can increase operating costs and require changes in production strategy (World Bank, 2021; S-GE, 2020). A greater number of environmental regulations that impact production levels. Market trends can cause a real threat, so the Company must align its efforts and investments in eco-friendly and at the same time, profitable models.

1.4. External Environment Analysis of the Company (Strengths and Weaknesses)

David (2011) explains that the AMOFHIT framework is used to assess a company's internal functional areas: Administration, Marketing, Operations, Finance, Human Resources, and Information Technology. This analysis allows organizations to gain insight into their internal strengths and weaknesses across key functional domains, helping them identify areas for improvement and align internal capabilities with strategic objectives.

Grant (2016) highlights the significance of assessing core functional areas within an organization—such as administration, marketing, operations, finance, human resources, and

information technology—to gain insight into the company's internal strengths and weaknesses. This type of structured analysis allows companies to ensure that each function supports the overall strategic direction and competitive positioning of the business.

To determine a diagnosis of the Company, an analysis of its internal state is required, so we have evaluated the areas of Administration, Marketing, and Sales, Operations (production), Logistics, and Infrastructure, Finance and Accounting, Human Resources, Information Systems & Communications and Technology and Research and Development. With this information, the current state of the Company's operations will be known.

1.4.1. Company Administration (A)

According to D-Alessio (2015), the AMOFHIT analysis allows organizations to comprehensively evaluate their functional areas, identifying opportunities for improvement and aligning their administrative resources and processes with strategic objectives.

Strengths:

The Company's management is organized hierarchically, with a general manager overseeing the three lines of business, which are: aviation, fuels, and lubes. The general manager is responsible for the strategic direction of the Company, while the frontline managers manage the operations of their respective departments.

The entire management team of the Company is installed in Peru, which allows decision-making to be agile and timely, likewise, the local management team is empowered to make all the business decisions for the Company. The majority of the management team comes from the parent Company, which also own the brand, this has given them extensive experience and knowledge of the business, locally and internationally. In addition, they share the organizational culture of the Company and its parent Company, achieving cultural synergy.

Weaknesses:

The Company does not have Information Technology management, that allows it to have a holistic view of opportunities for improvement in operational areas and make better use of the Company's information to make more agile and efficient decisions.

Management is made up of men, which invites reflection on women's participation in leadership positions. This is also noticeable in operational areas where many employees are men. Given the years of experience of the management staff, it is necessary to have a succession plan in place that will help in maintaining the continuity of operations at the same standards, and the organizational culture aligned with the Company's mission.

1.4.2 Marketing and Sales (M)

D'Alessio (2015) also defines that AMOFHIT analysis allows companies to optimize their marketing and sales functions, focusing on identifying market opportunities, improving the positioning of their products and aligning their sales strategies with the strategic objectives of the organization.

Strengths:

The Company's marketing area maintains an active presence in digital media such as LinkedIn, Facebook, Instagram, TikTok and YouTube, which facilitates constant interaction with consumers and allows direct feedback from them.

One of the outstanding programs is "Smart Assistant", promoted mainly through LinkedIn, which allows the performance of products to be remotely monitored, offering customers an innovative and easily accessible tool. In addition, on YouTube, the Company offers tutorials and technical tips on handling its products; the most popular is "Doctor Displacement", known for its practical and educational approach. The presentation of products is customized for the Peruvian market, adapting to the diverse geographical conditions of the country. For example, in the highlands, products are offered in 2.5-gallon buckets, while in the jungle, sachets are used, responding to the specific needs of these

regions.

The Company also focuses on satisfying the interest of the Peruvian consumer by providing offers and promotions through campaigns. In addition, it develops a new portfolio of products designed for hybrid and electric vehicles, aligned with emerging trends in the automotive market. Strategic alliances with car and truck workshops and dealerships reinforce its position in the market by providing comprehensive support to its customers. Thanks to its robust distribution network, the Company has a presence in 22 regions of Peru, ensuring broad and efficient coverage throughout the national territory.

Weaknesses:

One of the main weaknesses in the Marketing and Sales area is the absence of a specific strategy within the Company's strategic plan to face the problem of adulteration and counterfeiting of products, a recurring situation in the lube line that could negatively affect consumer confidence, and the Company's reputation. This lack of attention to a critical problem leaves the Company vulnerable to competitors who do address this challenge with proactive measures.

In addition, the Company has not developed a value proposition that integrates complementary services to the main product, limiting its offer exclusively to the sale of lubes. This lack of differentiation prevents the Company from positioning itself competitively in the market, as it does not offer added value that can capture the attention of a wider segment of customers. The situation is aggravated by the lack of strategic alliances in the motorcycle and moto-taxi market, a growing sector that represents an untapped opportunity to expand the presence of the Company's products in new market niches.

Another significant weakness is the lack of an e-commerce platform, which restricts the Company's ability to reach a wider audience and take advantage of the opportunities offered by the growing e-commerce market in the country. The absence of a digital presence

limits the accessibility of products and can lead the Company to lose market share to competitors who have adopted these technologies. Likewise, the Company does not offer home delivery services, an omission that decreases customer satisfaction and could be limiting sales, especially in an environment where online shopping and direct-to-consumer delivery is booming. The lack of these services shows a disconnect from current market trends, where ease of access and convenience are key factors for consumers.

1.4.3 Operations

For D'Alessio (2015) AMOFHIT analysis provides a comprehensive framework for evaluating and optimizing business operations, focusing on process efficiency and supply chain management to ensure that these activities are aligned with the organization's strategic objectives.

Strengths

The Company has a production plant for lube oils and grease, which makes products available in a faster period than the competition. To serve customers in a timely manner, the Company has strategic agreements with several suppliers in the supply chain, maintaining high quality standards throughout the process.

During 2023, the Company established its digital transformation plan that should be completed by 2026. It is expected that this digitalization process will allow decisions to be made based on data and algorithms. The plant maintains various certifications that demonstrate the high quality of both, operations and the products it sells, always aligned with the Company's purpose in environmental factors.

Weaknesses

One of the key weaknesses identified is that decisions made at the plant level often fail to consider the financial impacts that could generate value for the Company. This oversight can lead to suboptimal resource allocation, inefficiencies in operations, and missed

opportunities for cost savings or revenue enhancement. Without integrating financial analysis into decision-making processes, the plant risks focusing solely on operational efficiency, potentially overlooking the broader economic implications of its actions. For instance, decisions related to maintenance schedules, inventory management, or procurement may not fully assess the long-term financial consequences, such as cash flow implications or return on investment. This gap between operational decisions and financial outcomes can hinder the Company's ability to maximize profitability and maintain a competitive edge in the market. To address this weakness, the Company should consider implementing more robust financial planning and analysis tools at the plant level to ensure that decisions are aligned with overall business goals and financial performance metrics.

On the other hand, there is no inventory management policy that defines an efficient treatment of packaging since it has a conservative model. The Company handles regional contracts under the directive of the brand owner, which implies low bargaining power.

1.4.4 Finance and Accounting (F)

For Lynch (2018) using AMOFHIT analysis in the financial area helps organizations effectively identify key performance areas, enabling better management of financial resources and a more strategic approach to economic decision-making.

Strengths

The Company has a high financial strength, which leads to self-financing. It sometimes finances its affiliates in the region and other operations.

It has optimal financial ratios within the sector in which it operates. It has an optimal ROA and ROE in the sector in which it operates, which demonstrates a high profitability against assets, and Partner contributions.

Weaknesses

After the analysis was carried out, it was observed that there is a lack of alignment

between certain areas of the Company, such as planning, operations, finance, and commercial that results in a lack of alignment between the average payment period and the collection days. Lack of a holistic view of the financial impacts on day-to-day operations.

1.4.5. Human Resources

As Dessler (2020) states AMOFHIT analysis in Human Resources provides detailed insight into key functions and processes, enabling organizations to align their talent management strategies with corporate objectives to maximize employee effectiveness and engagement.

Strengths

The Company has a solid corporate culture focused on ensuring and guaranteeing the well-being and safety of all its workers. This is represented through key indicators such as: (i) zero workplace accidents since the start of operations, (ii) climate measurement with acceptance greater than 80%, and (iii) low staff turnover.

In addition to the traditional structure, it maintains, the Company values, the trust of the workers, their experience, and their knowledge.

It has a variety of development programs according to employee needs.

Weaknesses:

They have it with integration activities that allow establishing integration and development dynamics that have an impact on day-to-day activities.

Although the Company promotes a culture of diversity, equity, and inclusion, this is not possible in all areas, especially in the areas where they do not have the infrastructure to welcome female personnel.

1.4.6 Research and Development

Strengths

The Company has an area focused on the development of new products aligned with market trends, such as synthetic lubes and eco-friendly lubes, among others. It always seems to be more profitable, through new formulas, without compromising the quality of the products. As well as developing products according to the needs of the market (location, region, etc.).

Weaknesses

One of the key weaknesses identified is the lack of a formal research and development (R&D) policy specifically dedicated to the service line. This absence limits the organization's ability to innovate and improve service offerings proactively. Without an R&D policy, the company may struggle to keep pace with evolving market demands and industry advancements, potentially impacting its competitiveness and capacity for long-term growth in the service sector.

1.4.7 Technology

Strengths

The Company has invested in the automation of production processes in recent years. It has also developed applications that help it to obtain data for analytical development and decision-making. It has a progressive digital transformation in place until 2026, which will allow it to be at the forefront of the sector.

Weaknesses

One critical weakness is the absence of a dedicated IT area on the operations floor, which hampers the Company's ability to efficiently manage and support technological processes directly at the operational level. Without an IT presence on the floor, resolving technical issues can take longer, disrupting operations and causing delays in production or

service delivery. This lack of real-time IT support could also hinder the implementation of advanced technologies, such as automation or real-time data monitoring, which are essential for improving operational efficiency and responsiveness to market demands.

Additionally, the Company suffers from a lack of integration of analytical development programs through a centralized database. The absence of such integration creates silos of information across departments and limits the Company's ability to harness data-driven insights that could enhance decision-making. Without a unified database, different areas of the business may be using disparate systems, leading to inefficiencies in communication, delays in accessing critical information, and potential inaccuracies in reporting. This fragmented approach to data management restricts the Company's capacity to fully utilize analytical tools for performance forecasting, risk management, and process optimization. Developing an integrated IT infrastructure, including a centralized database, would enable seamless data sharing across departments, fostering collaboration, streamlining operations, and ultimately supporting more informed and agile business decisions.

Conclusion:

From the analysis carried out, we consider that, although there is financial strength, there is a lack of integration and awareness of the financial impacts between internal areas also accompanied by a traditional culture. We have seen this reflected in the management of inventories, which follow traditional patterns, making the average payment period not aligned with the collection period.

Chapter II: Business Diagnosis and Main Problem

2.1. Work Methodology

To support this study, a comprehensive approach was taken to gather relevant data and insights. First, essential information was compiled from the company's official website, providing a foundational understanding of its operations, products, and market positioning. This was followed by in-depth interviews with key personnel from the production, finance, marketing, and accounting departments. These interviews offered valuable perspectives on the company's internal processes, financial strategies, and market performance, ensuring a holistic view of the organization's strengths and areas for improvement.

In addition to these interviews, a visit to the company's plant was conducted, which allowed for an on-site assessment of the production processes and operational workflows. Observing the plant in action helped to identify key operational challenges and opportunities for optimization, contributing to a more grounded understanding of the company's day-to-day activities.

Furthermore, a series of benchmarking activities were carried out with some of the leading companies in the industrial sector, including Gloria, Alicorp, and San Miguel Industries. These guided tours provided an opportunity to compare the company's practices with those of established industry leaders, offering insights into best practices in areas such as supply chain management, production efficiency, and financial performance. By examining how these companies operate, the study was able to identify potential strategies for improving competitiveness and operational effectiveness within the company.

Likewise, the role we have had as a group has been that of Business Consultant, which has involved identifying a specific problem within the Company and being tasked with: a) diagnosing and analyzing the inventory management problem; b) conducting interviews with the Company's leaders; c) defining the financial impact; and, d) presenting

the final delivery of the work to the Operations Manager.

2.2. List of Problems

1. Overstock of raw materials: The company maintains a high level of inventory to ensure continuous availability of raw materials. While this strategy proved effective during the pandemic, it has resulted in excessive stock levels, leading to high storage costs and the risk of obsolescence, elevating storage costs and capital tied up in inventory. However, after comprehensive analysis with the Supply Manager we confirmed that this practice guarantees the timely deliver to its clients.
2. Long-term agreements contracted by the Head Office for base oil and additives: The company lacks the ability to negotiate freely with local suppliers as supply contracts are dictated by the headquarters. Financially, this limits opportunities for cost savings through competitive local pricing. Operationally, it reduces flexibility in adjusting orders and conditions and hinders the adaptation of the supply chain to specific local needs. Ultimately, this centralized approach leads to increased procurement costs and a weakened competitive position in the local market. Due to strategic partnerships among the headquarter and specific vendors, there is no possibility to perform local market research. The mentioned partnerships set by the head office aims to guarantee quality of products and safeguards brand's reputation.
3. Lack of diversification of local suppliers to provide packaging: orders volume is not attractive to the local vendor compared with other sectors such as: beverage, food, paint, among other industries, which leads to have a reduced local supplier options available to work with the Company. Financially speaking, these conditions lead to unfavorable contractual terms, particularly regarding payment terms, which result in significantly extended cash conversion cycles.

4. Lack of packaging inventory management policy: The absence of a dedicated packaging inventory management policy has created a significant gap in the company's inventory control system. While raw materials and finished goods are subject to specific inventory policies, packaging materials have been overlooked, leading to inconsistent management practices. As a consequence, packaging inventory has experienced low turnover rates, depreciation, obsolescence, and excessive stock levels, affecting financially to the Company.
5. Lack of coordination between Planning and Production departments: It has resulted in misalignments between inventory levels and actual production demand. This misalignment has led to production disruptions caused by shortages of critical raw materials or excess idle inventory. These recurring issues jeopardize the continuity of operations and overall production efficiency. Even though this problem had been identified during our initial consulting analysis, currently this gap has been resolved by the involved departments.

2.3. Complexity Vs Benefit Matrix

Inventory consignment is an agreement where the supplier retains ownership of the goods until they are sold or used in the production process, allowing the Company to not have to assume the cost of the inventory until the time of its use or sale.

This strategy can reduce the need to maintain large levels of inventory and also frees up working capital. In this regard, the matrix that allows visualization of the viability of implementing consignment as a strategy for managing the Company's inventory is presented below: As we can see, the most recommended actions that offer a significant impact with minimal effort focus on reducing unnecessary inventory levels and optimizing the customer collection cycle.

Table 1*Complexity Matrix Based on Benefit and Complexity*

		Low	High
Benefit	High	<ul style="list-style-type: none"> - Reduction of unnecessary inventory levels. - Optimization of the customer collection cycle 	<ul style="list-style-type: none"> - Review and adjustment of customer credit policies - Implementation of an advanced inventory management system.
	Low	<ul style="list-style-type: none"> - Review of contracts with suppliers without significant changes. - Reduction of minor expenses on non-essential supplies. 	<ul style="list-style-type: none"> - Complete change of the organizational structure of the supply chain. - Comprehensive reorganization of policies without tangible short-term results.

2.4. Main Problem

This work based its research on the central problem of “Inefficiency in the management of working capital and inventories, resulting from a decrease in the Company's operating cash flow.”

Chapter III: Determining the Cause(s) of the Main Problem

3.1. Identified Causes

To determine the root cause prioritization matrix, we followed a structured approach that involved several key steps. First, we analyzed the Company's financial data from the past two years to identify trends and areas of concern. Additionally, we conducted multiple visits to the Company to gain a comprehensive understanding of its operations, while also gathering valuable insights through interviews with key collaborators. These discussions provided an in-depth view of the organization's internal processes. Furthermore, we held interviews with representatives from the Company's critical areas, ensuring that we captured perspectives from all essential departments.

Supply: From the interviews, we confirmed that the Company maintains a conservative purchasing model, which prioritizes risk mitigation through high inventory levels, particularly regarding delays in deliveries from local suppliers. This policy has led the Company to maintain inventories prioritizing customer effectiveness over operational efficiency, immobilizing capital that could otherwise be used for other operations.

Finance: We confirmed that the Company does not have an alignment between payment and collection policies. While the accounts payable have relatively short terms, accounts receivable have longer recovery times, which extends the cash conversion cycle. This effect results in a reduction in the generation of operating cash flow. In response to this scenario, the finance area has not defined a comprehensive policy to address this situation.

Production: The culturally traditional and conservative business model, which focuses on risk mitigation and ensuring the best service and availability for its clients, has resulted in ineffective financial and operational processes in customer service.

Commercial: We found that the area's objectives are governed by corporate policies and based on the Company's brand guidelines.

3.2. Root Cause Prioritization Matrix

3.2.1 Feasibility

The feasibility criteria assess how easily the Company can implement solutions to each identified root cause, considering available resources, internal capacity, and the complexity of the proposed solutions. Each root cause was evaluated on a scale from 1 to 10, as recommended by Higgins (2019), where 1 represents low feasibility due to the difficulty of implementation, and 10 indicates high feasibility, where solutions can be readily implemented with existing resources. As noted by Fernández and Martínez (2019a), the feasibility of a solution depends on several key factors, including resource availability, staff training, and the technology accessible to the Company. By evaluating these elements, the Company can prioritize solutions that are most viable from both operational and financial perspectives.

3.2.2 Benefits

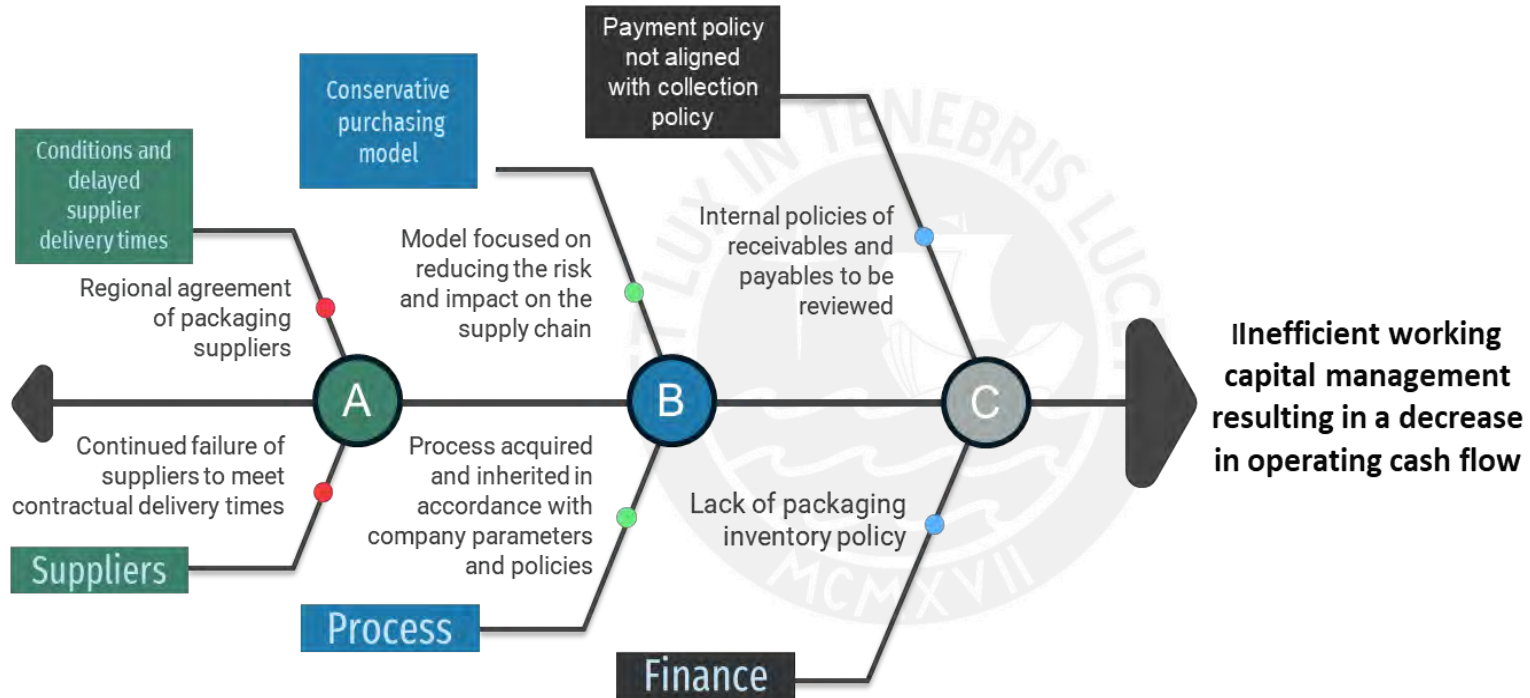
The benefit criteria assess the positive impact that resolving each root cause can have on the Company, focusing on improvements in operating cash flow and increased supply chain efficiency. According to Rodríguez (2020), benefits are rated on a scale from 1 to 10, where 1 signifies limited benefit and 10 indicates a significant positive impact for the Company. Pérez (2021) highlights that evaluating benefits is crucial for identifying solutions that yield the highest return on investment, as it directs efforts toward resolving issues that directly affect profitability. Areas such as process optimization and improved inventory management are particularly important, as addressing these can substantially enhance the Company's financial performance.

3.2.3 Result

After performing the analysis of the Root Cause Prioritization Matrix, the most urgent causes to address were identified in the areas of Supply, Processes, and Finance. Following

Figure 5

Diagram Illustrating Inefficiencies in Working Capital Management



Ishikawa's (1982) cause-effect analysis approach, the causes related to the Company's internal processes were prioritized due to their high impact on efficiency and profitability. According to the Ishikawa matrix, we identified that the central cause is the process, which has two main roots, the supply chain process is a process acquired over the years and on the other hand, the cultural model of the company, avoids significant changes due to risk mitigation.

Table 2

Solution Alternatives Based on Feasibility and Benefit

N°	Area	Cause	Feasibility	Benefit	Total
A.1	SUPPLY	Delays in supplier's delivery times	6	7	6.5
A.2	SUPPLY	Continuous failure of suppliers to meet contractual delivery times	5	8	6.5
B.1	PROCESS	Conservative purchasing model	8	9	8.5
B.2	PROCESS	Inventory Management not aligned with current market trends	7	10	8.5
C.1	FINANCE	Payment policies not aligned with collection policies	5	8	6.5
C.2	FINANCE	Payment policies not aligned with collection policies	6	9	8.5

Chapter IV. Solutions Alternatives

4.1. Identified Alternatives Solutions

For the present project, we chose to segment the solution alternatives into two key areas.

Management: This front focuses on improving internal processes, optimizing the management of working capital and inventories, and enhancing operational efficiency. The goal is to implement strategic changes that directly address inefficiencies, streamline decision-making, and improve financial oversight, all of which will contribute to increasing the Company's operating cash flow.

Sustainability: This front is dedicated to ensuring that the proposed solutions are environmentally sustainable, aligning with practices that are favorable for the environment. By integrating sustainability into inventory and capital management practices, the Company not only addresses its operational inefficiencies but also enhances its corporate responsibility, ensuring long-term benefits for both the business and the environment.

Both fronts are aligned to tackle the core issue of "Inefficiency in the management of working capital and inventories, which has led to a decrease in the Company's operating cash flow." This dual approach ensures that the solutions are comprehensive, addressing both the financial and environmental aspects of the problem.

In the following graphic, we visually present the four proposed solution alternatives to address the identified problem:

4.2. Solution Alternatives Evaluation

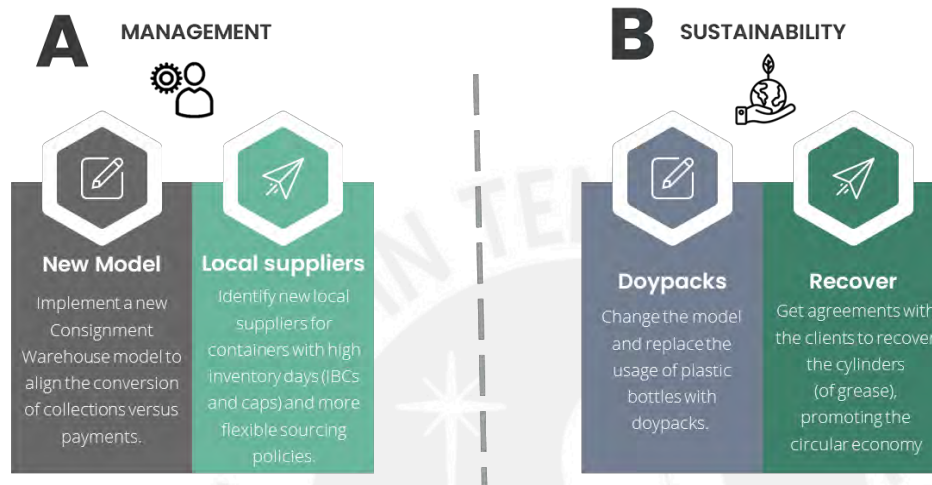
David (2011) explains that the FACTIS Matrix is a strategic tool used to evaluate internal and external factors that influence an organization's performance. This matrix provides a structured approach to analyze factors such as finances, administration, competitors, technology, and social environment. By using the FACTIS Matrix, companies

can assess their overall strategic position and identify opportunities and threats in their environment.

Figure 6

Management and Sustainability Strategies

Inefficiency in the management of working capital and inventories, resulting from a decrease in the company's operating cash flow



Each letter in the FACTIS acronym represents a specific criterion used to evaluate the solutions:

- **F (Feasibility):** This criterion measures the ease of implementing the solution. Solutions are evaluated based on how practical they are to implement within the Company's existing structure and processes. A higher score indicates that the solution can be easily adopted with minimal disruptions, while a lower score reflects significant challenges or obstacles.
- **A (Areas Affected):** This measures the extent to which the solution impacts various departments or operational areas within the Company. A broader impact across multiple areas suggests a solution that is more transformative and potentially more beneficial, while a more limited scope affects fewer areas.
- **C (Expected Quality):** This criterion assesses the expected quality improvements that the solution will deliver to the project or process. Higher scores indicate

solutions that are likely to enhance the quality of operations, products, or services, contributing positively to overall Company performance.

- T (Time for Implementation): This measures the estimated time required to fully implement the solution. Solutions that can be implemented quickly are given higher scores, whereas those requiring a longer timeframe receive lower scores. Timely solutions are often prioritized to minimize delays in addressing the problem.
- I (Investment Required): This criterion evaluates the financial investment necessary for implementing the solution. It considers both initial costs and long-term financial commitments. Solutions that require minimal investment while delivering significant benefits are typically rated higher, while more costly alternatives may be scored lower.
- S (Sustainability): This assesses the environmental sustainability of the solution. Solutions that align with environmentally friendly practices and promote sustainability receive higher scores. This criterion reflects the Company's commitment to integrating environmentally responsible solutions into its operations.

According with the alternative of solutions, we establish four alternatives:

1. Implementation of the new consignments model:

This solution involves shifting to a consignment inventory model, where the supplier retains ownership of the inventory until it is used or sold by the Company. This approach reduces the Company's need to tie up capital in large inventories, as stock remains on the supplier's balance sheet until needed. The consignment model enhances cash flow by delaying payment until after the inventory has been used, thereby optimizing working capital management. It also reduces the risk of overstocking and obsolescence, as the Company can

maintain lower on-hand inventory levels, improving overall efficiency in supply chain management.

This model addresses the core issue of cash flow by minimizing the capital locked in unused inventory and aligns the inventory with real-time demand, significantly reducing excess stock.

2. Identify a new local supplier for containers with high inventory days:

This solution focuses on reducing inventory lead times by sourcing containers from a new local supplier. By switching to a supplier that is geographically closer, the Company can shorten delivery times, reduce the need for large safety stock, and minimize storage costs. Lower lead times mean the Company can adopt a more just-in-time approach, reducing the number of days inventory is held and freeing up capital that would otherwise be tied up in slow-moving or excessive stock. Additionally, working with a local supplier could offer better flexibility and responsiveness to changes in demand, improving overall supply chain efficiency.

This approach not only improves the efficiency of inventory management by minimizing idle inventory time and lowering holding costs, but it also contributes positively to cash flow. However, it is important to note that, at present, the Company faces limited bargaining power with several of its suppliers, which may restrict its ability to negotiate terms effectively.

3. Implementation of using doypacks in new production lines:

The introduction of doypacks (stand-up pouches) in new production lines is a strategy aimed at reducing packaging costs and improving inventory storage efficiency. Doypacks are lighter, more space-efficient, and generally cheaper to produce compared to traditional packaging formats like rigid containers. They also require less storage space, which means

lower warehousing costs and the ability to hold more product in the same amount of space. By integrating doypacks into production lines, the Company can improve inventory turnover and reduce the overall cost associated with packaging materials and storage.

Impact: This solution directly addresses inventory inefficiencies by lowering packaging costs, improving storage efficiency, and contributing to better working capital management through cost savings and more efficient inventory handling. The doypacks run the risk of damaging the presentation and customer confidence in the regular lube packaging they are accustomed to.

4. New Circular Economy Model and Use of Recycled Packaging:

This solution proposes adopting a circular economy model with a focus on using recycled and sustainable packaging materials. This approach not only addresses environmental concerns but also improves the Company's ability to manage inventory more efficiently. Recycled materials can often be sourced at lower costs, and circular practices encourage the reuse of materials, reducing the need for constant replenishment. Additionally, aligning with sustainability trends can enhance brand value and customer loyalty, leading to potential long-term financial benefits. Over time, the reduction in raw material costs and waste management expenses can positively impact the Company's working capital and cash flow.

The circular economy model not only improves cash flow by reducing packaging and material costs but also aligns the Company with sustainability goals, enhancing long-term financial and operational efficiency. However, implementing a circular economy presents challenges, as it requires specialized packaging cleaning machines to ensure materials can be reused effectively. Additionally, tracking and maintaining accountability for packaging adds a layer of complexity, necessitating robust systems to monitor the flow and reuse of materials accurately.

4.3. Proposed Solution

Following the FACTIS model, we established four solution alternatives to address the problem of inefficiency in managing working capital and inventories, which has contributed to a decrease in the Company's operating cash flow. The FACTIS matrix was designed to evaluate the feasibility of each solution based on six key criteria: Feasibility (F), Areas Affected (A), Expected Quality (C), Time for Implementation (T), Investment Required (I), and Sustainability (S). This structured approach allowed us to objectively assess each alternative, ensuring that the selected solution aligns with both financial and operational goals.

Each of the four proposed solutions was assessed and weighted according to these criteria to determine their viability and overall impact on the Company. The matrix provided a structured and quantitative approach to comparing the solutions, ensuring that the selection process was both comprehensive and aligned with the Company's operational and strategic goals. The matrix assigns a score to each solution based on its performance in each FACTIS category, with higher scores indicating greater feasibility, broader impact, and better alignment with the Company's objectives. Once the matrix was completed, the solution with the highest overall score was selected as the most viable option for addressing the inefficiency problem. Below, the FACTIS matrix is presented along with the rationale for the chosen solution, providing a clear overview of how each alternative was evaluated and why the selected option is the most appropriate for improving the management of working capital and inventories.

Figure 7*FACTIS Analysis for Consignment Model Implementation*

		F	A	C	T	I	S	
		Ease of solution	Affects other areas its implementation	Improved quality	Time required to solve it	Investment required	Sustainability impact on the environment	
		Factores de ponderación						
		3	2	6	1	5	4	TOTAL
MANAGEMENT	Implementation of the new consignment model	2	3	3	2	2	2	50
	Identify new local suppliers for containers with high inventory days	2	3	1	3	3	3	48
SUSTAINABILITY	Implement the use of Doy packs (Liters) in new production lines.	1	3	1	1	3	3	43
	Circular Economy: Reaching agreements with customers to recover cylinders	1	3	1	1	1	3	33

The implementation of the new consignment model has been selected as the most viable solution for addressing inefficiencies in managing working capital and inventories, based on the FACTIS matrix analysis. This model stands out due to its alignment with key strategic goals, providing both financial and operational benefits. Below, each of the six FACTIS criteria is examined to illustrate why this alternative is the optimal choice for the company.

Feasibility (F):

The consignment model is relatively easy to implement, especially if the company already has established relationships with its suppliers. Transitioning to a consignment-based inventory system involves negotiating agreements with suppliers to maintain ownership of the stock until it is used or sold. This reduces the immediate financial burden on the company and can be implemented without significant changes to internal operations, making it highly feasible.

Areas Affected (A):

This solution impacts several key areas of the company, particularly finance, inventory management, and supply chain operations. By shifting the financial responsibility of unsold inventory to the supplier, the company reduces the capital tied up in inventory, directly improving cash flow. It also affects procurement and inventory management by reducing excess stock and improving turnover rates.

Expected Quality (C):

The consignment model is expected to enhance the quality of financial management by aligning inventory levels more closely with actual demand, which reduces overstock and lowers the risk of obsolescence. This approach improves the accuracy of inventory tracking, allowing the company to respond more dynamically to changing market needs. As a result, the model supports better quality control and operational efficiency, contributing to overall business agility.

Time for Implementation (T):

The implementation of the consignment model can be achieved in a relatively short time frame, as it primarily involves renegotiating terms with suppliers rather than requiring major infrastructural or technological changes. This approach allows the company to realize benefits more quickly, positioning it as a “quick win” for improving cash flow. By minimizing delays associated with complex implementations, the company can enhance liquidity and operational efficiency in a timely manner.

Investment Required (I):

One of the major advantages of the consignment model is its low initial investment requirement, making it accessible and efficient. This solution does not demand significant capital outlays for new equipment, infrastructure, or technology, which reduces upfront costs.

Instead, it focuses on leveraging existing supplier relationships and adjusting contractual terms, making it a cost-effective approach to improving working capital management.

Sustainability (S):

While this solution primarily addresses financial and operational efficiency, it also indirectly supports sustainability by reducing waste associated with overstocked or expired inventory. With improved inventory control, the company can manage stock levels more effectively, minimizing the risk of excess products that could lead to waste. This proactive approach not only enhances efficiency but also aligns with the company's commitment to more sustainable and environmentally responsible practices.

Based on the FACTIS analysis, the Implementation of the New Consignments Model stands out as the best solution due to its high feasibility, broad impact on critical areas (finance and inventory management), and low investment requirement. The model provides a relatively fast, low-cost way to address inefficiencies in working capital and inventory management, leading to improved cash flow and financial performance. Furthermore, it aligns well with the company's goals of optimizing resources without requiring significant changes to existing processes.

Applying a consignment inventory model for packaging inventories is considered strategic because it optimizes cash flow, reduces inventory costs, and fosters stronger supplier relationships. Christopher (2016) highlights that consignment inventory allows companies to reduce the amount of working capital tied up in stock, as they only pay for raw materials when they are used. This improvement in cash flow is particularly beneficial in industries with high inventory turnover, where maintaining liquidity is essential for operational flexibility. Ballou (2004) argues that the consignment model enables companies to reduce holding costs, as the supplier retains ownership of the inventory. By minimizing the financial risks associated with stock obsolescence and warehousing, companies can achieve greater

cost efficiency and focus resources on other critical areas of the business. Bowersox, et al. (2013) note that consignment inventory fosters closer relationships with suppliers, as it requires collaboration and trust. This partnership can lead to better alignment of supply and demand, improved service levels, and enhanced responsiveness to market changes, making the supply chain more resilient.



Chapter V: Implementation Plan and Key Success Factor

5.1. Key Definitions

In this section, main concepts are defined to ensure a better understanding of the implementation project and to align expectations among the involved internal stakeholders.

In this sense, main concepts for this analysis are the following:

Working Capital (WC). Is the process of managing a company's short-term assets and liabilities to ensure sufficient liquidity for ongoing operations. Effective working capital management directly impacts a company's operating cash flow. Therefore, in the case of the Company, the effective working capital management involves optimizing receivables, payables, and inventory to improve the company's cash cycle and return on investment (ROA and ROE).

Deloof (2003) emphasizes that effective working capital management is a critical determinant of profitability. Similarly, Lazaridis and Tryfonidis (2006) find that the efficient management of receivables, payables, and inventory can significantly improve a firm's financial performance.

Logistic Management. This process involves the internal coordination between various departments to ensure the most efficient supply chain management. The implementation of the new consignment model, as proposed in this thesis, aims to optimize this process by reducing delays, streamlining inventory management, and strengthening relationships with key suppliers. According to Christopher (2016), logistics management plays a critical role in the overall supply chain, as it ensures that the flow of goods and information is coordinated efficiently between different departments within a company. Effective logistics management not only reduces costs and delays but also enhances the organization's ability to respond to market demands and improve supplier relationships. The introduction of models like consignment further enhances these benefits by streamlining

inventory processes and fostering closer collaboration with suppliers.

Cash Conversion Cycle (CCC). The CCC is a key metric in the working capital management, it measures the time taken by a company to convert its investments in inventory and other resources into cash flows from sales. The goal is to minimize the CCC to increase liquidity and financial efficiency. Gitman (1974) first proposed the Cash Conversion Cycle as a critical tool for analyzing a firm's liquidity and operational efficiency. Richards and Laughlin (1980) further developed the concept by illustrating how optimizing the CCC can enhance a company's cash flow and reduce its dependency on external financing.

Consignment Model. This model consists in segregate the ownership of goods between the company and the supplier. This model allows the company to reduce its working capital requirements, as it does not need to purchase inventory upfront, improving cash flow and reducing risk. The adoption of this model is critical to the project's success and will help align supply chain strategies with financial performance indicators such as the Return on Assets (ROA), the Return on Equity (ROE) and the Cash Conversion Cycle (CCC). Silver et al. (1998) suggest that the consignment model can reduce inventory carrying costs for retailers, allowing them to allocate capital more efficiently. Moreover, Chopra and Meindl (2016) emphasize that consignment models enable closer collaboration between suppliers and retailers, improving the overall supply chain's responsiveness and flexibility.

5.2. Balanced Scorecard (BSC)

Kaplan and Norton (1996) introduced the Balanced Scorecard as a framework for measuring organizational performance from multiple perspectives, beyond just financial metrics. The Balanced Scorecard includes four main perspectives: Financial, Customer, Internal Processes, and Learning & Growth. This approach helps organizations align their activities with their strategic goals, providing a balanced view of performance and enabling more effective decision-making.

The balanced scorecard is a strategic planning and management system widely used in all business that helps to align business activities with the vision and strategy of the organization by improving internal and external communications and monitoring organizational performance against strategic goals. This tool will be essential for our thesis in measuring the success of the project across various perspectives, including financial, internal processes, and learning and growth.

5.2.1. Strategic Objectives and BSC Perspectives

The strategic objectives for implementing the consignment model are divided across the following areas:

Logistics: reduction of storage costs and inventory days will ensure the effective inventory management in coordination with suppliers and other internal departments. This new model will avoid the risk of obsolescence.

Finance: the optimization of the cash conversion cycle (CCC) and reducing inventory-related costs will improve key financial indicators such as Return on Assets (ROA) and Return on Equity (ROE).

Social Impact Perspective: the consignment model proposed in our thesis will provide a reduction in the use of plastic packaging by decreasing inventories of products made from plastic materials. This practice is aligned with the Company with the Sustainable Development Goals (SDGs).

5.2.2. Key Performance

Parmenter (2015) defines Key Performance Indicators (KPIs) as critical metrics used to assess the success of an organization in achieving its strategic and operational goals. KPIs are typically used to track performance in areas such as financial results, customer satisfaction, internal processes, and learning and growth. By using well-defined KPIs, companies can monitor their progress and make informed decisions to improve overall

performance.

The following KPIs will be used to measure performance across each BSC perspective:

Logistics:

- Reduction in storage costs: Measures the reduction in costs associated with inventory storage due to optimized stock levels through the consignment model.
- Inventory days: Measures the reduction in the number of days products remain in inventory, reflecting supply chain efficiency. Formula: $\text{Average Inventory Days} / \text{Average Daily Sales}$.
- Obsolescence of inventory: Measures the number of products that become obsolete due to a lack of rotation or excess inventory. This indicator will assess efficiency in supply planning and inventory management.

Finance:

- Return on Assets (ROA): Measure the efficiency of the company in generating profits from its assets. Formula: $\text{Net Income} / \text{Total Assets}$.
- Return on Equity (ROE): Measures profitability generated for shareholders. Formula: $\text{Net Income} / \text{Equity}$.
- Cash Conversion Cycle (CCC): Measures how quickly the company converts its investments in inventories into cash flows. Formula: $\text{Inventory Days} + \text{Receivables Days} - \text{Payables Days}$.

Social Impact:

- Reduction in plastic use: Measures the decrease in the use of plastic packaging through inventory optimization and the reduced need to store large quantities of plastic packaging. This KPI aligns with the company's commitment to sustainability and the
- Sustainable Development Goals (SDGs), specifically reducing plastic waste.

5.2.3. Monitoring and Tracking Results

The results of these indicators will be monitored on a quarterly basis to track progress and ensure alignment with strategic objectives. This regular review will be conducted by the Regional Director and shared with key partners, including the finance and marketing teams. By involving these stakeholders, the Company ensures that all departments remain informed and aligned, fostering a collaborative approach to achieving the project's goals.

5.2.4. Expected Benefits from Using the Balanced Scorecard

The use of the Balanced Scorecard will allow the company to monitor and align its strategic objectives across various departments. By implementing this tool, the company can track performance metrics related to finance, customer satisfaction, internal processes, and learning and growth. This comprehensive approach ensures that all areas contribute to overall goals, providing a clear roadmap for sustained improvement and success:

- Improve financial liquidity: By optimizing the cash conversion cycle and improving asset utilization.
- Optimize the supply chain: By reducing storage costs and improving inventory efficiency. Avoid obsolescence of packaging.
- Reduce environmental impact: By lowering the use of plastic packaging and reducing the company's environmental footprint, contributing to the achievement of SDGs related to plastic waste reduction and sustainability.
- With these changes, the social impact perspective now focuses specifically on the reduction of plastic use, aligning the company's goals with sustainability initiatives and the Sustainable Development Goals.

5.3. Implementation Plan (Gantt) and Budget

5.3.1. Implementation Plan

As stated by Kerzner (2017), a Gantt chart is one of the most widely used tools in project management, providing a visual timeline that outlines project tasks, their durations, and their interdependencies. This tool allows project managers to easily monitor progress, allocate resources effectively, and identify potential bottlenecks. By breaking down a project into smaller tasks and setting specific timeframes, the Gantt chart offers a clear overview of the project's schedule and helps ensure that all phases are completed timely.

In the case of the consignment model implementation, using a Gantt chart allows for effective tracking of supplier negotiations, system development, and other key milestones, which will help in maintaining control over the project's overall timeline. The implementation of the consignment model will follow a structured plan involving several key phases, ensuring a smooth integration with suppliers and internal operations. The project will span over 10 months approximately with a total cost of approximately \$28,000-\$30,000, and the key phases are outlined below:

Phase 1: Planning and Preparation (Duration: 3-4 weeks)

Define scope and objectives: Establish clear project goals, aligning them with the company's strategic objectives, focusing on improving inventory management and supplier collaboration through the consignment model.

Meeting with all areas involved to align the objectives and goals.

Set the conditions to be expected to from suppliers.

Phase 2: Kick-off meeting and pilot project execution (4-5 months)

Bidding process: Conduct a thorough market search to identify potential suppliers capable of adopting the consignment model with competitive alternatives. Evaluate suppliers based on their inventory management capabilities, reliability, and alignment with the company's requirements.

Supplier Negotiation: Negotiate agreements with selected suppliers, focusing on key areas such as consignment stock levels, delivery schedules, and payment terms. This step is crucial for ensuring smooth supplier integration into the consignment model. Round of questions as per suppliers' requirement.

Team Formation: Assemble a cross-functional team from finance, supply chain, IT, and operations to oversee the implementation. Define roles and responsibilities for each department involved.

Contract signature: Sign a contract for a period defined and once all departments are agreed (legal, operation, tax, finance).

Phase 3: System Development and SAP Integration (Duration: 3 weeks)

Development of the Consignment Control Module in SAP: Collaborate with the IT department to develop a consignment control module within the existing SAP system. This module will manage real-time inventory tracking, monitor consumption, and automatically generate reports for supplier stock levels.

SAP System Testing: Conduct comprehensive testing of the new SAP module, ensuring it can track inventory accurately, reconcile supplier stock, and integrate seamlessly with other key SAP modules such as finance and procurement.

We estimate a cost of approximately \$18,000 between and implementation of this module and the advisor service to the implementation and training.

Phase 4: Warehouse Adaptation for Supplier Inventory (Duration: 2 months)

Warehouse layout adjustment: Adapt the warehouse layout to accommodate consignment inventory. This will involve designating specific areas for supplier-owned stock, ensuring proper separation from company-owned inventory.

Search a vendor for the implementation: contract a local vendor to implement the area in the warehouse.

We estimate a cost of approximately \$10,000 in the implementation of the warehouse and acquisition of racks.

Phase 5: Staff Training and Process Adaptation (Duration: 2 weeks)

Employee Training on SAP Consignment Module: Conduct training sessions for relevant staff, including warehouse workers, supply team, and finance personnel, to ensure they are proficient in using the SAP module for tracking and managing consignment stock.

Process Documentation and Adaptation: Update and document internal processes to reflect the new consignment model. This includes creating process flowcharts, updating standard operating procedures (SOPs), and defining clear roles for employees handling consignment stock.

Phase 6: Pilot Testing (Duration: 2 weeks)

Pilot Implementation: Launch a pilot phase with the vendor selected.

Adjustments Based on Pilot Results: Review the performance of the pilot phase and make necessary adjustments to the SAP system, warehouse processes, or supplier agreements to optimize the consignment model for full-scale implementation.

Phase 7: Full Implementation and KPI Monitoring

Once the implementation occurs, the Company need to start monitoring the process through the KPIs accomplishment and make iterative improvements as necessary.

Budget Breakdown: The successful implementation of the consignment model requires financial resources allocated across several key areas, ensuring each step is adequately supported. Below is the budget breakdown.

5.4. Key Success Factors

The successful implementation of the consignment model depends on several key success factors that will either enable smooth execution or pose risks if not properly managed. To ensure project success, it is essential to identify both the enablers that will

facilitate implementation and the potential risks that could hinder progress. This section outlines these enablers and risks, providing a roadmap for effective risk mitigation and optimal execution.

- Effective collaboration across all departments is essential for the success of this project. Finance, supply chain, operations, IT, and legal teams must work together seamlessly to ensure the consignment model is implemented smoothly. Early alignment of goals and responsibilities will help prevent delays and keep everyone focused on the objectives (Kerzner, 2017).
- Strategic supplier selection and negotiation are crucial to ensure that the company partners with suppliers who can successfully implement the consignment model.

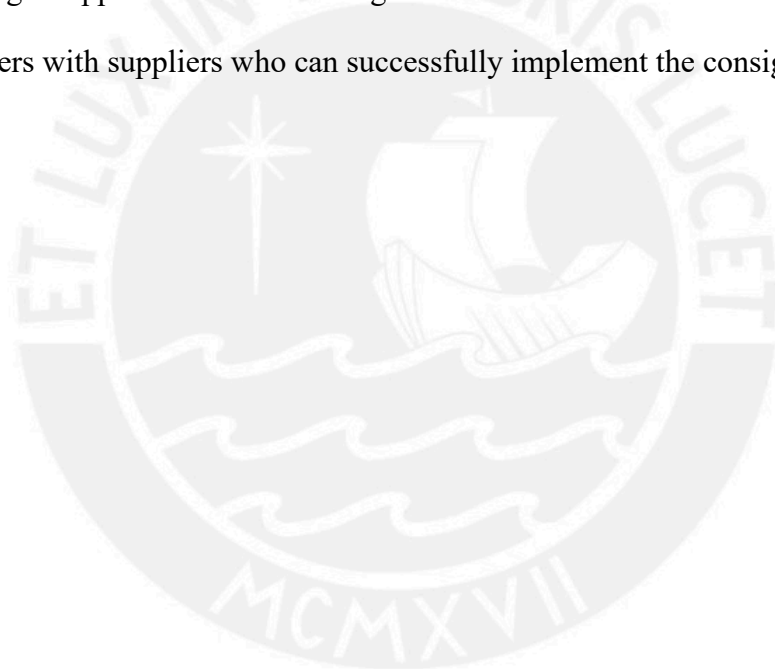


Figure 8

Project Gantt Chart with Timeline and Budget

Phase	Areas in charge	Duration (Weeks)	Months										Budget		
			1	2	3	4	5	6	7	8	9	10			
1	Planning and Preparation	Operations, Supply chain & Technology	3	→											\$0
2	Kick-off meeting and project execution	Operations, General Managment, Finance	16	→											\$0
3	System Development and SAP Integration	Operations, Technology	3					→					\$18,000		
4	Warehouse Adaptation for Supplier Inventory	Operations, Specialized third party service	8						→				\$10,000		
5	Staff Training and Process Adaptation	Operations & HR	2							→			\$0		
6	Pilot Testing	Operations & Technology	2								→		\$0		
7	Full Implementation and KPI Monitoring	Operations, Supply chain, Technology & Finance	5								→		\$0		
TOTAL			39											\$28,000	

- Negotiating key terms such as stock levels, payment schedules, and delivery timelines will guarantee that the suppliers meet the company's needs efficiently (Rodríguez, 2020).
- Developing and integrating the SAP consignment module is another key factor for success. This system will allow the company to track inventory in real-time and streamline the process by automating the reporting of stock levels and consumption. Ensuring the smooth integration of this module with other key systems, such as finance and procurement, will be vital to avoid disruptions (Pérez, 2021).
- Providing comprehensive training to staff is essential. Employees in key departments, especially those handling inventory, finance, and warehouse operations, must fully understand how to use the SAP system and the new procedures linked to the consignment model. This training will minimize mistakes and speed up the adjustment process (Fernández & Martínez, 2019b).
- Cultural change management is fundamental throughout the project. Successfully shifting to a consignment model requires not only technical and operational changes but also a shift in how teams view and handle inventory management. Prioritizing communication and ensuring everyone understands the long-term benefits will reduce resistance and foster smooth adoption. A strong communication strategy should emphasize the importance of linking daily operations with the company's financial goals to foster a financial perspective in every department (Pérez, 2021).
- Adapting the warehouse layout to accommodate consignment inventory will ensure that supplier stock is managed correctly. Setting aside dedicated space for supplier-owned inventory will help maintain order and efficiency within the

warehouse and avoid mix-ups with company-owned stock (Higgins, 2019).

- One of the most critical elements of success is maintaining a cross-functional vision throughout the entire project, ensuring that operational decisions are continuously aligned with financial goals. This alignment ensures that the consignment model doesn't just improve inventory management but also has a positive impact on cash flow and overall profitability (Kerzner, 2017).
- Continuous monitoring of key performance indicators (KPIs) is needed to track the success of the consignment model. Metrics such as inventory turnover, stock levels, and cash flow improvements will indicate whether the system is working as intended. Regular reviews will allow for adjustments and improvements to be made as necessary (Rodríguez, 2020).

5.4.1 Enablers

For the successful implementation of the consignment model, several key enablers must be in place to ensure the project's smooth execution and long-term success. First, strong leadership support is essential to drive the project forward and provide the necessary resources for each phase of the implementation. Without leadership actively championing the project, teams may lack the motivation and clarity needed to align with the project's objectives. Additionally, a well-structured project management framework, such as the use of a Gantt chart, will enable the team to track progress, manage dependencies, and anticipate challenges before they arise (Kerzner, 2017).

Another crucial enabler is the development of a robust technology infrastructure, particularly the integration of the SAP consignment module. A system that tracks inventory in real-time, manages supplier data, and generates automatic reports will allow for a seamless transition to the consignment model. This infrastructure must be flexible enough to support future scalability, enabling the company to extend the consignment model to other areas of

inventory management (Pérez, 2021).

Effective communication is also a critical enabler, ensuring that all stakeholders understand the importance of the project and how it aligns with the company's broader financial goals. This is particularly important for fostering a cultural shift within the organization, where employees begin to view inventory management not just as an operational task but as a key element tied to financial performance. Regular updates, clear messaging, and consistent feedback loops will help maintain momentum and reduce resistance to change (Pérez, 2021).

Furthermore, cross-functional collaboration is a necessary enabler, as the successful implementation of the consignment model requires tight coordination between departments such as finance, supply chain, operations, technology, and legal. Each team must work together to ensure that operational decisions, such as managing stock levels, are continuously aligned with financial objectives. This will help the company not only optimize inventory management but also improve cash flow and profitability in the long term (Higgins, 2019).

Finally, supplier engagement and partnerships act as a vital enabler for the consignment model. Building strong, mutually beneficial relationships with suppliers ensures that they are committed to maintaining stock levels, adhering to agreed terms, and collaborating effectively with the company. Clear communication and transparent negotiation during the supplier selection and onboarding process will be key to fostering these partnerships and ensuring their ongoing success (Rodríguez, 2020).

5.4.2 Risk Analysis and Mitigation

According to Hillson and Simon (2020), risk is defined as an uncertain event or condition that, if it occurs, can have a positive or negative impact on a project's objectives. In project management, understanding and managing risks is critical to minimizing the negative consequences that could delay a project. Effective risk management involves identifying,

assessing, and implementing strategies to control or mitigate risks throughout the project lifecycle.

The successful implementation of the consignment model is subject to several internal and external risks. In this section, we will identify the primary risks and assess their potential impact on the project using a Risk Matrix. Additionally, we will outline mitigation strategies to minimize the likelihood and impact of these risks.

The following are the key risks associated with the implementation of the consignment model:

- **Supplier Non-Compliance:** Suppliers may fail to comply with agreed-upon terms, such as maintaining appropriate stock levels or adhering to delivery schedules. Additionally, suppliers could increase the acquisition price unexpectedly, affecting the financial performance of the consignment model.
- **System Integration Issues:** The integration of the consignment control module in SAP may face technical challenges, causing delays in tracking inventory and financial reconciliation.
- **Internal Resistance to Change:** Employees may resist the transition to the new inventory management model, especially those accustomed to traditional processes, potentially slowing down the implementation.
- **Inventory Mismanagement:** Poor tracking and reporting of consigned inventory could lead to discrepancies between the company's records and those of suppliers, resulting in financial losses or stock shortage

As explained by Kerzner (2017), a Risk Matrix is a tool used in risk management to prioritize risks based on two factors: the probability of occurrence and the impact if the risk materializes. By assigning a numerical value to these factors, the Risk Matrix helps project managers focus on the most critical risks that require immediate attention. This matrix

provides a structured approach to evaluate and categorize risks, allowing teams to develop mitigation strategies based on risk severity.

A Risk Matrix is used to evaluate the identified risks based on Probability and Impact:

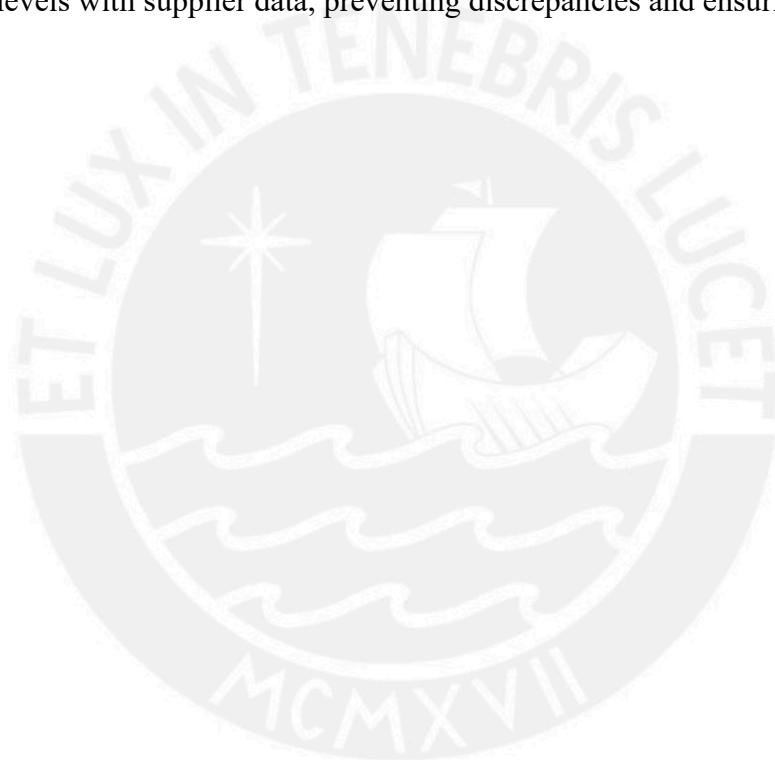
Table 3

Risk Assessment with Mitigation Strategies

Risk	Probability (1–5)	Impact (1–5)	Risk Level (P x I)	Priority	Mitigation Strategy
Supplier Non-Compliance	3	4	12	High	Regular supplier audits and strict contract terms (establish terms to change/modify unit costs).
System Integration Issues	2	5	10	Medium	Involve expert consultants and comprehensive testing.
Internal Resistance to Change	4	3	12	High	Implement change management programs with training with the support of HR.
Inventory Mismanagement	3	4	12	High	Use automated inventory tracking and regular reviews.
Supply Chain Disruptions	2	4	8	Medium	Diversify suppliers and implement contingency plans.

To mitigate the risks associated with implementing the consignment model, several strategies have been developed. To address the risk of supplier non-compliance, regular audits of supplier performance will be conducted, and strict service-level agreements (SLAs) will be enforced. Long-term contracts will be negotiated to lock in prices, minimizing the impact of market volatility. In the case of system integration issues, expert consultants will be involved in the development and integration of the SAP consignment module, ensuring that comprehensive testing is performed to guarantee seamless integration with other key modules, such as finance and procurement.

To overcome potential internal resistance to change, change management programs will be introduced, featuring workshops, training sessions, and continuous support to help employees adapt to the new consignment model. Staff feedback will be encouraged to identify and address concerns early in the process. Finally, to mitigate the risk of inventory mismanagement, clear procedures for managing consigned inventory will be developed and automated systems, such as barcode scanners or RFID technology, will be implemented to ensure accurate tracking. Regular reviews of inventory reports will also be conducted to reconcile stock levels with supplier data, preventing discrepancies and ensuring smooth operations.



Chapter VI: Expected Results

In the previous chapter, we outlined a series of actions designed to improve free cash flow by increasing liquidity, reducing packaging inventory to zero through the consignment model, optimizing the cash conversion cycle, and exploring investment opportunities with the generated cash. These strategic actions form a comprehensive approach to enhance the Company's financial health and operational efficiency. The results are divided into qualitative and quantitative outcomes, which together highlight the significant benefits this implementation brings to the Company.

6.1. Qualitative Expected Results of the Implementation Plan

The expected qualitative result after the plan is performed directly impact on the following aspects:

- Achieving better and more efficient demand planning for supplies and packaging, ensuring that the packaging supplier can adapt to unforeseen circumstances arising from urgent customer orders.
- Supporting the Supply and Warehouse department in aligning their processes with evolving lube market trends.
- Enhance cross-area communication within the company to streamline processes and foster greater collaboration.
- Promote a culture of continuous improvement by incentivizing all departments to identify, explore innovative solutions, and implement process enhancements.
- Develop a financial awareness among teams to help them understand the financial implications of their daily work.
- Minimize our environmental footprint by optimizing packaging inventories and reducing plastic waste, demonstrating our commitment to corporate social responsibility.

Adopting new ways of getting work done is not only a significant cultural shift but also a major challenge for any Company. In this regard, this initial implementation promotes a scalability mindset within the company, preparing both the organization and its workforce to better embrace future changes that may be introduced. This first step serves as the foundation for continuous improvement and adaptation, marking just the beginning of the company's journey toward greater innovation and efficiency.

6.2. Quantitative Analysis

6.2.1 Improvement in the Free Cash Flow

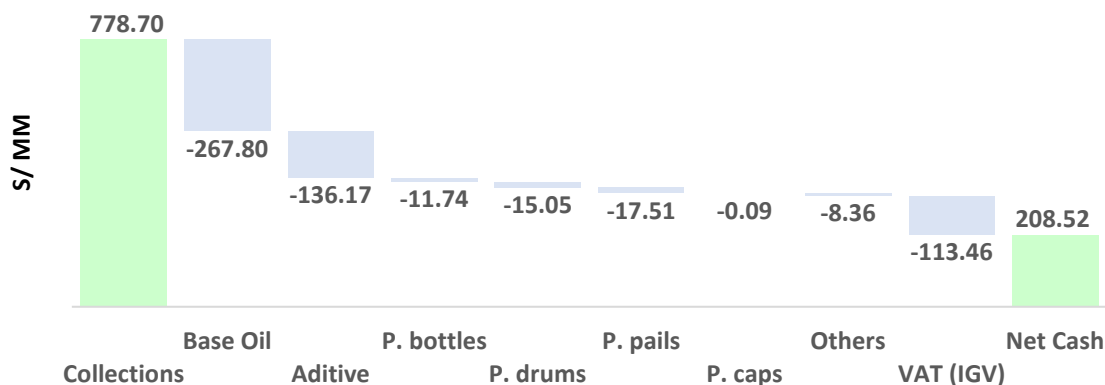
We conducted a cash flow model to evaluate improvements in liquidity and the cash conversion cycle. Free cash flow is expected to increase by S/. 2.1 million to S/. 3.4 million, even after first-year implementation costs. This boost enhances the Company's ability to fund operations, invest strategically, and reduce short-term financing needs.

Scenario 1: Cash Flow with Consignment Model for 2024 (without increase in the unit cost of packaging). Assumptions:

- Stable Revenues similar to 2023 and same sales prices
- Consignation of packaging (bottles, drums, pails and cups (20%))
- Cash Conversion Cycle: Inventories = 0 days / Accounts payable = 78 days /
Accounts Receivables = 78 days

Figure 9

Projected Cash Flow without a Consignment Model



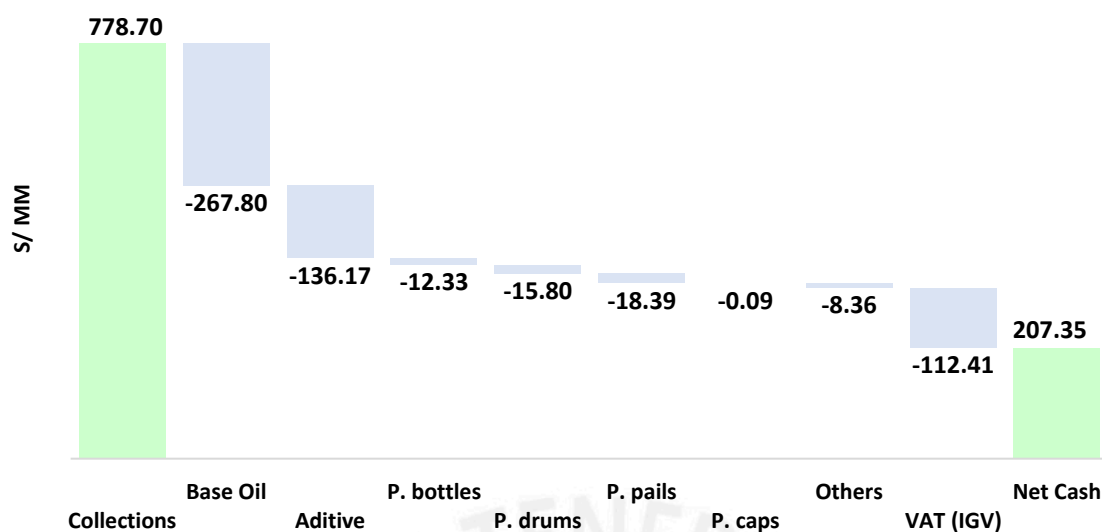
As a result of this scenario, we have determined a total increase of S/. 3.4 million in cash generation, as the Company's disbursements will be limited to actual packaging consumption rather than inventory purchases. This adjustment in cash flow significantly enhances liquidity, providing the Company with greater financial flexibility to meet operational needs and invest in growth opportunities. In addition, the cash conversion cycle will become better aligned, as the timing between accounts receivable and accounts payable will now be synchronized. This alignment allows the Company to maintain a more balanced financial position, reducing the need for external financing and improving overall cash management efficiency.

Scenario 2: Cash Flow with Consignment Model for 2024 (with 5% increase in cost of packing under the consignment model). Assumptions:

- Stable Revenues like 2023 and same sales prices
- Consignation of packaging (bottles, drums, pails and cups (20%) + 5% of unit cost increase. This cost will impact in 0.0045% in the cost of sales (not relevant for margin impacts)
- Cash Conversion Cycle: Inventories = 0 days / Accounts payable = 78 days / Accounts Receivables = 78 days

Figure 10

Projected Cash Flow with a Consignment Model



As a result of this scenario, we have determined a total of S/2.1 million of increase in cash generation, as the Company disbursements will be only for the packaging consumption. In addition, the cash conversion cycle will be aligned between the accounts receivable and accounts payable.

6.2.2 Opportunity Cost

Table 4

Cash Generated and Interest Gained in Different Scenarios

	Scenario 1	Scenario 2
Actual Scenario	Cash generated	Cash generated
	S/3.4MM	S/2.1 MM
Interest gained considering an annual rate of 8.6% invested in mutual funds (variable income)	-	S/170,000

Considering the cash generated under the consignment model, the Company can potentially generate between S/. 170,000 and S/. 274,000 annually through investments in variable income assets, such as mutual funds. This additional income stream provides an opportunity to maximize the liquidity benefits gained from the consignment model, further supporting financial flexibility and strategic growth. By leveraging available cash in low-risk investment options, the company can ensure steady returns that contribute positively to its financial performance.

Based on the chart above, the implementation of the consignment model is projected to result in an improvement of key financial ratios. These enhanced ratios not only add value to the company by strengthening its financial stability, but they also create opportunities for further exploration of the consignment model in managing other types of inventories. Expanding this approach to a broader range of inventory categories can amplify the model's impact, supporting both operational efficiency and sustainable growth.

6.2.3 Financial Ratios

Weighted Average Cost of Capital (WACC)

The Weighted Average Cost of Capital (WACC) represents the average rate a company is expected to pay to finance its assets through a mix of debt and equity. This weighted rate is commonly used to evaluate investment decisions and calculate the value of projects or assets, as it represents the minimum return required to create value for shareholders. According to Ross, et al. (2019), “the WACC is essential for evaluating investment projects and serves as a benchmark for a company's financial decision-making, as it combines the cost of debt and equity into a weighted rate that reflects the organization's level of risk and leverage” (p. 388).

In our exercise, the WACC has been calculated following as follow in the chart below:

Table 5*WACC Determination*

	Rate:	Source:
CAPM	11.30%	Capital Asset Pricing Model
Rf	4.39%	Risk free rate USD
Beta	0.80	Systematic risk
Rmarket	11.10%	Stock market rate (USD)
Prima	1.56%	Risk Country Premium - Perú (Bloomberg)
WACC	11.27%	Annual
WACC	0.94%	Monthly
Debt	14	FFSS as of December 31, 2023
Equity	425	FFSS as of December 31, 2023
CAPM	11.30%	Capital Asset Pricing Model
Tax	30%	Tax rate
Cost of Debt	14.79%	SBS

The Net Present Value (NPV) is a financial metric that evaluates the profitability of an investment by calculating the difference between the present value of cash inflows and outflows over a project's lifetime. Brealey, Myers, and Allen (2019) describe Net Present Value (NPV) as a method for evaluating investment projects by calculating the present value of expected future cash flows, minus the initial investment. NPV is a critical tool in corporate finance as it helps assess whether a project is likely to add value to the firm. A positive NPV indicates that the projected earnings (discounted to present value) exceed the costs, making the project financially viable.

Ross, Westerfield, and Jaffe (2013) explain that NPV is used to determine the value created by a project after accounting for the time value of money. By discounting future cash flows to their present value and comparing them with the initial investment, NPV provides a clear measure of the project's profitability. To evaluate the profitability of implementing this

model, future cash flows have been discounted to their net present value, giving the following results:

Table 6

NPV Generated under Our Two Scenarios Detailed in 6.2.1

	Scenario 1	Scenario 2
Investment (*)	S/. 0.00	S/. 0.00
Discount rate (annual)	11.27%	11.27%
Discount rate (monthly)	0.94%	0.94%
NPV (5 years)	S/.796 MM	S/.767 MM

Our main value proposed to the Company in this business consulting is to improve the working capital without any investment since the vendor will be able to use the existing Company's warehouse space, human resources and the system (software). This considerations strength the Company's value. In the Scenario 1 the NPV is approximately S/.796 million, resulting high profitability for the project under these conditions. This scenario presents cash flows that generate a 4% higher compared to Scenario 2, making Scenario 1 a more attractive option. Both scenarios are financially viable and contribute to the company's value,. The final decision may depend on other qualitative or risk factors, but in terms of NPV, the Scenario 1 provides a greater net benefit for the company. According to Brealey, et al. (2019), a positive NPV indicates that the project will generate additional value for shareholders by exceeding the cost of capital, making the investment financially attractive.

Brigham and Ehrhardt (2017) state that a positive NPV suggests that the project will increase the company's value, as the discounted benefits exceed the costs, making it generally seen as a sign of a profitable investment. The implementation of this consignment

model is expected to positively impact key financial ratios, including Return on Assets (ROA), Return on Equity (ROE), and the Cash Conversion Cycle (CCC). By optimizing inventory management and improving asset efficiency, this model aligns with the company's strategic objectives of enhancing profitability and liquidity. The following analysis illustrates how each of these ratios are improve the financial performance of the company.

Gitman and Zutter (2015) define Return on Assets (ROA) as a measure of a company's ability to generate earnings from its assets. ROA is calculated by dividing net income by total assets, reflecting how effectively a company utilizes its assets to produce profit. A higher ROA indicates efficient asset use, which is crucial for profitability analysis.

Ross, et al. (2013) also describe ROA as a key performance indicator that reveals the profitability generated from the company's assets. ROA helps compare companies within the same industry by standardizing profitability relative to asset base, highlighting operational efficiency. Penman (2013) explains Return on Equity (ROE) as a critical ratio for assessing a company's ability to generate profit from shareholders' investments. ROE provides insight into how well management is using equity financing to drive growth, making it a fundamental measure of financial performance.

Higgins (2019) describes ROE as a measure of financial efficiency that calculates the return generated on shareholders' equity. A higher ROE reflects effective utilization of equity, indicating strong profitability and appealing to investors interested in growth.

Richards and Laughlin (1980) introduced the Cash Conversion Cycle (CCC) as a metric that evaluates a company's liquidity by measuring the time required to convert resource investments into cash flows. They emphasized the CCC's role in understanding working capital management, as a shorter cycle indicates more efficient resource usage and quicker cash recovery. Stewart (1991) explains that the Cash Conversion Cycle is crucial for assessing a company's efficiency in managing its cash flow. CCC encompasses the time

taken to manage inventory, collect receivables, and delay payables, with a lower CCC signaling strong liquidity management.

Table 7

Financial Indicators and Interest Generated under Different Scenarios

	Actual Scenario	Scenario 1	Scenario 2
Interest generated	-	S/274,000	S/170,000
ROA	7.932%	8.056%	8.055%
ROE	10.965%	11.071%	11.069%
Gross Margin	21.316%%	21.316%	21.312%
Net Margin	3.775%	3.811%	3.799%
Cash Conversion Cycle	- 80 days	0	0

In both proposed scenarios (Scenario 1 and Scenario 2), ROA increases from 7.932% to approximately 8.056%, resulting an improvement in asset efficiency. This change indicates that the model may help utilize assets more effectively. ROE rises from 10.965% in the current scenario to around 11.07% in the proposed scenarios, reflecting a higher return on invested equity. This increase suggests that implementing the model could benefit profitability for shareholders.

The CCC shifts from -80 days (where cash inflows precede outflows, indicating strong liquidity) to 0 days in both scenarios, where cash inflows and outflows are balanced. This alignment can contribute to more stable cash flow management, optimizing resource handling. The adoption of the consignment model could have favorable effects on asset efficiency and equity profitability. The shift towards a neutral CCC aligns cash inflows and

outflows, offering a balanced approach to cash flow management without compromising liquidity.



Chapter VII: Conclusions and Recommendations

7.1. Conclusions

- The implementation of the new consignment model brings significant financial and operational advantages to the Company, notably improving both working capital and operating cash flow. This approach provides a streamlined, cost-effective inventory management solution that enhances financial stability while enabling operational efficiencies. By reducing the need to tie up capital in inventory, the company can allocate resources more effectively to other strategic areas.
- One of the most notable benefits is the reduction of packaging inventory to zero, as ownership of inventory is transferred to the supplier until materials are needed in the production process. This reduction allows the Company to better align its collection and payment cycles, achieving an economic equilibrium. By eliminating the need to hold large volumes of packaging inventory, the company substantially increases its liquidity, freeing up S/. 3.4 million in the first year. This boost in liquidity creates flexibility for the company to reinvest in growth initiatives or other operational needs.
- The additional cash generated—S/. 3.4 million—opens an opportunity for the Company to generate supplementary revenue by investing in low-risk financial products, with the potential to yield up to S/. 272,000 in the first year. This potential gain illustrates how optimizing working capital through the consignment model not only addresses immediate cash flow requirements but also offers opportunities for value generation through strategic financial investments. Leveraging this cash flow can provide the company with both short-term financial returns and long-term growth potential (Rodríguez, 2020).
- Moreover, the implementation of this model is projected to positively impact key financial performance metrics. The company's Return on Assets (ROA) is expected to

increase by +1.6% due to the efficient use of assets achieved by reducing inventory and leveraging interest gains. Similarly, the Return on Equity (ROE) could see an increase of +1%, adding substantial value for shareholders. These improvements underscore the broader financial benefits of optimizing inventory management, as the Company becomes more effective in using both its assets and equity, which enhances overall profitability and shareholder returns (Fernández & Martínez, 2019).

Another significant consideration is the scalability of the consignment model. Once successfully implemented for packaging inventory, the Company has the potential to extend this approach to other types of inventories, potentially amplifying its benefits. By applying the consignment model across a wider range of materials and products, the Company can further reduce capital tied up in inventory, improve operational cash flow, and increase financial returns. This scalability positions the consignment model as a powerful tool not only for addressing current inefficiencies but also for supporting long-term financial growth (Pérez, 2021).

- Another significant consideration is the scalability of the consignment model. Once successfully implemented for packaging inventory, the Company has the potential to extend this approach to other types of inventories, potentially amplifying its benefits. By applying the consignment model across a wider range of materials and products, the Company can further reduce capital tied up in inventory, improve operational cash flow, and increase financial returns. This scalability positions the consignment model as a powerful tool not only for addressing current inefficiencies but also for supporting long-term financial growth (Pérez, 2021).
- The adoption of the consignment model provides an effective solution for enhancing the Company's working capital and inventory management. By reducing inventory levels, increasing liquidity, and generating additional financial returns, the Company

stands to improve both its operational efficiency and financial performance. The positive impact on key financial metrics, such as ROA and ROE, reinforces the value of this approach for shareholders. Additionally, the model's potential for scalability offers a pathway for sustained financial improvement, allowing the Company to capitalize on its operational efficiencies into the future (Higgins, 2019).

- The Company's commitment to corporate social responsibility is also evident in its efforts to optimize packaging inventories and reduce plastic waste, ultimately contributing to a lower environmental impact. This alignment with sustainability goals highlights the Company's dedication to minimizing its environmental footprint while achieving financial benefits. Through these efforts, the company not only meets its financial objectives but also supports broader environmental goals.
- Finally, the implementation of the consignment model represents a transformative change to the Company's traditionally conservative culture. Embracing this modern inventory management approach signals a shift toward more agile and financially sustainable practices, positioning the Company for future adaptability and growth. By adopting innovative solutions, the company sets a foundation for ongoing improvements in both operational and cultural aspects.

7.2. Recommendations

Based on the conclusions drawn from the implementation of the consignment model and its demonstrated financial and operational benefits, the following recommendations are proposed for the company to further optimize its working capital management and enhance overall performance. These recommendations aim to build upon the success of the consignment model, fostering greater efficiency and financial stability across different areas of the company. By implementing these strategies, the company can strengthen its cash flow,

improve key financial ratios, and better position itself for sustainable growth. The proposed recommendations are as follows:

- The company should proceed with the full-scale implementation of the consignment model for other types of packaging inventory, as this approach has already demonstrated financial benefits. Expanding the model would result in an increase in liquidity of approximately S/. 3.4 million, which would significantly contribute to better cash flow management. This improvement in liquidity can ease operational expenses, support investment in other areas, and strengthen the company's ability to respond to financial obligations promptly. Additionally, the increase in liquidity positively impacts key financial ratios, enhancing the company's financial stability and making it more attractive to investors and stakeholders. By adopting the consignment model across a broader range of inventory, the company not only boosts immediate cash flow but also positions itself for sustained financial health and operational flexibility.
- Negotiation consignment terms with additional suppliers, the company can further reduce its working capital requirements and enhance cash flow. This strategy will allow the company to scale the benefits of the consignment model, improving inventory turnover, and reducing the financial burden associated with holding large amounts of stock. Moreover, applying this model across other inventory categories will help maintain the liquidity improvements and boost the overall financial performance of the company.
- To ensure the successful long-term application of the consignment model, the company should strengthen its relationships with suppliers by focusing on collaborative partnerships. Establishing clear, mutually beneficial consignment agreements with key suppliers will ensure smooth transitions and sustained

inventory management improvements. Suppliers will need to be well-integrated into the company's supply chain processes to ensure real-time visibility of inventory levels and demand forecasting, enabling more accurate and efficient inventory restocking.

- It is recommended that the Company consistently monitor key financial performance metrics, such as Return on Assets (ROA) and Return on Equity (ROE), to ensure that the benefits of the consignment model are being fully realized. By regularly assessing these metrics, the Company can gain insights into the effectiveness of the consignment model in enhancing asset utilization and equity returns, directly impacting shareholder value. Regular analysis of these indicators also enables management to evaluate the operational improvements gained from the model, providing a clearer understanding of its contribution to cost efficiency and profitability. Furthermore, tracking these metrics over time will not only highlight positive outcomes but also uncover any potential areas where further adjustments could maximize performance. This proactive approach helps ensure that the Company remains agile in a competitive market and maintains a strong financial position, fostering long-term sustainability and growth.
- While the consignment model offers significant financial advantages, the company is encouraged to integrate sustainability practices into its broader inventory management strategy. By adopting more sustainable packaging materials and minimizing waste, the company can align its operations with global trends toward environmental responsibility. This not only enhances the Company's brand image but also reduces long-term operational costs associated with waste management and regulatory compliance.

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Appendix A: Interviews

N°	Date	Activity	Company	Modal	Department	Contact	Evidence
1	March,14	Plant visit	Company	In-house	Operation	Warehouse Operators	
2	March,18	Interview	Company	Virtual	Production	Production Manager	
3	March, 25	Interview	Company	Virtual	Logistic	Supply Planner	
4	March,26	Interview	Company	Virtual	Operation support Production	Operation Supervisor Cost analysis	
5	March, 27	Interview	Company	Virtual	SSOMA	Supervisor SSOMA	
6	March, 27	Interview	Company	Virtual	Marketing	MKT Senior	
7	May,17	Interview	Company	In-house	Production	Production Manager	
8	May, 17	Interview	Company	In-house	Production	Operators	
9	May, 23	Plant Visit	Gloria S.A.	In-house	Logistics	Logistic Manager	
10	May,23	Plant visit	SMI	In-house	Envases San Miguel Industrial (Outsourcing)	Supervisor	
11	August,8	Interview	Company	In-house	Supply Chain Management	Supply Manager	
12	September, 16	Thesis presentation to the Regional Operations Manager	Company	In-house	Operation	Regional Operations Manager	