Master's degree in Business Administration

New subsidiary of Iberchem Fragrances in South Africa

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Executive summary

As part of their global strategy, *Iberchem*, a flavour and fragrance company based in Spain, is considering the opening of a fragrance subsidiary to serve the countries in the African continent that they already sell to -from the Spanish headquarters.

The fact that the flavours division already has operations undergoing in the country facilitates the potential opening of a fragrances manufacturing plant, but a previous analysis must be carried out to check the viability of the project.

The proposed project answers this requirement providing with an extensive analysis of the external environment and a thorough internal assessment, as well as the financial supporting data that will lead to conclusions regarding the profitability of the potential subsidiary in South Africa.

Key words

Expansion, profitability analysis, flavours & fragrances, logistics, cost savings.

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Context of the company

Iberchem is a Spanish group in the Flavour and Fragrance industry (*F&F)* flavour division -under the brand Scentium- and a fragrance division -Iberchem SA. The previous produces food flavours for several types of applications, including savoury, sweet and beverages, while the latter is dedicated to the manufacturing of a wide arrange of products, including fine fragrances, air care and home care, among others.

The group -founded in 1985 in Murcia, Spain- early developed a global strategy that has allowed it to be present in more than 120 countries as of 2022. This international strategy has its foundation in the *local blender* model followed by Iberchem, which allows it to efficiently serve markets worldwide with a homogeneous and distinctive qualities in every product. Thanks to the nature of both fragrances and flavours, the key bases and concentrated bases -which are the part of the mixture that carry the fragrance or flavour- can be produced at the HQ in Spain. The subsidiaries around the globe only need a small amount of them to mix with locally acquired components -whose supplier must be previously authorized- and obtain the final products. This model has important benefits:

- Guaranteed quality in the final product worldwide.
- Reduction in transportation costs, as the big-volume final product is mixed near the customer.
- Easy incorporation of new factories.

Following this model, the growth of Iberchem is both organic and inorganic, depending on the requirements of each area and market in particular (Iberchem n.d.-a) (Iberchem n.d.-b).

Moreover, the model is complemented by an effective commercial-R&D workflow that allows for quick development of references that follow market trends or customer needs. Holding a total of 40,000 individual references developed over 37 years of expertise, Iberchem currently develops more than 280 new references per month (Iberchem and Croda 2022), a highly responsive method of operation that is at the core of the competitive advantage of the company.

The whole group was bought by the multinational English company *Croda* in 2020. Croda is focusing on achieving sustainability goals in all its business units, the reason behind the requirement of Iberchem's global operations to further reduce their carbon footprint.

According to this the managing team of the group has foreseen an opportunity to better serve many African countries, by taking advantage of the already existing industrial complex owned and operated by Scentium, the flavour division. The *local blender* model will be useful to set the company's activities and operate in these facilities for both flavour and fragrance divisions.

Opportunity

As part of its international strategy the group acquired *Versachem* in 2018, a flavour manufacturer located in Centurion near Pretoria, South Africa. This company was integrated in the Iberchem network under the name Iberchem South Africa (IBZA) with the main aim of serving Scentium's customers in the regions of central and southern Africa.

Following the requirements of Croda production should be closer to the customer, but currently there is a big fragrance market area in Africa that is being served from Europe.

Furthermore, the production facility of IBZA is underused, with only the mixing of flavour and distribution of fragrances implemented, thus providing with a great opportunity to include the mixing operations of fragrances. This will help improve the service to big clients in the region and therefore to become more competitive in a short time and with less investment than what is usually required in other international endeavours of this kind.

Goals of the project

- Obtain a thorough analysis of the fragrance market in the South African area.
- Understand the current capabilities of the company in order to know how beneficial the creation of the subsidiary is.
- Define the operations, in terms of capabilities and resources, that need to be carried out in the subsidiary.
- Delimit the fragrance market that would be subject to be served from the new subsidiary.
- Assess the size of the investment needed for the creation of the subsidiary.
- Consolidate the viability of the project.

External analysis

The present project requires to analyse the context in which the company is trying to start the new fragrance business. In this section, known tools will be used to assess the viability of the projects in terms of external drivers. The structure of this will be from the outside in, starting from a general context of the country to a more industry-specific view.

PESTEL analysis

The PESTEL framework (Whittington 2019) will be used in an adapted way as a valid technique of acquiring knowledge about the context in which the new subsidiary could potentially be implemented.

- Political analysis.

  Politics characteristics in South Africa are more relevant than in other areas where subsidiaries have been previously implemented because most African countries, especially in the region of interest, do not have trustworthy politics. This is why South Africa plays a crucial role in giving a safer and more reliable system of government than the rest of the nations that could be considered to settle in.

  Recently a more fragmented political panorama, with the possibility of the currently ruling party ANC losing its majority on parliament might point towards to an unstable country (Bethlehem And 2022).

  On the other hand, taking a look back to how the current South African democratic system was instated after Mandela and the new constitution (Marrero 2012), it is clear that this government, however unstable or changing might seem, is far more reliable and trustworthy to keep the country afloat than any of those in countries in the surroundings.

  South Africa is generally open to foreign investment, according to the United States Department of State (Bureau of Economics and Business Affairs 2022). However there exist some policies that might make it more difficult for foreign firms, such as the *Broad-Based Black Economic Empowerment Act* of 2013 (B-BBEE). It tries to give an advantage to historically oppressed South African black people by requiring certain quotas in ownership. On the other hand, any potential disadvantage is also reduced by other acts that try to level the playing field.

Looking at the scores of South Africa in the *Doing Business Ranking* (DB) by *The World Bank,* it also supports the selection of this country. Focusing on the *ease of doing business score,* which "benchmarks economies with respect to regulatory best practice, showing the proximity to the best regulatory performance […]" (The World Bank 2020), South Africa shows an overall score of 67/100, 0.3 above the previous year, which proves the upwards tendency in its regulatory practices towards businesses. Overall, in the Sub-Saharan Africa region, the country is placed in the fourth position, just below Mauritius, Rwanda, and Kenya. It has good marks in the *protecting minority investors* index of the ranking, in second position of the region, and fifth in *paying taxes,* but SA excels in the minimum amount of capital needed to stablish a firm, amounting to zero. This figure is even more relevant if compared to other Sub-Saharan African countries, where the average minimum capital is 9.3% of the income per capita.

Moreover, South Africa has a 7-steps procedure to start an organization, in line with the region's area, but a 99.9 over 100 rating in the cost index of the *DB 2020 Starting a Business Score* makes it clear that it is a good place to do business, even better if compared with the surrounding countries.

- Economic analysis.

  South Africa is a promising developing economic power. The *International Monetary Fund* (IMF) provides in fig. 0 with the data that prove the quick raise of its GDP in the past four decades (IMF 2022), a raise that has suffered several breaking points after the 2008 economic crisis, but that keeps increasing nonetheless.

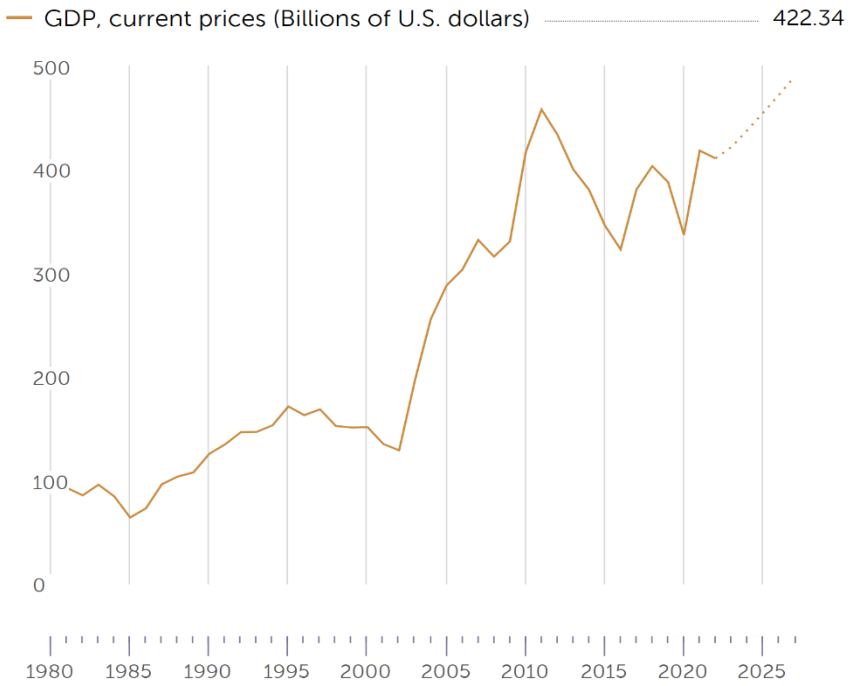

Figure 1. South Africa's GDP. Source: IMF 2022

The country has an inflation rate evolution that seems not ideal, but that is more than acceptable in the context of a developing economy. Moreover, the IMF estimates (showed in figure 2) that the future trend will be downwards and in levels not far from what is found in developed countries.

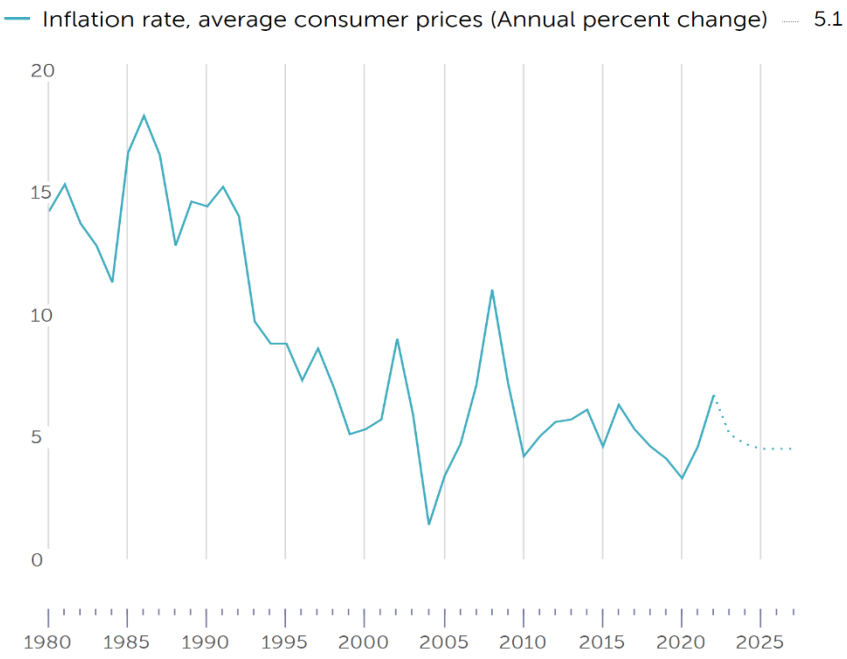

Figure 2. South Africa's inflation rate. Source: IMF 2022

South Africa is considered by the World Bank an upper-middle-economy (World Bank Data 2023), there being only seven other countries catalogued with an economy of this category in Africa, most of them in the Northern area.

SA is the preferred nation for European an American companies to invest. The United States Department of States describes how the country receives big quantities of investments thanks to its "comparatively low-risk location for Africa" (Bureau of Economics and Business Affairs 2022). The United States Department of State says that South Africa is its top commercial ally in the African continent, which indicates a strong support from the North American Government, a key element in international business.

- Social

The social component is a key aspect to consider given the multinational features of this project. The South African and the Spanish cultures can prove to be quite different. To assess this, the Hofstede's model for cultural analysis provided by *Hofstede Insights* website (Hofstede Insights 2022) is used. This model gives a quantified view of culture around six different dimensions. Although there are many unquantifiable variables to consider when analysing cultural matters, this model gives an overall view that might be valuable.

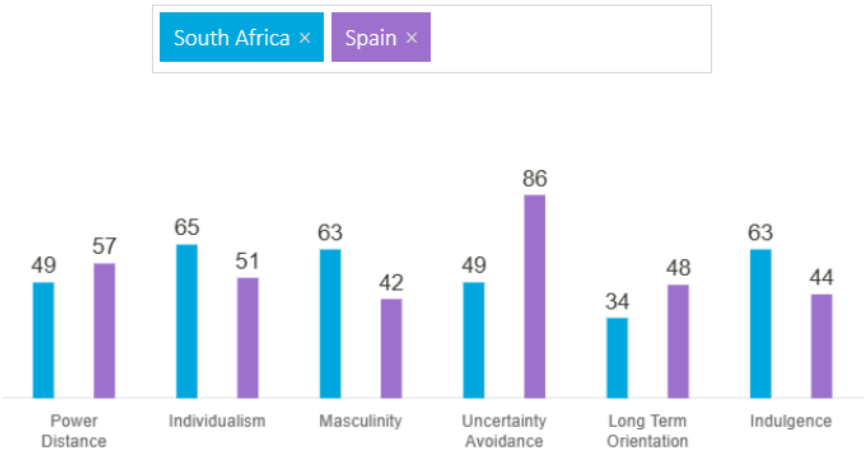

Figure 3. Hofstede's model country comparison between South Africa and Spain. Source: (Hofstede Insights 2022a)

In the case of the South African-Spanish comparison shown in Figure 3, there is a big gap in the Uncertainty Avoidance dimension, meaning that the Spanish culture is keener on having a path set towards the future, while the South African average person tends to worry less about uncertain things in the future. In the workplace, given that the

management is likely to be Spanish, this difference in culture might mean that the South African worker is less prone to planning and keener to leave things to evolve on their own, while the Spaniards will look to leave as few things to luck as possible.

On the other hand, South Africans appear to be slightly more indulgent with time than Spaniards, which could mean an excess of lunch time or social time from the management eyes.

- Technological

  South Africa has one of the biggest and most promising information and communications technology industry in Africa, according to the US Department of Commerce (Department of Commerce, USA 2021), which is beneficial for the infrastructure in communications of the country. However, this also leads to a high level of digital crimes and risks in cybersecurity that must be addressed.

  The developing situation of the economy puts the region in a great position to embrace new technologies that might help the push its growth, and new trends as robotics, industry 4.0, digitalisation and such are getting a lot of attention in the different industries of South Africa, as McKinsey analysts assessed in a pre-covid report (Nomfanelo Magwentshu et al. 2019). After Covid, efforts are doubling to get the economy back on its tracks, and these trends are ever more important.

  On the supply chain topic, although the non-exhaustive policy and the political instability result in a slight difficulty for logistics and operations, the launch of the African Continental Free Trade Area (AfCFTA) in 2021 is a great opportunity to avoid further disruptions in the supply chain of the whole continents and a huge leap forward in protecting its well-functioning (Baker McKenzie 1021)

- Environmental

  South Africa was among the countries that announced the Just Energy Transition Partnership at COP26 in 2021, a partnership focusing on decarbonization and clean energy, a step that shows the environmental concern of the Government of SA. The evolution of the country's measures against climate change are described in its first Nationally Determined Contribution document (Republic of South Africa 2021) under the Paris Agreement, were it determines the electrification of transport a priority, as well as the transition of the electric generation sector. As one of the countries that are

mostly dependant on coal for energy generation, it is as well a rich area in renewable resources.

In this context, the green transition of the country and its implication with the cause proves to be an exceptional opportunity for this project, as one of the main goals is to decarbonize the firm's operations and reduce the carbon footprint. Producing in a country that is pushing towards the electrification of transport and whose energy is becoming less polluting is key.

- Legal analysis

Focusing on the legal advantages or drawbacks for foreign investors in South Africa, there are very few restrictions. Anyone can invest as much as they want on any industry on the country (Standard Bank TradeClub 2022),and there is no need for government approval, which facilitates matters.

Regarding corruption, it is in the level of any other African country in its surroundings according to transparency.org (Transparency.org 2023), although it has organisms that promote its eradication (Corruption Watch 2023) to allow SA to keep growing. It is important to compare to Nigeria, as it is the other relevant country in Africa that might be considered. It has a 44% of public servants that received bribes in the previous year of the study, while South Africa only reported 18%.

Key drivers extracted from the analysis

The chart 0 is obtained from the main points mentioned in the PESTEL analysis:

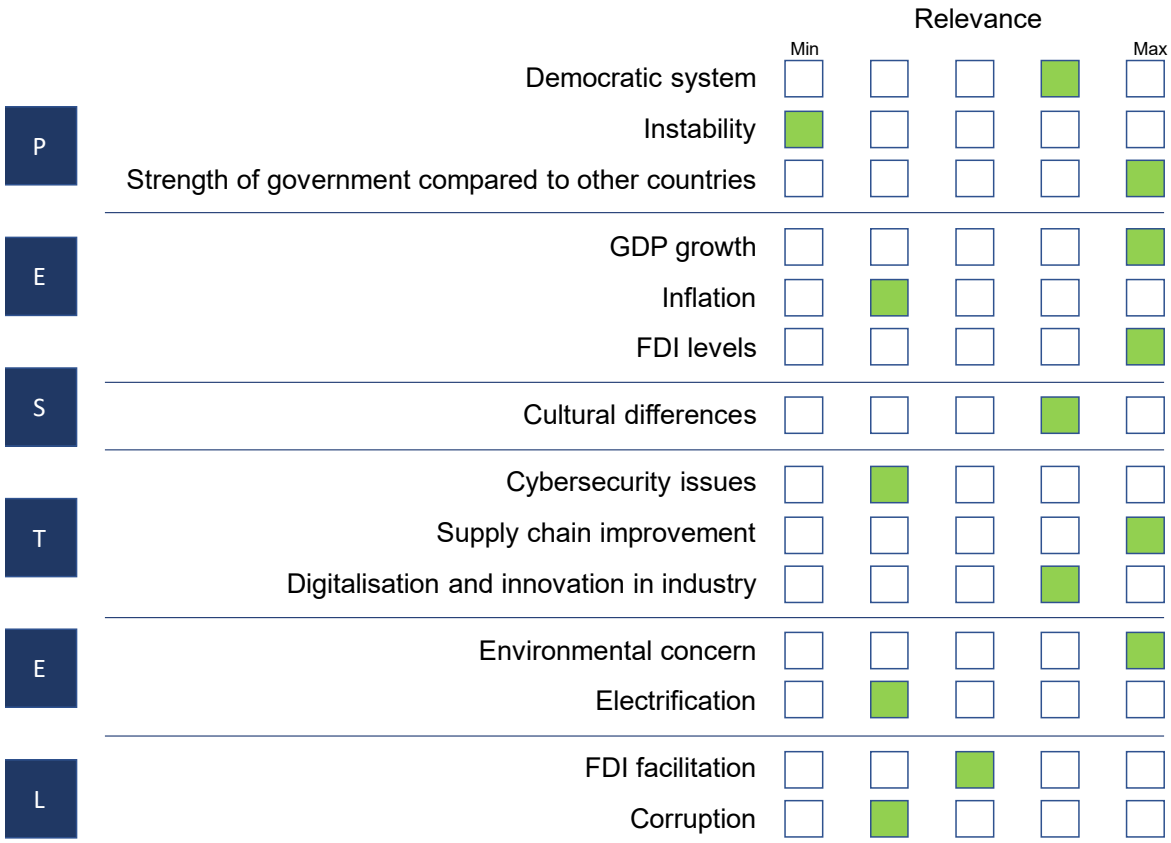

Chart 1. PESTEL analysis key drivers. Source: own elaboration

The conclusions from the analysis are, simply put, that the country's context is good for an investment from the group. The key drivers are its growth, shown in the GDP evolution, and the fact that many foreign companies invest in SA. It is also important to stress that the aim of this analysis is not to look for a perfect country to invest but to look for the best location in southern Africa.

Thus, all the relevant positive aspects of South Africa are highlighted, while among the negative aspects the corruption levels should be kept at sight since it can cause damage to Iberchem but are not worrying. On the other hand, cultural matters should be taken seriously and addressed from an early stage to avoid serious trouble developing from cultural difference. Nonetheless given the international background of Iberchem many culture mixes have already been made a success in previous endeavours, making this factor a minor issue that the firm is used to mitigate.

The environmental aspect is also a big plus for this project, since it is a major driver for Croda and Iberchem, and the origin of this project.

Overall, the analysis arrives at the conclusion that South Africa is a stable, attractive country that is getting a lot of FDI and therefore deserves the group's attention by itself. Furthermore, owning a facility in the country already, which can hold its current functions plus the fragrances production operations, makes the decision even easier.

However, it must be explained why Iberchem as a group searched and bought a small player as Versachem in South Africa and not Nigeria, being the latter the most populous country in the African continent and the one that could *a priori* provide the most growth opportunities.

Nigeria concentrates most of the sales of Iberchem in Africa -as it will be detailed further in this document- and is surrounded by numerous important markets for the company. However, its outstanding levels of both social and political instability make it less appealing.

To those factors the problems faced by foreign companies trying to set operations in Nigeria must be added. FX has recently experienced several crisis in the country, with a highly volatile and usually devaluated local currency that causes frequent dollar scarcity (Mojeed 2022). The few dollars available are given to certain people close to the corrupt government, which make foreign investment certain to cause losses if local partnership is not pursued but, even with a partnership, doubtful procedures must be adopted to ensure that the rightful amount of money gets to the company.

Thus, this country was completely discarded back in 2018 when the flavour division was looking for a place to establish operations and is again a bad option for the current project in fragrances.

To conclude, the context of South Africa is profitable to stablish a new business in the country, watching closely certain aspects that might put a certain degree of risk.

Fragrance market

Regarding the specific field in which the company operates, the global market is studied and taken as relevant as the sizes and trends do not vary greatly from one regional market to another. Specific data in this section has been extracted from both internal intelligence provided by Iberchem and market research by Technavio (Technavio 2023).

The Iberchem Group belongs to the Fragrance & Flavour (*F&F*) industry -included in the global diversified chemicals market- and has the separate businesses Iberchem Fragrances and Scentium Flavours operating on each side of the industry.

On one side, flavours correspond to chemicals that are a "mixture of aromatic substances or extracts in a carrier that may contain food additives" (Sebastian Iaconis 2021) and that are added to alimentary products in order to provide them with taste, odour, and occasionally, colour. They have applications in almost every type of food and are usually divided into sweet, savoury and beverages depending on the products to which the flavour are going to be applied.

On the other hand, fragrances are also chemicals that provide with odour, but which are applied to products that are not meant for oral consumption. A typical classification of products for this segment is the following, according to Iberchem employees (Butler et al. 2022):

- Personal care and perfumes. Which is comprised of:
    - Baby care. Products with soft formulation and stricter quality control.
    - Deodorant. Fragrances that need to be durable and appealing.
    - Facial care. Fragrances to be applied in cosmetics.
    - Hygiene. Broad segment meant to cover applications for sanitary products as hydroalcoholic gel.
    - Bath & Shower. Fragrances for shampoo or shower gels.
    - Hair care. Fragrances for another type of cosmetics.
    - Fine fragrances: *haute perfumerie* and mass market fragrances, typically for world-class brands.
- Functional fragrances:
    - Air care. Air fresheners and incense-like product applications.
    - Dishwashing. Applications including dish soap and dishwasher pods among others.
    - Laundry care. Applications as detergents or softeners.
    - Surface cleaner. For floor and other surfaces cleaners.

In this industry, companies usually have business units dedicated to each fragrance and flavour divisions, as the nature of the operations for both kind of products is the same. The fragrance side, however, represented about 55% share of the F&F revenues worldwide to in the year 2021, with similar figures over the years. The global size of the F&F industry goes up to around USD 39,000 million (€36,000 million), with a compound annual growth rate (*CAGR*) of over 5%. It is

estimated that this global CAGR could see a bump from 2024 of 1% to reach a growth of more than 6% until 2027. This growth is even more accelerated in the fragrance sector, as it is to take even more share of the sales from the flavour side.

Diving specifically into the African market, it represents as little as over 3% (€1300 million) of the global size of F&F, but the fragrance market in Africa specifically is estimated to have a growth above the average with a CAGR of almost 8% over the next years. It is the smallest region in market size, but its size and the trends that will be discussed below set it as one the most promising areas where to be established as a fragrance company.

Trends

Although Iberchem business is completely business to business (*B2B*), it is naturally affected by the final consumer trends that, again, are globally common. In each specific market there might be certain trends that are usually found in the personal beauty segment and that relate to cosmetics and what is fashionable in each region as the skin-whitening products in South Korea, for example, opposed to the trending tanning cosmetics found in the West.

Also, the fragrances that would be expected in cleaners, as dishwashers or floor cleaners, might differ from one country to another; in western countries the citric fragrances like lemon and such are common in dishwashers, while in China these products can be found with sweeter scents like sweet melon or sweet orange. However, these tendencies do not affect in a big way to the fragrance manufacturer and will only be a matter of selling a bigger volume of certain references depending on the region.

The relevant trends to this industry are related to macro tendencies that raise the volume of final products to be produced -and which, in turn, increase the demand for fragrances-, or that put specific restrictions to the origins of those products and their ingredients.

These trends are summarized in:

- Macroeconomic trends: the growing middle class and increasing urbanization that are usually accompanying higher growth rates of emerging areas are relevant in this industry, as this will signify more disposable income for a broader proportion of the population. They will be able to spend more in products that are not strictly essential or

first-necessity, as personal care cosmetics or air fresheners. A higher demand in these will cause a greater need of quality fragrances to produce them with.

- Consumer trends: along with the macroeconomic trends, when the consumers are better established in society and their necessities better covered, they will seek other features in the products, such as:
    - Conscious consumption
    - Proximity buying
    - Natural fragrances and *bio* or *eco* tags
- Market trends: new developing niche brands. Customers are increasingly differentiated between:
    - Local family-owned companies. The typical customer of Iberchem, they are medium and small-sized and have a flexible and agile business model and have a fast introduction of products to the final consumer. They usually focus on a product segment and rely on suppliers in terms of trends and regulation.
    - Large international corporations. Covering a broader product portfolio, they have a bigger muscle and are the ones that set the trends and regulations. They have a complex internal structure and require larger volumes of fragrances.
- Manufacturer trends:
    - Digitalization. Expansion of online channel as part of the digitalization macro trend and the increasing trend on reformulation over innovation, which helps accelerate the research and development models by including new formulas based on modification of previous existing references instead of creating new fragrances from scratch.
    - Technology advancements. Big firms are implementing numerous platforms related to Artificial Intelligence (*AI*) in both production and customer experience tools, as Firmenich's *Olfactive Vision*, their new creative direction. Most of the players are increasing their expenditures in research towards a more technological future of the industry that allows for cost reduction while increasing availability across countries and customer service.
    - Mergers and Acquisitions. The market shares of the F&F industry have been consolidating for the last few years with the bigger players absorbing in different ways local players to access their markets and expand their global presence. The result of this trend is an intensified competition in the industry.

Competitors

Iberchem's characteristics put the firm at a particular place in what refers to competition. It is a medium sized company that belongs to the second tier of the industry, but that has big volume capabilities that can compete with tier 1 competitors. On the other hand, its business model is focused on providing fast, quality service to any customer, not only to big sized orders.

The competition, disregarding the fragmented smaller market -which accounts for local players that are more subject to acquisitions than to compete with- is predominantly multinational, finding the same medium and big competitors in almost every region in which Iberchem has any kind of presence. Thus, Iberchem competes with:

- Small sized firms:
    - Local distributors. Local small and medium companies that operate in the same way as Iberchem South Africa does currently in the fragrance division: they hold inventory from different producers and distribute to local customers. They can be both competition and allies when IBZA is fully operational in the production part, but they are also usually absorbed by bigger companies. There is a particular common case of small, family-owned company dedicated to a specific kind of fragrance that is usually a target for Iberchem to buy. An acquisition like that allows the firm to have increased local presence and better customer service.
    - Small producers. Mainly local, they are producers that are usually specialized in an array of specific products. The risk Iberchem faces towards these businesses is that they might feel closer and friendlier to customers that look for that local, special service.
- Medium sized firms:
    - Medium producers and distributors that theoretically would be the direct competition for Iberchem. In reality these tier 2 competitors have comparatively small capacities and geographical reach. They usually are focused on fragrances exclusively and try to compensate with a better customer service and a production of tailored-made fragrances for each customer's needs. These factors often put them behind Iberchem's capabilities, but they are not to be overlooked. The most relevant names are:

- *CPL Aromas*. A fragrance-only company established in 1971 in the UK (CPL Aromas 2023), with 19 centres around the world and selling in up to 100 different countries, where they employ over 600 people. Its sales globally were €150.4 million (£130.6 million) in 2022. They focus their activity in Africa on the North-East of the continent, where they are a competitive player.
- *Argeville*. A century-old company based in Grasse, France, the birthplace of the fragrance industry, its mainly focused on perfumery (80% of its sales) on an international level. Argeville has a turnover of €60 million and employ 310 people worldwide figures corresponding to the year 2022. The firm, present in 10 countries with international centres, opened its last office in Johannesburg, South Africa in 2022 with "the aim [is also] to get closer to its regional customers" (Stagiaire 2022). This serves as a hint of the country being a good choice for establishing operations.
- *Eurofragance*. Based in Barcelona, Spain, Eurofragrance puts the focus in fine fragrances, but also develops fragrances for the rest of applications. It registered sales of €113 million globally in 2022. Regarding Africa, they state that they experienced a "strong growth in the IMEA region" (Eurofragrance 2023), where Africa could have taken an important role. Eurofragrance is present in 6 countries on different continents with what they call *hubs*. It has around 350 employees, and it sells its products in over 100 countries. However, its low number of international productive centres limits the company in terms of customer service.

The positioning map in figure 4 helps understand how these competitors are positioned with respect to Iberchem, with the geographic coverage and the portfolio breadth as main dimensions and the volume of sales represented in the size of the bubbles of each player.

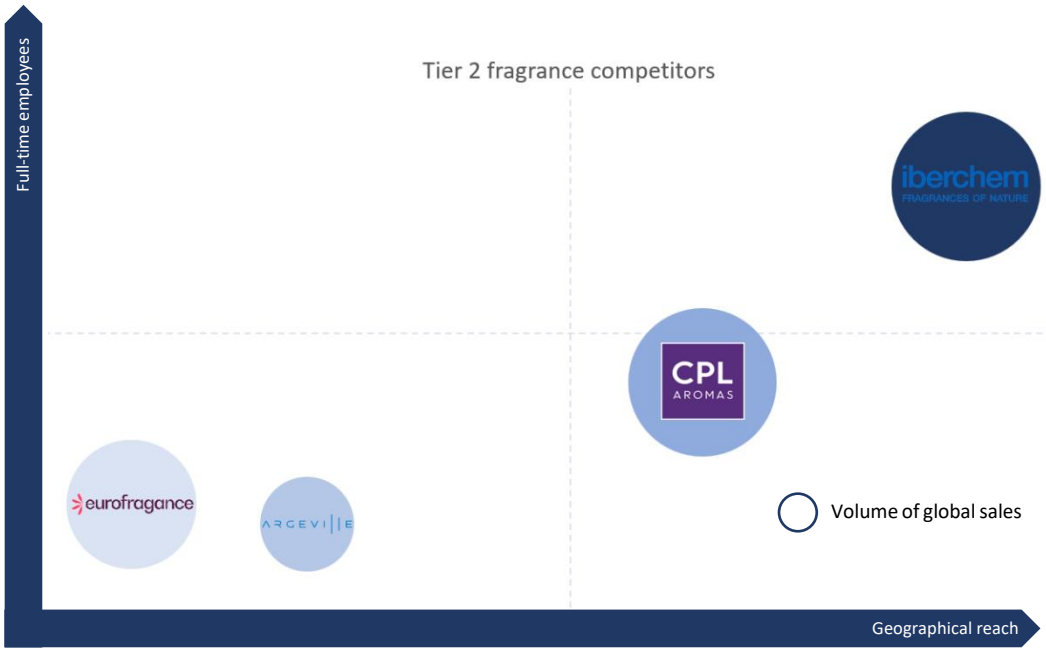

Figure 4. Tier 2 positioning map of the F&F global competition. Source: own elaboration with data from each competitor

- Big sized firms:
    - Big producers. Multinational F&F businesses focused only in the industry that are competitors of Iberchem in almost every region in the world. They will win big sized orders and attract customers because of their big resources and capabilities, especially regarding the bargaining power towards suppliers, but might overlook smaller or too specific orders that require a higher degree of personalization. These players are:
        - *Givaudan*. One of the most powerful companies in the industry of F&F, with a heritage of 250 years, it reported €3,300 million of global fragrances sales in 2022, from which 7% (€230million) corresponded to Africa and Middle East (Givaudan 2023). Givaudan has presence in nearly 50 countries, serving hundreds from their varied facilities, where it employs a total of 16,700 persons.

- *IFF*. Another giant in F&F, its *scent* business reported €2100 million euros global fragrances sales in 2022. Based on previous reports of the company, it is estimated that they achieved €130 million sales in Africa and Middle East (International Flavours & Fragrances 2023b). They are present in as many as 45 countries, with a headcount of 24,600 employees. IFF bets for innovation from a different point of view, even publishing its fragrances' references on their website, with many other data (International Flavours & Fragrances 2023a).
- *Firmenich*. A traditional company that employs over 11,000 people globally, it is the company that sells the most in Africa, with €300 million, representing around 10% of their total fragrance sales (Firmenich 2022). It is present in 35 countries and has a strong market position in recognized brands of the fine fragrances segment (Firmenich 2021).
- *Mane*. Also, a traditional company -its roots trace back to the 19th century, in France- Mane is a family company that started internationalizing as soon as 1956, and which is currently present in 39 countries with a total of 7,500 employees. Its sales in Africa are estimated to be around €100 million. Mane is of extreme importance for Iberchem although it has x7 the size of the Spanish-based firm, as the trajectory of both companies has been quite similar over the years. Mane is sometimes regarded in Iberchem as a role model or even a forecast, as their natural individual evolutions has taken them through the same paths in many occasions. Mane is the smallest company of the tier 1 competitors, which makes it look for the same market segments or niches as Iberchem would, leaving the bigger orders for giants as IFF or Givaudan and focusing on customer service and adaptation of products.

The positioning map in the figure 5 illustrates the distance between the players of F&F considered as *tier 1* and Iberchem.

Figure 5. Tier 1 positioning map of the F&F global competition. Source: own elaboration with data from each competitor

After considering the positioning of Iberchem in both tier 2 and tier 1 competition fields, it may seem that Iberchem has little relevance in the tier 1 area, where IFF is the biggest player in terms of geographical reach and employees, but Firmenich and Givaudan lead the sales in the African continent.

However, Iberchem Fragrances finds itself in a space by its own, differentiating from the tier 2 competitors by having a strong global reach and a non-specialised product portfolio, features that are proper of tier 1 players. On the other hand, Iberchem also is able to obtain a competitive advantage from these giant firms in the top level of the F&F industry by having more competitive R&D costs that allows it not to focus only on large accounts, but still offering a tier 1-like service.

Because of those reasons Iberchem could be classified as 'tier 1.5', in a niche whose customers are still competed by players in the other tiers, but in which there is a clear advantage towards the Spanish firm.

Internal analysis

Following the preceding analysis, it is needed to analyse Iberchem internally to later assess the strategy most suitable for establishing the new production operation in Iberchem South Africa (IBZA). The first step is to analyse the company's capabilities and resources to assess later how it can compete in the previously researched environment. The capabilities and resources analysed correspond to those relevant for the operations in IBZA. Thus, some of the points specified refer to the global Iberchem Fragrances enterprise as, for example, the global reach. The specific capabilities or resources needed for Iberchem South Africa have been estimated from both the production level needed to get the established volume of sales in the region, and the data from the Iberchem Brazil subsidiary, which has a similar size of facilities and market than those expected from IBZA. This is the reason why its capabilities are the ones analysed, assuming that IBZA will arrive to these levels.

Capabilities

- Exceptional customer service.
    - Quick response to customer needs by modification of formulas
    - Competitive Minimum Order Quantity (*MOQ*)
- R&D laboratories able to create 20 new references per month.
- Support from HQ if extra capacity is needed.
- Ability to accompany customers through their international growth thanks to Iberchem's extended international reach and big production capabilities.
- Production capabilities of 1,500 tonnes each year -around 30 tonnes/week.

Resources

- Facilities of around 3,500 m^2 already owned by Iberchem Group.
- Strong accounts list in Africa with 130 different customers, many of which have a long-lasting relationship with the company.
- Access to 40,000 fragrance references from where customers can choose.
- Full equipped production facilities with blending vessels, deposits and all the supporting systems needed.

- R&D laboratory for reference modification and product-tailoring.

SWOT analysis

After the determination of the key points for both the external environment and the internal capabilities and resources of Iberchem, the *Strengths, Weaknesses, Opportunities and Threats* (*SWOT*) analysis will be performed to reach conclusions that help with the plan to follow for the subsidiary project.

- Strengths
    - South Africa footprint already stablished: investment in facilities already made and base of customers in the region already built.
    - Strong relationship with customer. The Top 50 customer list has an 11-years average relationship with the company. Iberchem's international presence allows the customers to grow in any market without needing to change their supplied fragrances nor to adapt to a different level of quality from competitors.
    - Responsiveness to demand. Powerful marketing department that performs regular trend analysis of local markets and collects the requests and needs of customers transmitted through the salespeople to implement research and development of new product opportunities.
    - Industrial fragrances to be produced in an *open formula* basis, meaning that the base can be produced by IBZA, therefore discarding the need of IBSA in any part of the production operations. This decreases costs and the carbon footprint, while increasing value for the customer.
- Weaknesses
    - Limited bargaining power with suppliers, specially at beginning of operations.
    - Local integration in the Iberchem group might not succeed, many factors to consider.
    - *Closed formula* production. Margin reduction due to working with bases as the business model for the non-industrial fragrances.
    - Difficulty of competition with big competitors in medium to big-sized orders.
- Opportunities
    - New customers to be attracted thanks to the better availability, lead times, and product modification quickness by serving from IBZA.

    - Opening of customer niches that require tier 1 global reach and specialised products but have not large orders. The M&A trend in the industry helps to this purpose, as the smaller companies are absorbed by the bigger players, leaving some local, small customers with a supplying need from which Iberchem benefits.
    - Growth opportunities derived from the expected Africa region economic improvements in the mid to long term.
- Threats
    - Ability of customize products makes switching costs low for customers since their final requirements might be met by other competitors.
    - Tendency by some product multinationals -customers- to vertically integrate their supply chain and produce their own fragrances.
    - High bargaining power for customers. Current customers might not be willing to accept the change to being served from the new production location.

The SWOT analysis performed gives an outline of what the firm can do and can do not, and how the external conditions will affect the implementation of production in IBZA. These points are to be crossed in a *TOWS* matrix, presented in chart 2, used to generate strategic options, maximizing the value of the SWOT analysis.

	S ·Facilities owned in SA ·Relations with customers ·Responsiveness to demand ·Open formula production	**W** ·Tier 1 competition ·Supplier bargaining power ·Integration of IBZA ·Closed formula production
O ·Customer attraction ·New customer niches ·Growth opportunities	-Start production in IBZA as fast as possible to benefit from the growth context -Strengthen marketing team to attract more customers, retain them with our service	-Effectively identify the niches not appealing for tier 1 competition and make good supplying offers to ensure signing of those customers and avoid losing ground
T ·Customer switching costs ·Vertical integration ·Customer bargaining power	-Take advantage of the responsiveness and the good relations with the customers a step further to minimize the risk of them switching -Increase the responsiveness through digital tools to differentiate ourselves and make vertical integration a difficult task for customers	-Take a careful approach to customers that are change-averse and whose products need to be closed formula, with higher costs. Try not to take more clients with this profile -Enhance the customer service and our value addition through it, since customers will vertically integrate the production of big order fragrances whose formulas are well known

Chart 2. TOWS matrix. Source: own elaboration

Strategic focus

The restraints found throughout the external and internal analysis of Iberchem already delimit the strategy to be followed to establish the fragrance operations in South Africa.

The most important factor is the differentiation through customer service and a fast, responsive adaptation to demand, whether the customer requires a tailored product, or the market shows signs of new, specific trends.

Iberchem must try to earn new customers in big-sized orders with this strategy, since the bigger competitors will be fierce and offer lower costs and competitive conditions but might show more concerns in changing their formulas. Moreover, even though producing with the *closed formula* method supposes a weakness in terms of transportation costs and producing times -needing to receive the bases from IBSA in Spain-, it still is the root success of the *local blender model* that the Iberchem Group has been using globally for decades. Each fragrance product needs only a

small amount of concentrated key base as the main ingredient, so it can be sent off in faster ways of transportation as through air shipping, keeping the responsiveness characteristic of the company intact, given the case that a customer preference is a fragrance that is already developed and ready at HQ.

On the other hand, the R&D laboratory at IBZA can also manage the modification of formulas, so it is only a matter of studying in each individual case what is faster not to lose that potential client.

However, the preferred method for this project is to work in industrial fragrance products since this way the shipping is minimal, and the carbon footprint reduced.

These are the ways in which IBZA will strengthen the responsiveness of the fragrance operations and differentiate from the competitors to retain the already big list of customers and to earn new ones.

Conclusion of the analysis

The analysis performed on South Africa -as the country serving as the context of this project- the fragrance industry -as the frame in which the company operates- and the internal analysis of the relevant Iberchem features lead to the following drivers regarding the viability of developing this project:

- South Africa is a country with a promising prospective and which is receiving a considerable amount of FID. Its conditions of economic development and technological advancements give it a relative advantage in the region. The already existing Versachem facilities are a big driver to implement there the fragrances production, but it would also be the destination of choice for a completely new production facility.
- The fragrance industry, although predominantly concentrated in a few multinational players, still leaves room for development in the second-tier size where Iberchem belongs and from which it sometimes is able to compete with the bigger players in certain orders.
- The existence of customers globally and in the Africa region specifically that require medium to big volumes and who are not willing to adapt to the greater power of

bargaining of the larger multinational companies provides with a good reason for this project.

All these drivers, added to intelligence from Iberchem that proves that sales in Africa have decreased from 2021 to 2022 due to a reduction in competitiveness and other factors such as forex restrictions in some countries as Nigeria make the present project viable and even necessary. If successfully implemented, the new production facility will hold the customers Iberchem already has in Africa, win new customers, and facilitate operations by having a local presence.

Proposed plan

Following these conclusions, the base plan is to make use of all the acquired Versachem facilities that are currently used to produce for Scentium and distribute for Iberchem, and instead fully implement the elaboration of both brands' products, flavours, and fragrances, while occasionally functioning as distributor in one-off cases.

During the Calendar Year 2022, Iberchem Fragrances held accounts for a total value of €10 million from the African market, representing less than 10% of the total sales. Iberchem South Africa (IBZA) has sold only about 6% (€600k) of those, the rest being served from HQ in Spain (IBSA). Furthermore, since all the sales distributed from IBZA were bought from IBS, although produced at minimum margin given that the two companies aim to work as partners, they result in inefficiencies in operations that can be polished off by producing fragrances in IBZA and reducing the number of products they must buy from HQ to a small volume of bases and concentrations that are only designed and elaborated in the central laboratories of IBSA.

This sets a great opportunity: there is a big room for optimization if all those 15M€ can be served locally from IBZA.

Strategy of implementation

The general strategy of the project is:

- Stablish IBZA manufacturing operations as soon as possible.
- Minimize risk of losing customer due to change.

- Progressively start serving current customers from new IBZA production centre. Once the area that could be served from the new SA plant has been outlined and assessed in terms of sales volume (shown in figure 6), their agreement to being served from a new location must be obtained. After that, a key point in the project is to scale the operations in IBZA step by step, strategically moving the customers from HQ to IBZA.

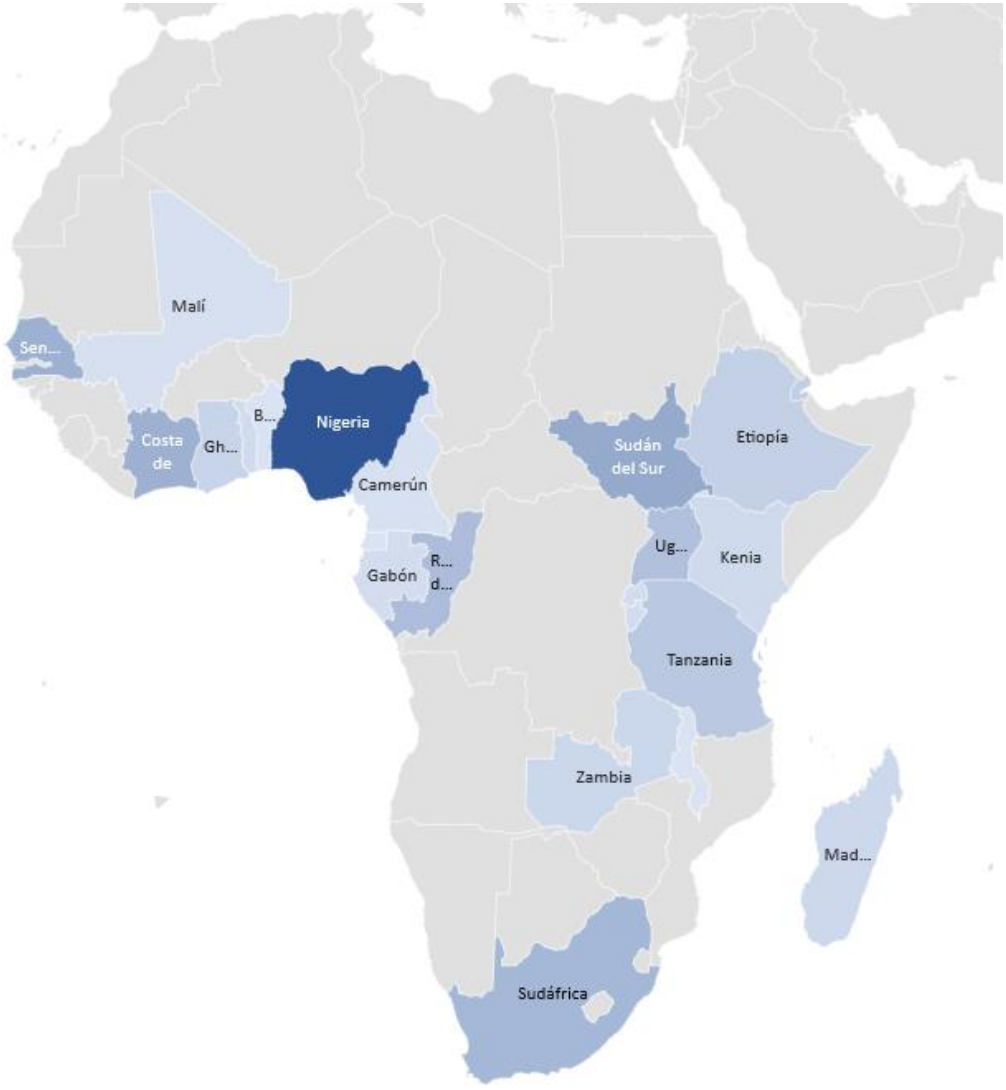

Figure 6.'22 Sales concentration (countries served from HQ that will be served from South Africa plant). Source: own elaboration

- Gain new customers thanks to advantages derived from production proximity and the usual Iberchem special customer treatment, regardless order size and level of product customization. The typical growth rate of sales for the fragrance business is around 12% yearly.

Although the biggest orders will be challenged by the biggest competitors (see *fragrance market* section) Iberchem's business greatly relies in the medium and smaller orders, thus needing to

watch the smaller competitors, especially when trying to gain new customers, as stated in the last strategy point. On the other hand, the tier 1 competitors will be contested by providing a faster and more responsive service to the customer, thus needing an effective supply chain without refusing to be efficient.

To be able to measure the implementation of the strategy and the success rate of the IBZA fragrance production start, the following Key Performance Indicators will be periodically obtained and reviewed:

- Logistics price per kilogram of final product.
- Carbon footprint of logistics.
- Organic growth in South Africa added to current Iberchem current customers and compared with the expected growth if this project were not to be completed.

As key validation data, information about a closely similar plant that was opened in Brazil has been collected regarding growth of sales. An example of a forecast for the first 15 years of the life of the Brazil project, based on organic growth, is presented in chart 3. The first 5 years' volume of sales have been in line with the amount forecasted, so the CAGR of 46% in volume of tonnes produced for the first 5 years of scaling up operations is considered valid. It is proved then that the production scalability of this industry is fairly big, and the constraints of sales come from the capability of earning orders.

Sales in Iberchem Fragrances Brazil			
Project Year	Sales (tonnes)	Price €/Kg	Sales (€k)
1	41	18.4	754
2	85	18.4	1,564
3	134	18.4	2,466
4	191	18.4	3,514
5	272	18.4	5,005
6	313	18.4	5,759
7	360	18.4	6,624
8	414	18.4	7,618
9	477	18.4	8,777
10	549	18.4	1,102
11	632	18.4	1,629
12	727	18.4	1,377
13	837	18.4	1,401
14	963	18.4	1,719
15	1,108	18.4	2,387

Chart 3. Sales forecast from the Brazil plant. Source: Iberchem

From this information, knowing that a 12% growth is expected from year 5 onwards in the South American country once the production was completely scale to full capacity, conclusions as to what to expect in South Africa can be drawn, parting from a more positive scenario as there are already €10 million of sales (over 800 tonnes) placed and the region and market are well known. Nonetheless, the forecast made for Brazil did not account for relevant inflation levels year on year, therefore accounting for constant prices and stable costs. This will be different in the case of South Africa in the present times, since inflation has played an important role lately.

The past two years volume of sales in Iberchem in the Africa region is presented in chart 4.

Sales in Africa region					
2021			2022		
Tonnes	Thousand €	Avg Price (€/kg)	Tonnes	Thousand €	Avg Price (€/kg)
1,023	12,281	12.00	834	10,613	12.73

Chart 4. Iberchem Fragrances sales historical data in Africa region. Source: own elaboration from historical data from Iberchem

The decline stands out, especially considering the growing trend of the market. The factors responsible for the decrease between 2021 and 2022 are mostly related to the limited customer service provided from Spain, although some effects from a recent raw material crisis in the industry and the global supply chain disruption caused by the 2020 pandemic are still to blame.

Following this guidance, the forecast for the sales of the production in IBZA is provided in chart 5.

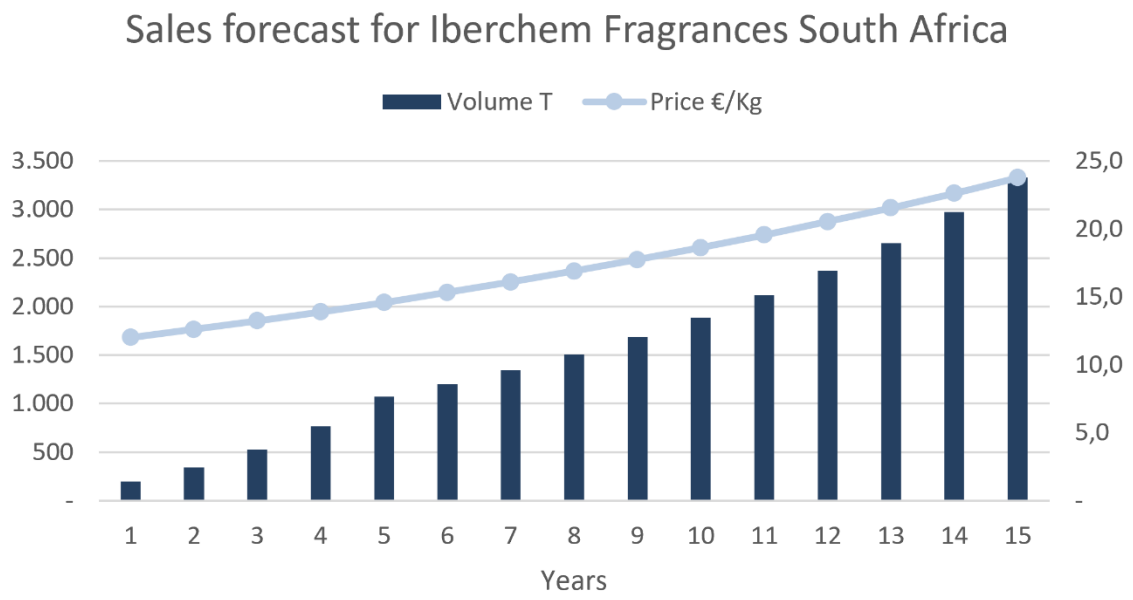

Chart 5. Sales forecast for Iberchem Fragrances South Africa. Source: own elaboration from historical data from Iberchem

Although the price average ended at 12.73 €/kg in 2022, the decrease trend in sales is expected to remain for a short period, which will be countered with a reduction in prices. In this model, the price changes steadily at an estimated rate of 5%, equal to the expected consumer good's inflation rate in the region. The production will take a big leap during the first 5 years, with the aim of reaching the volume of production in tonnes equal to the sales of 2022 around the 4th year of the project. This will mean that most of the customers of Iberchem Fragrances in the Africa region are served from IBZA, since not only the transfer of business is considered but also the organic growth from South Africa.

Actions and investment required

- Transform the current facilities into a fragrance manufacturing plant, laboratory, and logistic area, and add the support functions spaces to the offices of the flavours division. The total area to be covered by the fragrance division is 1770 m^2.
    - Logistic area considering racks, storage location, material flow and all necessary protection. This area will be partitioned from that of the Scentium business and will cover around 500 m^2.
    - Production area of around 900 m^2, partitioned from the current warehousing area used by both Iberchem Fragrances and Scentium, considering:
        - Blending room with vessels for mixture. Example in illustration 1.

Illustration 1. Example of vessel for mixture with pumps, piping and other elements. Source: Iberchem employee

- Raw material fractioning area, picking area and final package area.
- Cleaning and production storage areas.
- Administrative and quality control lab.

- Laboratory area of 270 m^2 considering:
  - R&D lab.
  - Sample and application labs.
  - Olfactory cabin.
  - Sample storage areas.

The laboratories plant is already designed, and their blueprint is shown in figure 7. The whole investment needed for the implementation of the laboratories ascend to a total €340,000.

Figure 7. Distribution of the laboratory for fragrances in IBZA. Source: own elaboration with plans provided by Versachem

- Offices of 100 m^2: to be in the upper plant, shared with the current Scentium employees.

- Investment in equipment. Since the facilities are already owned by the Iberchem Group, the *CAPEX* required relies only on equipment. The individual items and their costs associated are shown in chart 4, with the information about pricing obtained from

Inoxpa, a Spanish manufacturer of industrial machinery and equipment for fluid production that has a subsidiary in South Africa (Inoxpa 2023)

Units	Item	Unit cost (€)	Cost (€)
1	1 ton blending vessel	10,000	10,000
1	3 tonnes blending vessel	28,000	28,000
1	5 tonnes blending vessel	46,000	46,000
5	Small portable deposit	12,000	60,000
2	Semi-automatic packaging machine	35,000	70,000
4	Pumps	3,000	12,000
1	Tank for dipropylene-glycol	45,000	45,000
2	Industrial weights	25,000	50,000
1	Piping system	5,000	5,000
TOTAL INVESTMENT IN MANUFACTURING EQUIPMENT			**€326,000**

Chart 6. Investment in equipment by item. Source: own elaboration with information from Iberchem and Inoxpa.

- Recruiting of personnel. The management of IBZA is to be executed by managers coming from HQ, but the whole workforce must be sourced locally. The chart 5 shows the positions to be covered to make possible the start of production, as well as the end of the scaling of operations by year 10. The base salaries have been obtained from a specialised portal (Talent.com 2023) from South Africa, and represent just an estimation. The conversion to € has been made using the exchange rate provided by Google Finance.

Position name	Annual salary (€)	# of people hired for 1st year	# of workers to employ by 10th year
Production Manager	42,759	1	8
Manufacture operator	11,401	3	1
Lab operator	29,416	1	3
Logistic operator	10,204	2	6
Procurement & planner analyst	21,891	2	2
Customer service analyst	37,055	2	5
Evaluator	21,663	1	3
Contract for outsourced maintenance services	10,945	1	1
Contract for outsourced SHE technician	34,318	1	1

Chart 7. Positions to be covered for the 1st year operations and the number of workers to have by year 10. Source: own elaboration with data from Iberchem and Talent.com

- Time frame. Being the project launched in June 2023, the expectation is to start producing in one year. Before operations start, the next actions need to
    - Start: Identification and appointment of head of fragrances in South Africa
    - Sizing of operations according to progressive customer translation plans
    - Project *CAPEX* approval from Croda
    - Licensing of Iberchem Fragrances South Africa
    - Supplier licensing and homologation
    - Permits to stablish new operation in existent facility
    - Equipment acquisition and transport to facilities
    - Hiring of personnel
    - Training of employees to manufacturing operations
    - Notification of new source and negotiation with customers
    - Start of operations and progressive business transfer from IBSA

The sequence of all these items to arrive at the start of the production in just a year has been planned according to the diagram shown in figure 8.

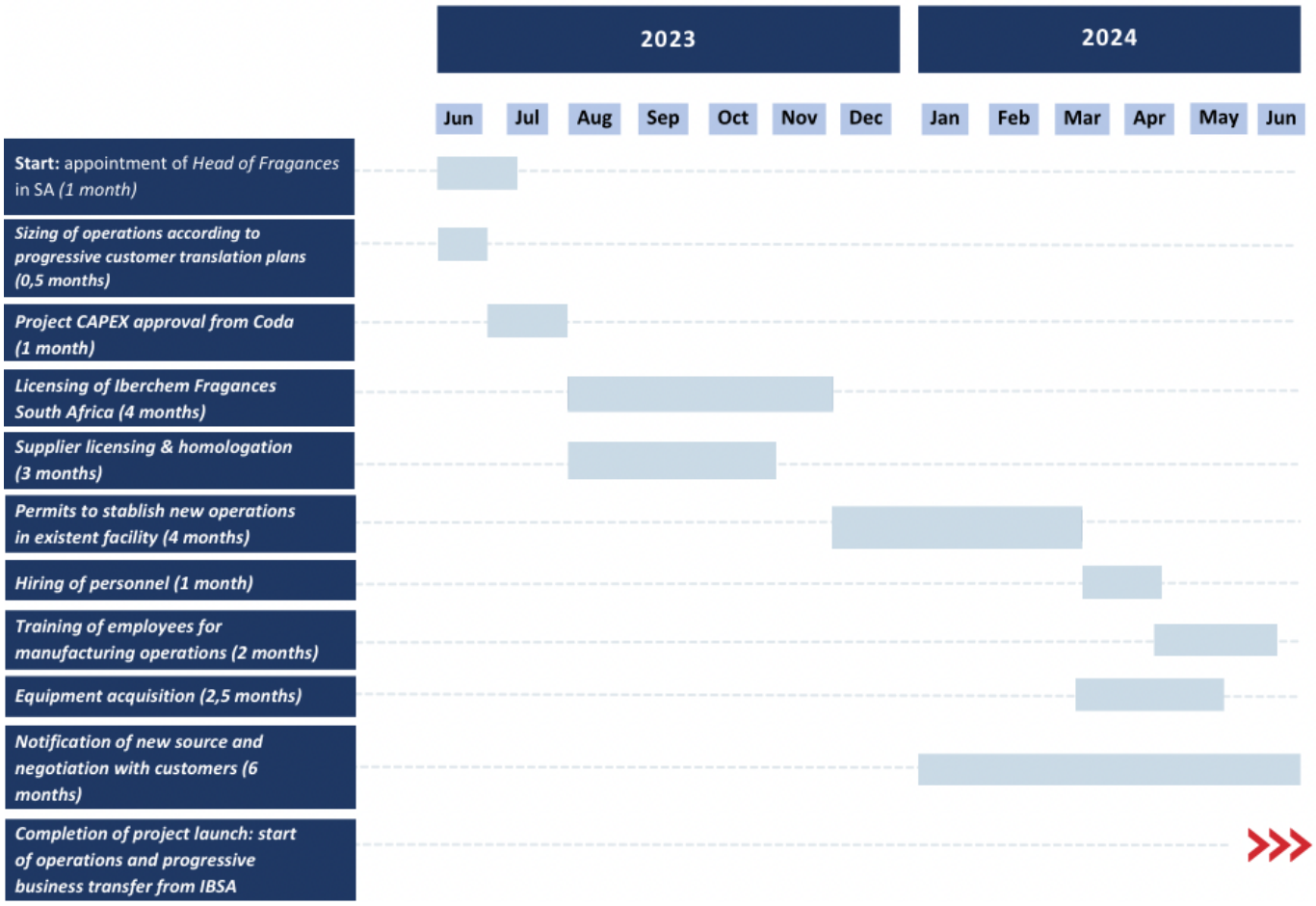

Figure 8. Implementation for project launch time frame. Source: own elaboration

Risks

This project does not lack possible risks that might worsen the overall results estimated. As previously stated in the *Threats* part of the SWOT analysis above, the most relevant risks identified, from the company's experience in past similar endeavours and the study of this project are:

- R1. Client is change-averse.
- R2. Client thinks quality will worsen and asks for considerable discounts.
- R3. Customers change to competitors due to low differentiation.
- R4. Inflation reaches extreme values.
- R5. Difficulty to find suitable suppliers and to homologate local raw materials.
- R6. Personnel hired do not work adequately to meet targets.
- R7. Customers vertically integrate the production of fragrances.

To assess the importance of these risks, their likelihood of happening and their potential impact on the project are analysed qualitatively in chart 6.

		Impact		
		Low 1	Medium 2	High 3
Probability	High 3			
	Medium 2		R1	R3, R4, R7
	Low 1	R6	R2, R5	

Chart 8. Risk impact matrix

The risk is computed as the product of probability and impact. Those risks showing a level between 1 and 2 are considered low -in green- while those with levels of 6 to 9 are the most dangerous -in red. The rest are mid priority. Those with the highest and mid values are the most important and should be reduced as much as possible.

For that, the cause, and the effect of them on the operations have to be studied so that the measures needed to take to mitigate or avoid the potential effects of those risks can be developed. The summary of that analysis is presented in chart 7.

Identification				Plan response
ID	Risk	Cause	Effect	Measure
R1	Client is change-averse	Change of production from Spain to SA	Client pivots to other competitors	Keep quality control and raw material acquisition strict to ensure the product quality remains unchanged when produced in a new location
R2	Discounts asked for	Change of production from Spain to SA	Sales volume in € diminishes	Keep quality control and raw material acquisition strict to ensure the product quality remains unchanged when produced in a new location. Offer small discounts to retain customer the first few years
R3	Low differentiation causes change	Standardization of fragrances	Customer switches to competitors with the lowest cost as the rest of the service and the product does not change	Improve customer service and enhance digital tools to implement a better tailoring of products and optimize supply chain to be more responsive
R4	Inflation	Macroeconomic trends	Global pressure on supply chain, positive or negative changes depending on currency exchange	Strengthen business and study plan of payments in each currency to diminish inflation impact on the company

R5	Quality raw materials not found	Lower quality standards in Africa	Raw materials need to be imported and logistics costs are increased	Perform thorough analysis of quality and find the best, closest suppliers
R6	Inadequate personnel	Recruiting methods faulty, training not adequate	Production not effective, quality problems	Take specialists in training from HQ and take a strict stance towards recruiting
R7	Vertical integration of customers	Standardization of fragrances, mass production of industrial fragrances	Customer deems better to produce their fragrances in-house, cancelling accounts and decreasing sales	Improve quality of the products and customer service to justify their expense in our services instead of producing themselves

Chart 9. Risk mitigation measures planification

The proposed measures should decrease the chances of the risks affecting greatly to the firm. Once those measures are implemented, the expected risk impact is lowered. This is shown in the chart 8, containing the risk impact matrix updated with the measures to take.

			Impact		
			Low 1	Medium 2	High 3
Probability	High	3			
	Medium	2			
	Low	1	R6, R4	R2, R5, R1, R3	R7

Chart 10. Risk matrix impact after measures for mitigation

Even with the proposed measures, the risk of vertical integration of fragrance production remains in the mid-level. This is a low-probability scenario, since customers with an economic power big enough to acquire a fragrance manufacturer or to introduce production into their operations still have a wide portfolio of products that need fragrances, and it would be too costly to vertically integrate this part of their supply chain. Even with these conditions, in the event of a customer deciding to proceed with the integration, there is little room for action by Iberchem.

Projections

Once the forecast of sales and the required investment are knowns, different scenarios have been set for the next 10 years and all the pertinent financial parameters computed to reach conclusions that allow the assessment of the profitability of the project. The indicators used for this have been the *Net Present Value* (NPV), the *Internal Rate of Return* (IRR) and the *Payback Period undiscounted*.

For the calculations, the following parameters have been used as an input for the excel model, many of which are set by the parent company Croda:

- Business tax rate. Although South Africa has a flat rate for all business of 27%, Croda establishes that all projects for any of its business must be assessed with a tax rate of 28%.
- Inflation. Set at 5%, following the forecast by the IMF represented in figure 2, as the value at which this index will stabilize for South Africa in the coming years. It affects the prices and the costs and might even result in a positive contribution for the group depending on the different consumer goods indexes of the regions.
- Change in working capital. Computed as the 30% of sales each year per convention at the group.
- Discount rate of 7.5% as the Croda group common discount factor.
- OPEX planning. Considering the hiring explained above and other general operating expenses as energy, rental of the building and others. The first year, this amount is €1.6 million, and it grows following the contracting of personnel and growing costs values due to inflation.

The recreation of scenarios has been performed to see how different situations in the future would impact the project of establishing Iberchem Fragrances in South Africa as a manufacturer. The results are shown in chart 11.

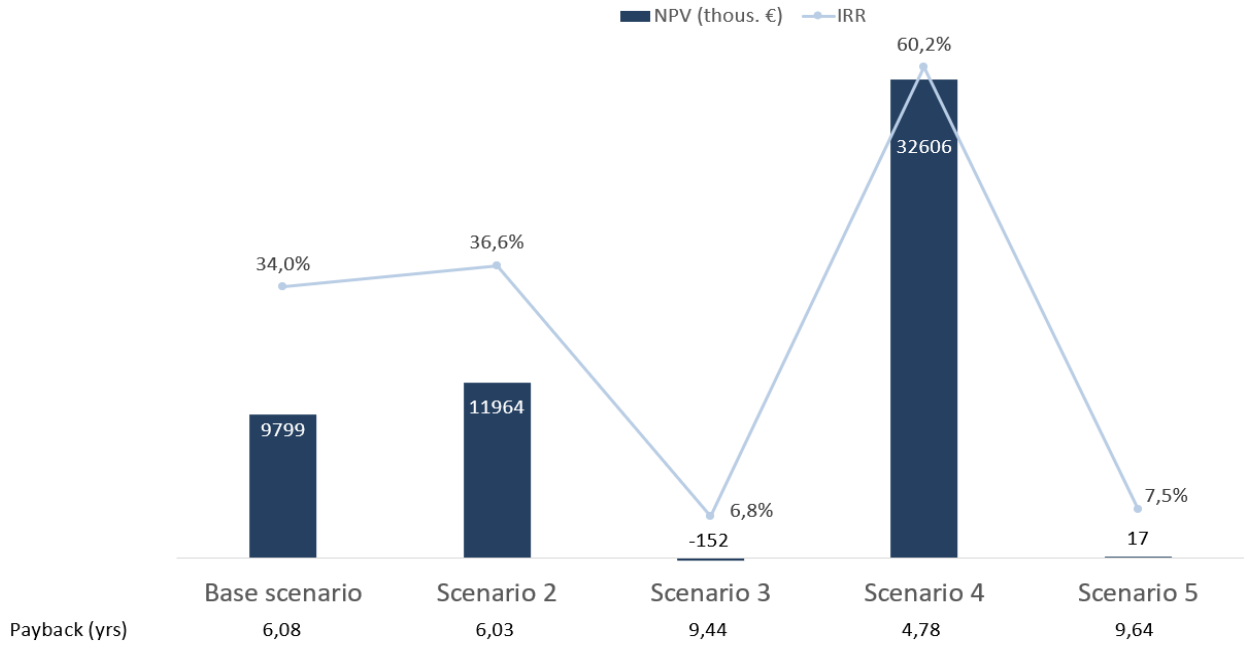

Chart 11. NPV and IRR comparison of different scenarios

The base scenario takes the sales forecast as it was shown in chart 5 and the mentioned 5% rate of inflation. The results are near €10 million in NPV and 34% of IRR, with an undiscounted payback of over 6 years. These figures might result slightly optimistic if it is not known that the fragrance industry is an extremely profitable business that shows huge growth rates year by year. In this project, the base scenario good results are driven by the low initial investment combined with the quick scale up of the sales volume. Thus, it is considered a realistic, not risky scenario that shows the project is viable and will report benefits.

The second scenario shows a future in which the sales forecast is also met but in which the inflation levels go up to around 8%. It is shown that, however increased the wages and costs might be, the company is still benefitted, with an increased profitability shown in both the NPV and the IRR. On the other hand, inflation in one region might be accompanied by deflation in another, or the other way around, so this scenario should be considered a simplistic way of assessing a higher level of inflation.

Scenario three contemplates the assumed normal level of inflation at 5% but simulates issues when scaling up production that take the increase in tonnes every year to single digit growth. The project is no longer viable, causing even losses. This scenario proves the importance of transferring the business from IBSA at a good pace, since a slow growth is the same as decrease.

The fourth scenario, on the contrary, uses a more optimistic sales forecast than the base scenario, showing great profitability of the project just by increasing the sales growth.

Lastly, scenario number five only differs from the base scenario in that a crisis is introduced in years 3 to 5, similar to the raw materials crisis lived in the industry two years ago. The margins are decreased and even turned negative, and after the crisis it takes a year to recover the usual margins. This way, it is proven that the project is well-planned and, even though the profitability would be reduced, it can endure a crisis thanks to a solid structure.

To conclude, the financial computations carried out show strong results that will deliver value creation and growth to both Iberchem Group and Croda.

Freight costs and carbon footprint reduction

Besides improving the customer service, the main aim of this project is the reduction of overall logistics. Before producing fragrances in IBZA, it was stated earlier in this document that the raw materials would need to be transported to IBSA, in Spain, from several parts of the globe. Dipropylene glycol (DPG), for instance, the most important ingredient in fragrances as it is a

solvent that composes around 40% of the product in mass -shown in chart 12, is bought from only a few markets. Iberchem buys most of its DPG from South Korea, from where it would be shipped to Spain. After production, the fragrance at its full composition would be sent to South Africa, from where it would be distributed to wherever in Africa the customer is.

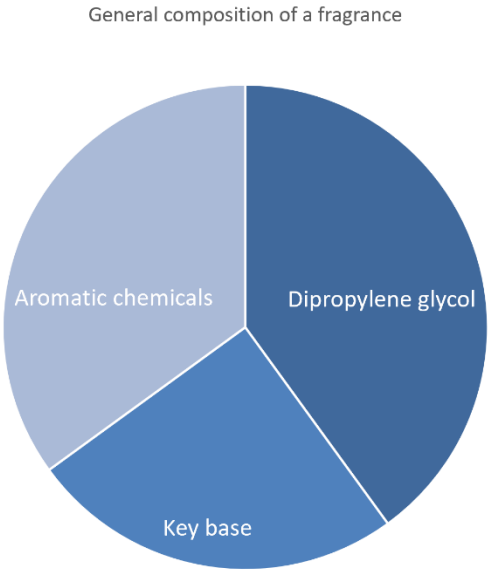

Chart 12. General composition of a fragrance.
Source: Iberchem

However, after implementing IBZA as a manufacturing centre, the raw materials can go straight to South Africa, saving thousands of kilometres. Moreover, even if the methodology for a given product is to work in a *closed formula* basis, where the key base is produced at HQ and sent to South Africa, it only represents around 25% of the mass of the final product, so the kilograms to be transported would be reduced in 75%. The case is of course different producing in *open formula*, saving most of the transporting costs since the whole product is to be manufactured in South Africa.

Following that rationale and knowing that the average cost of shipments sold in South Africa was €3.28/kg and considering the 800 tonnes of current sales in Africa, the chart 13 has been elaborated to illustrate the cost reduction in the case of producing with open formula. Imports taxes go around 12% of the total freight cost and have to be paid twice producing from IBSA since the raw materials need to go into Spain and the final product needs to be shipped off to South Africa.

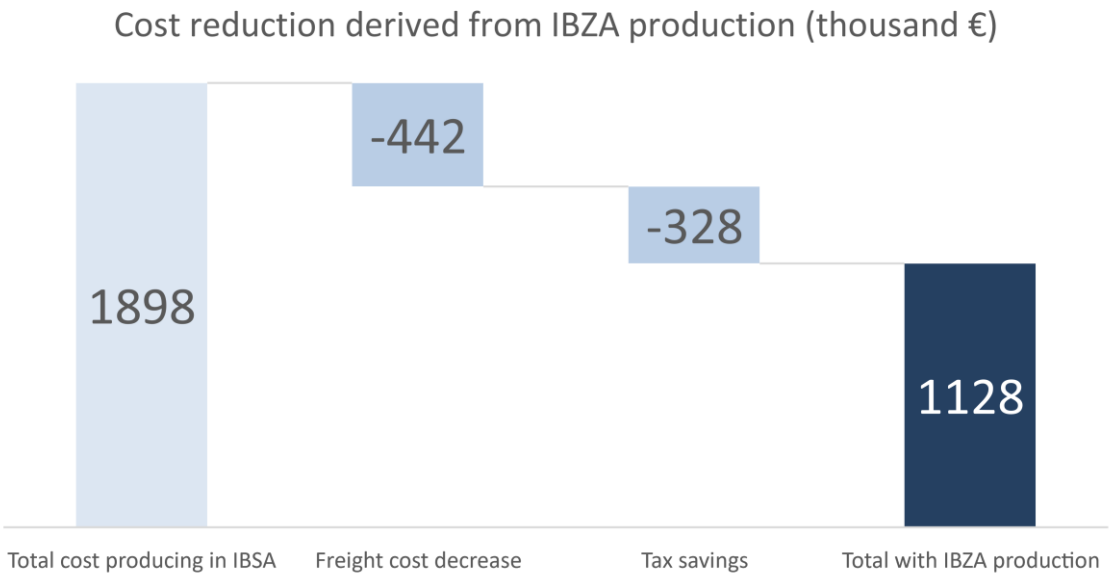

Chart 13. Cost reduction derived from IBZA production. Source: own elaboration with data from Iberchem

The chart 14 summarizes the substantial cost reduction of logistics that this project carries. Producing in IBZA supposes in this estimation a cost reduction of the total of 40%, and a final unit cost of 2,35€/kg. This reduction is an optimistic number, since not all the fragrances are produced with open formula. In the case of the closed formula, the cost cut will be applied to 75% of the weight of the fragrance, which is the amount of product manufactured in IBZA.

Unit cost of freight producing all from IBSA	Unit cost of freight producing open formula from IBZA
3.28€/kg	2.35€/kg

Chart 14. Difference in unit cost before and after project implementation

The second and perhaps more important indicator of success of this project is the carbon footprint of raw material and product transportation. To estimate the emissions of transportation, the factors of emission provided by a document released by a British consortium of organizations and led by *DEFRA* (Department for Environment Food and Rural Affairs of the United Kingdom 2022) are used. Those factors, presented in chart 15, refer to the amount of CO_2 emissions that each method of transportation release to the atmosphere per tonne-km transported.

Emission factors (kg_{CO2}/t-km)		
Boat	Truck	Plane
0.01323	0.87703	1.21717

Chart 15. Emission factors. Source: DEFRA 2022

The boat is substantially the least polluting transport, although the high mileage of its nature means that emissions from it can be cut as well. For this study, the distances for typical sources of raw materials to both IBSA and IBZA have been estimated and multiplied by their corresponding factor to obtain the emissions released. Knowing the expected volume of 800 tonnes yearly, the results are obtained and shown in chart 16.

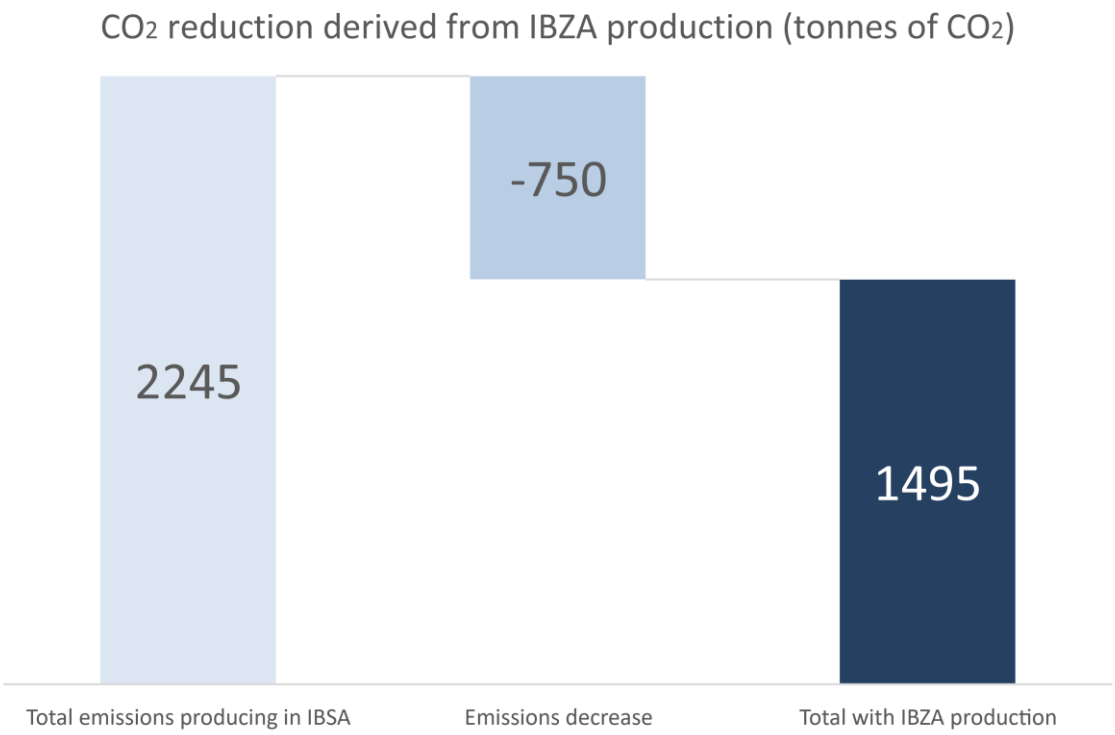

Chart 16. Cost reduction derived from IBZA production. Source: own elaboration with data from Iberchem and Defra

Overall, the emission reduction is of 33%, a considerable goal that aligns with the sustainability goals of Croda. To better assess the reduction, the unit emissions of chart 17 have been computed.

Unit emissions (kg_{CO2}/t·km)	
Emissions serving all from IBSA	Emissions serving all from IBZA
0.05783	0.03844

Chart 17. Unit emissions. Source: own elaboration with data from Iberchem and Defra

Although most of the transport is made by boat, the start and end destinations have many kilometres by truck, which increases the unit emissions.

Again, these results only contemplate a full open formula production, and the real emissions will be close to the 1,491 tonnes of CO_2 figure, but slightly higher due to the fragrances whose key bases are produced in Spain. It is interesting to analyse, in the case of having some closed

formula product, a specific case: sometimes, a customer order is won depending only on the responsiveness provided. If required, a key base that is already available at HQ might be sent to IBZA by air to offer a more competitive lead time, provided that the order is not too big. However, the unit emissions of long-haul planes are estimated at 1.217 kg_{CO2}/t-km. The chart 18 summarizes this case's emissions.

Order size (tonnes)	3.2
Key base quantity required (tonnes)	0.8
Air distance Spain-South Africa (km)	10,900
Unit emissions (kg_{CO2}/t-km)	1.217
TOTAL EMISSIONS (kg_{CO2})	**10,612**

Chart 18. Air shipping case. Source: own elaboration with Defra data

Around 11 tonnes of CO_2 are released just to supply one order. The use of air shipping is highly harming for the environment, and it is restricted to only very important orders for the whole company.

The logistics matters on this project are one key driver that is satisfied. The production in IBZA will help not only the company to become more profitable, but it also will protect the environment.

Sustainable Development Goals

The opening of the Iberchem South Africa fragrance division plant has, as mentioned above, a monetary motivation behind it. However, this ulterior motive has an underlying sustainable base that completely aligns to what the Sustainable Development Goals (*SDGs*) try to achieve.

The SDGs are 17 global goals that aim to "*end poverty and set the world on a path of peace, prosperity and opportunity for all on a healthy planet"* (United Nations Department for Economic and Social Affairs 2020) by setting a general guideline to follow by anyone in any field of work or even in their everyday life. This way, all countries included in the United Nations stablish a defined framework and ensure ways to catalogue and measure their work towards a better world and society.

Following this framework for the just development of the world, the project developed in this document contributes to different goals in different capacities, many of which are collected by Croda in their Sustainability Report (Croda 2022):

Figure 9. SDG 5: Gender equality

Iberchem is a equal employer, with more than 50% of the workforce composed by women worldwide. Establishing operations in South Africa, the company expects to set precedents and lead by the example.

Figure 10. SDG 6: clean water

Contrary to what many believe, Iberchem does not use water in the production of their fragrances -nor their flavours- other than to perform cleaning tasks. Moreover, the firm has developed biodegradable capsules (Iberchem Fragrances 2022) that hold fragrances for detergents, therefore contributing to a better use of water wherever their fragrances are used. Extending the reach of the company is also a way to help reach this SDG.

Figure 11. SDG 8: decent work

This project is proved to be profitable, meaning that expansions of the business will follow. With all that, foreign direct investment helps South Africa grow through wages and other investments Iberchem does in the country. The firm always complies to pay what is fair and to ensure that the correct methods and procedures are followed in every stage of its operations.

Figure 12. SDG 12: responsible consumption and production

As a manufacturer, Iberchem is well aware of its role in sustainability. Products as the VernovaCaps mentioned above and the efforts taken to reduce waste and carbon emissions (Iberchem Fragrances 2023) are just part of all the steps the company takes towards consumption and production sustainability.

Conclusion

The most relevant conclusion reached at the end of this project assessment is that the opening of a fragrance manufacturer subsidiary of Iberchem in South Africa is viable and should be implemented.

Throughout the study, it has been proven that, although the country would not be the preferred context in which to set operations globally, it is the best option to serve Africa. The analysis performed on the country as a whole and its fragrance market in particular -always embedded in the F&F industry- demonstrate that both have bright prospects of growth and that the trends of both the final consumers and the industrial customers are going to make the production of fragrances much more profitable in the future.

Moreover, Iberchem is in a sweet spot to take advantage of that growth. Its current capabilities and resources take the firm to a position in which it thrives while enduring fierce competition from much bigger competitors. Several strategic options are at its reach to minimize the weaknesses and avoid the threats, and its general expansive strategy, in use since the company was founded, provides with the perfect framework for opening subsidiaries whenever an opportunity appears in almost any market of the world.

In this case, the opportunity was to benefit from the growth of Africa and improve the reach and service to the African customers -a core feature of the company- while cutting costs and carbon emissions.

The resulting project is not only profitable with the great values of return on the investment proper from the industry, it also perfectly matches the operating methodology of Iberchem: the possibility of producing the whole fragrance from South Africa -open formula production- or having the key base sent from the headquarters -closed formula- to adapt to the customers' needs is key to success. This fact contributes hugely towards sales volume growth, an indicator that has been proved to be key in the profitability of the project, as seen in scenario 3 of the simulated projections. It also helps modulate the costs of logistics, so important in recent times of high inflation and supply chain disruptions.

The mentioned drivers, plus the known environmental advantages that producing from Iberchem South Africa will entail, all add up to a promising prospect for the future of this project. If implemented, the Iberchem Group will take a further step in its way towards its place among the bigger competition in the F&F worldwide stage.

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