A Work Project, presented as part of the requirements of the Award of a Masters Degree in Management from the NOVA – School of Business and Economics

Should Unilever JM export *Cornettos* to emergent countries?

Pedro António dos Santos Geirinhas
Student Number 1439

A Project carried out on Field Lab in Entrepreneurial Innovative Ventures under the supervision of:
Professor Filipe Castro Soeiro

June 2014

Table of Contents

Executive Summary

This work project will act as a consultancy project carried out for Unilever JM, advising whether or not the holding should export ice cream products during the European winter months from one of its European ice cream plants to either Angola, Brazil or South Africa.

Taking into account that ice cream in Europe has reached its maturity stage and sales are continuously dependent on weather conditions, Unilever is faced with over production levels for its installed capacity. On the other hand, demand is now booming in emergent countries that register insufficient capacity and where the seasonality factor represents an advantage due to opposite weather seasons between southern and northern hemisphere. Additionally, several logistic partners are willing to engage in collaborative arrangements with the group and make use of their transportation facilities to start exporting to emergent countries.

Through the building of a "Strategic Decision Model" that encompasses a cost-benefit analysis as well as a reflection on pull and push strategies, it was found that Unilever should export **10,061,067 litons** of *Cornettos* to Brazil from the Portuguese ice-cream factory in Santa Iria da Azóia by referring to a local distributor. This would yield a total incremental profit of **23,657,801€**. Ultimately, a contingency plan should be established and focus on creation of an advisory board, data sharing with the wholesale distributor and good insurance policies.

Keywords:

Unilever JM; Supply Chain Management; Mode of Entry; Collaborative Arrangements; International Trade; FMCG; Push and Pull Strategies; Strategic Decision Model

1) Introduction

1.1) Problem Definition

The main problem discussed throughout the project, reflects the combination of a market opportunity and optimization gap that could be exploited by Unilever's current supply chain. It is a known factor by the company fact that the ice cream business suffers from a highly cyclical pattern, with demand peaks registered during the warmer spring and summer months. This results in allocating full production resources of European Ice Cream factories from January to August, but running merely a few of their whole assembly lines as well as decreasing their workforce from September to December.[1] On the other hand, emergent countries in the southern hemisphere experience their warmer months and record highest ice cream demand from October to February. Additionally, to fight declining ice cream consumption rates and a maturing market in western developed countries, Unilever is currently investing in internationalization strategies to emergent countries with high market potential and booming stage.[2] As a result, and due to the need of refrigeration infrastructures most emergent countries lack the proper structure, installed capacity and efficient productivity levels to satisfy all ice cream demanded by customers, in particular when undergoing through stress production peaks.[3]

Such opportunity was clearly identified by the holding and more specifically by Unilever JM, which decided to dig deeper into the case and create a referential case for the international group. Driven by internationalization drivers such as sales expansion, gain in economies of scale and profit maximization, the firm established the product to

[1] Please refer to Appendix 1.
[2] Sources: "Unilever Sales Problems Mount", Financial Times, 24/10/2013; "Spotlight on Innovation in Ice Cream, Passport, 13/4/2014.
[3] Meeting with José Bravo, (15/5/2014).

export as *Cornettos* and strategically defined three different international production factories within Unilever to export them from. The chosen factories were Santa Iria da Azóia (Portugal), Heppenheim (Germany) and Flen (Poland)[4]. Similarly chosen target markets were Angola, Brazil and South Africa considering their available capacity, maritime routes, business proximity and international trade policies. Mode of entry was decided as local collaborative arrangements due to internal policies.

Subsequently, an evaluation and analysis will be carried out in order to find out whether or not using the available resources and directly exporting them represents a viable internationalization strategy for Unilever, according to the selected origin and target markets.

1.2) Research Question and Methodology

To approach the problem presented, the work project will follow a funneling approach in order to make a thorough assessment of each important variable and proposing solutions to set of problems step by step. This analysis will be supported and complemented with valuable primary information from Unilever JM sources, whose intermediate actor was represented by José Bravo, the company's Chief Operations Officer (COO) and member of the decision board[5]. Other sources such as the Mediterranean Shipping Company (MSC), DAMCO and AIECEP Portugal Global were contacted and provided important benchmarking information[6]. Statistical reports conducted by reputable sources such as Datamonitor, Euromonitor, Passport, Market Line, OECD among others determine important values and forecasts that help achieving results.

[4] Refer to Appendix 2 for more information on factories.
[5] Refer to Appendix 3 for Unilever JM's Board Structure and Members.
[6] Refer to Appendix 4 for benchmarking prices on distribution costs.

Figure 1 portrays the structure of the mentioned research issue, which is divided into three layers.

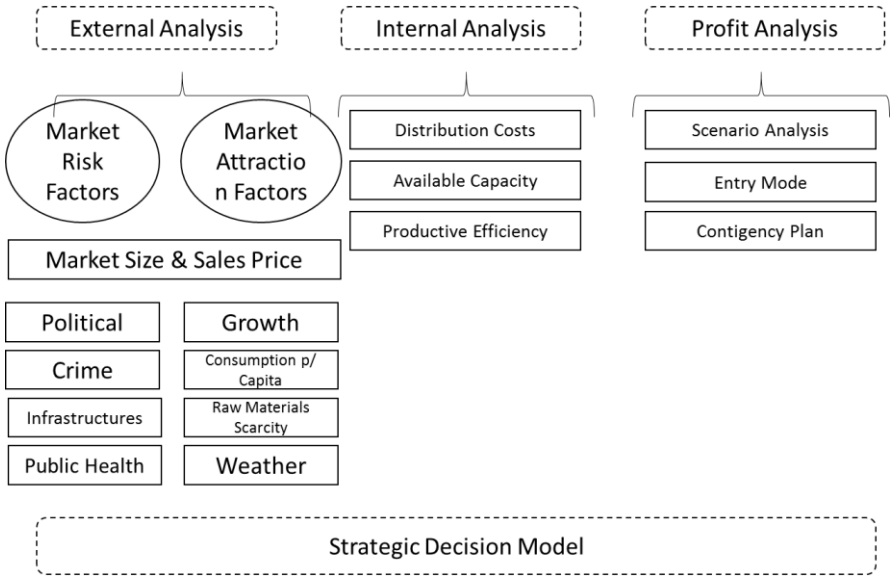


Figure 1 Research Issue Tree

The first layer proceeds with an analysis of the external environment taking close attention to an estimation of market sizes according to a desired sales price, dependent on a series of variables that are adapted from the PESTEL framework[7] in order to execute a screening of the macro environment. Thus, this estimation is subject to potential risks such as political stability and corruption, level of crime, quality of infrastructures, public health conditions and economic conditions. On the opposite side, market growth rates, ice cream consumption per capita, business cultural links and non-availability of raw materials can represent attractive factors that induce in opting from distinct markets. Also, geographical distance and tariffs on dairy products can represent vital barriers to entry. This combination yields the optimal emergent target country in terms of estimated revenues.

[7] Michael Porter, 2008

The second part takes up an evaluation of internal resources by looking at incremental quantities to produce. These quantities are directly proportional to a series of production costs that, in alignment with the Value Chain framework,[8] are elected according to their relevance towards the project's feasible solution. They are comprised of material costs, labour costs plus fixed and variable conversion costs.[9] Transportation contracts and maritime routes are also taken into account, combined with the geographical distance factor mentioned in the previous paragraph. The appraisal of incremental values comprised on these variables culminates in the election of the least costly production facility.

Lastly, the third section characterizes the overall assessment that converges all previous factors into the selection of the most profitable solution. The adaptation of a BCG Matrix framework[10], focused on power of buyers and suppliers, complements the election of the collaborative arrangement partner, which is all subject to a contingency plan that draw attention to important actions to be undertaken by Unilever if considering pursuing the project.

Furthermore, besides the mentioned frameworks, an excel model will conduct and support the comparative cost benefit analysis amongst these potential destination markets and different Unilever supply sources located in different countries.

1.3) Strategic Decision Model

The model acts as a tool that defines a quantitative solution. Its first part is dedicated to entry of data by the user and summary of results according to these inputs. The second

[8] Michael Porter, 2008.
[9] Refer to Appendix 5 for a detailed view of Unilever's P&Ls and cost descriptions.
[10] Bruce D. Henderson, 1970.

details the estimation of potential revenues of each targeted market. Finally, the third part allows for a comparison of the origin countries' cost structures in more detail.[11]

It is subject to a set of assumptions that achieve coherent results.[12]

a) All variables that include costs or revenues are expressed in €

b) All variables that include volume measures are expressed in litons.[13]

c) Several variables are expressed as € per liton.[14]

d) All variables were designed in incremental terms meaning that all quantities, costs and revenues incurred without implementing the project should in fact be disregarded. They also only refer to *Cornetto*.

1.3.1)Strategic Decision Model – Entry of Data by the User

To begin with the model was built in such a way that it starts with dependent variables, to be entered by the user and that will determine the outcome according to their values:

i. Desired quantities to be exported in litons, subject to a total capacity constraint calculated as the total monthly estimated capacity,[15] with a 90% cap due to bottlenecks and limitative production measures[16]

ii. Selling price per liton in the destination country.

iii. Weights of parameters that increase or reduce market risks. Both must equal 100%. Similar thought goes for overall weights that these are subject to.

[11] Refer to Appendix 13 to see the model expressed as a figure.
[12] Trying to correlate the model to reality represents an unrealistic goal due to the complexity of all variables that would need to be taken into account.
[13] A unit measure used by Unilever, 1 liton is equivalent to 0.6 tons.
[14] At first glance this might not seem intuitive, in particular when talking about labour rates or selling prices. However this allows for better comparison terms.
[15] Refer to Appendix 1.
[16] Sources: Meeting with José Bravo, 15/5/2014; Refer to Appendix 6 for bottlenecks determination.

Regarding the latter, total attractive factors must be lower or equal to total risk factors.

1.3.2)Strategic Decision Model – Defining the Optimal Solution

Analysis of the best destination country is constructed in three different sectors

1.3.2.1) Strategic Decision Model – Target Market Potential

Target market potential is calculated as:

(1) Market Impulse Ice Cream size[17] * Cornetto Share Value * percentage of unmet capacity.

This will perform a capacity match with Unilever's internal resources, establishing from the start the number of quantities to export. Also, it will eliminate a first origin country if available capacity cannot meet potential destination country demand.

1.3.2.2) Strategic Decision Model – Determining Total Revenues

A series of market risks that will deter and reduce potential revenues is then calculated. While this can be perceived as a rather qualitative process, lack of similar previous analytical models resulted in modelling the analytical tool following this specific line of thought. They are calculated as:

(2) Country ranks * Weight Parameter for each type of risk.

(3)All risks are added using the SUM function, giving total risks.

(4)1-Total Market Risks' percentage * Target Market Potential * 30% Constraint.[18]

Nonetheless, total risks are reduced according to a series of Market Attractive Factors, calculated as:

[17] Impulse ice creams, as opposed to take home ice cream, include such as *Cornetto*, Magnum and Ben & Jerry's for which the decision is a momentary one and consumptions follow immediately after.

[18] Note that higher risks result in lower revenues.

(5)Attribution to ratio from 1 to 5[19] * Weight Parameter for each Attracttive Factor.

(6) These are then added together through the use of the Sum function * 10% Constraint – Total Risks.

(7) Target Market Estimated Revenues equal (4) Total Market Risks - (5) Total Attractive Factors.

1.3.2.3) Strategic Decision Model – Determining Total Costs

Costs that were taken into consideration were raw materials, packaging, labour, energy and fixed conversion costs. Due to the complexity of historical data provided by Unilever[20], these are adapted to yield cost per liton only calculated as:

(8) Type Cost / Total Production

In addition, a pivot table was created to summarize and condense information as much as possible,[21] therefore giving raw materials, packaging, labour, energy and fixed costs per liton and their respective sum. The creation of a pivot table proved to be crucial, since it allows for the user to filter and hide a specific country, which allows for an easier comparison, as well as filtering what type of costs and components affect a specific country. For instance, regarding direct exports of *Cornettos*, packaging and material costs such as lid, seal, alcoholic components and coffee should be disregarded.

Moreover, incremental distribution costs are calculated as:

(9) Incremental Capacity / Container Capacity, giving the quantities each containers supports.

---

[19] Needs obviously to be supported by facts.
[20] Refer to Appendix 5, Unilever's cost structures.
[21] Refer to Figure 6.

Other distribution costs are comprised of local charges of transporting the products with each's truck fleet to the local shipping port which is established as fixed pre-determined cost with a specific supplier.

Total distribution costs to destination countries are calculated as:

(10)Maritime routes* Number of containers for the specific volume to export * Container costs + Local charges

Finally, total incremental costs (11) are calculated using the Sum product function and include total variable and fixed costs and distribution costs in relation to the desired incremental quantities.

1.3.2.4) Strategic Decision Model – Profit Assessment and Overall Comparison

The third section of the model is calculated as:

(8) Total Estimated Revenues – (11) Total Incremental Costs, giving the profit for each supply source and destination country.

2) Literature Review

According to (Pankaj Ghemawat, et all, 2006), understanding industry analysis is crucial for firms to neutralize the unattractive features of their industries and exploit their respective attractive features. Some academic even argue that industry conditions can determine whether competitive advantages are possible within an industry or not, J.W.Rikvin (1997). Above most, understanding the environment is fundamental for market leaders, such as Unilever JM, as new strategies can heavily influence supply and demand conditions as well as imitation from close competitors. That being said, this will enable a whole understanding of the industry and their surrounding factors that can have

an impact on their performance and, ultimately, determine a target market for Unilever JM's international strategy.

Up until now, discussion has been developed around the most profitable and most striking markets in terms of macro-environment attractiveness. Whilst these external factors might give fundamental insights and perspectives about a country as well as a particular industry within that country (M. Porter, 1980), it is believed that they just represent a good way of showing where the wind is blowing. Indeed, they are thought of supportive arguments that usually point towards a goal (Pankaj Ghemawa, et al, 2006). However, what really represents the core factors that build and sustain competitive advantages, which makes one firm outperform another, are understood to lie within its internal structure. Indeed we are talking about a set of resources and capabilities that grouped together create and add value to the firm, also known as the resource based view (RBV), (Robert M. Grant, 1991). As an analogy, literature compares this topic as an iceberg, with its visible part associated to the external analysis, whereas the internal analysis is perceived as the submerged part, where most value is added by the companies' activities and resources. It is that non-visible part of the iceberg (Davidson, 1997) that will be explored during the following topics. Moreover, frameworks exist to support these theories. Regarding strategic frameworks, the PESTEL (Porter, 2010) analysis allows for a screening of the macro environment. A BCG Matrix (Bruce Henderson, 1970), permits evaluation of profitable investments. Value Chain Analysis permits creation factors that most impact on costs. Ultimately, P, Ghemawat (2001) argues that companies should take a different approach to tackle internationalization problems. He believes continuous engagement in international strategies leads to development a framework that is highly relevant and helped supporting the model developed throughout the paper.

3) Model Analysis and Discussion

3.1) External Analysis

When deciding to embark on this supply chain optimization problem supported by strong internationalization drivers, it is important to establish a comparative market attractiveness for Angola, Brazil and South Africa. With this in mind we will now turn to look at the model itself.

3.1.1) Market Size Estimation

To begin with, it is extremely important to determine benchmark quantities to export. Bearing in mind that Unilever goods prove to be similar in terms of customer needs, with impulse ice cream representing[22] 72% of total sales in developed markets and 70% emergent markets.[23]

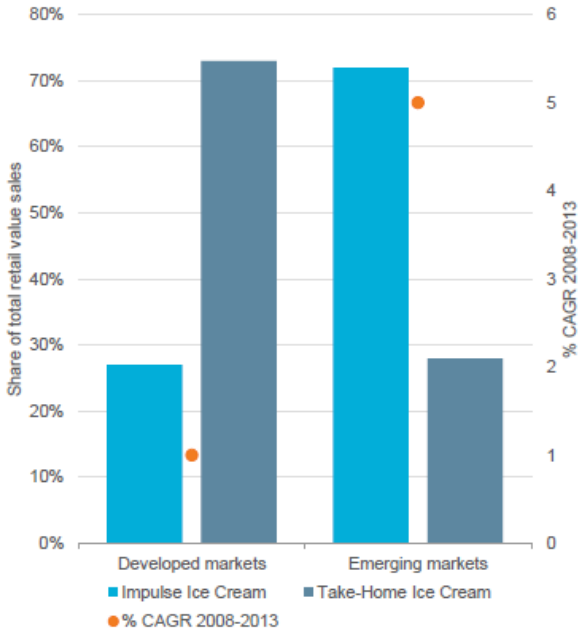


Figure 2 Take-Home vs Impulse Ice Cream Retail Value Sales by Developed vs Emerging Markets 2008-2013

[22] Impulse ice creams, as opposed to take home ice cream, include such as *Cornetto*, Magnum and Ben & Jerry's for which the decision is a momentary one and consumptions follow immediately after.
[23] Refer to Appendix 7, for a more detailed comparison.

The firm's international motivation is supported and quantities can a fall under a linearity form, calculated in litons as a percentage of non-matched demand of *Cornettos.*[24] Figure 2 illustrates the estimated quantities, evidencing the fact that Brazil stands out from Angola and South Africa. On a last note, all quantities fall under total capacity constraints by Unilever supply sources, therefore not ruling out any origin country. This is understandable, since each supply source analysed is a major player of Unilever's supply chain and at least 50% of its production is exported to foreign countries[25]. Thus, incremental production capacity can devoted to *Cornettos*.

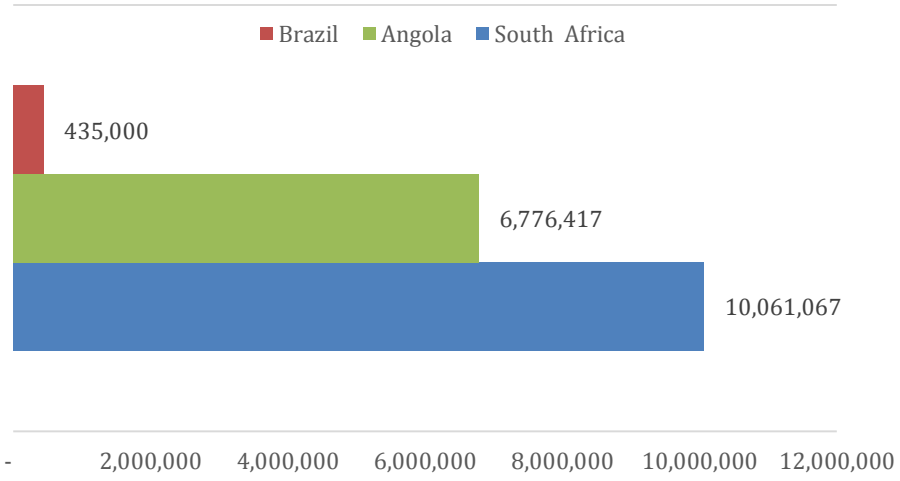


Figure 3 Quantities in Destination Countries (in Litons)

3.1.2)Sales Price Estimation

Table 1 shows sales price per liton to be sold in each country. It was established by Unilever[26] taking an overall average of European supply sources turnover for *Cornettos.* These values represented a benchmarking option, and were adapted according to the target markets. Special emphasis is given to Angola, whose sales price per liton is double

[24] See calculations in chapter 1.2.
[25] Sources: Meeting with José Bravo (28/5/2014); Process Management and Change, Felipe Castro Soeiro (12/2013).
[26] Source: Unilever JM (15/5/2014).

the amount of Brazil, which captures Angola's incredibly high living cost and inflation rates, amounting 7.2%.[27]

Table 1 Sales Price per Liton in Destination Country

Angola	Brazil	South Africa
4.00€	4.40€	6.00€

3.1.3)Market Risk Factors

Subsequently, intrinsic characteristics of the market are important to give a broad perspective of which variables could affect revenues. Figure 4 designs an adaptation of the PESTEL, used as a referential and inspiration to determine these factors[28] as well as their impact on revenues to be entered in the spreadsheet model. They are chosen according to Unilever's main drivers for internationalization.

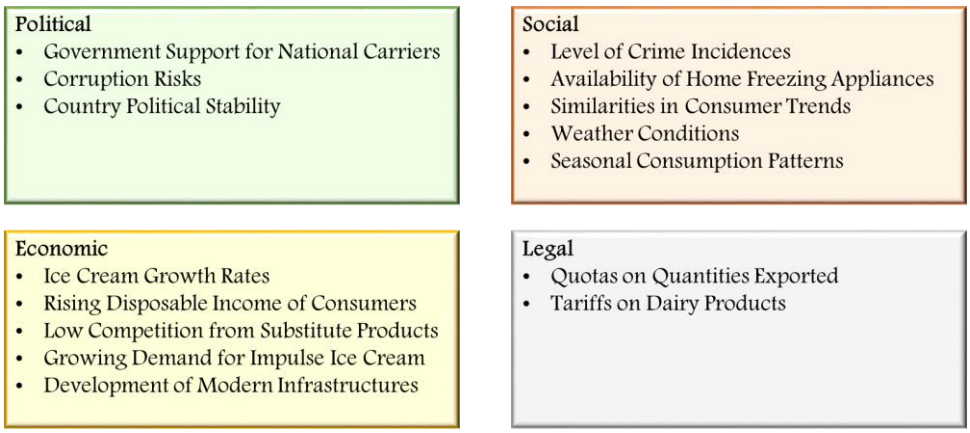


Figure 4 Pestel Analysis for Project Appraisal

3.1.3.1) Political and Corruption Risks

Country and corruption risks fall under the Political category. They vary greatly among different countries and are important to establish in order to avoid unexpected consumer boycotts, or funds that never reach the destination. As an illustrative example, Carrefour suffered a boycott in the Chinese market, due to tensions with Tibet.[29]

[27] Source: The World Bank (2013).
[28] Sources: Euromonitor (2013); Market Line (2013); G. Johnson, R. Whittington, K. Scholes (2008), Meeting with José Bravo (17/5/2014).
[29] Sources: "Brazil accelerates investment in Africa", Financial Times 9 February 2010;

However, when talking about one project that lacks initial investment in added capacity or FDI in the target country, means that barriers to exit are non-existent. Briberies and corruption of the political system, represent barriers to entry and should reflect benefits foregone. Therefore, Political and Corruption risks are given an indicative weight of 13% on estimated revenues which is the second least important variable in the analysis. Table 2 is representative of each country's ranking according to a list of 177 countries.[30]

Table 2 Rank of Political and Corruption Risks by Country

Angola	Brazil	South Africa
153/157	72/177	73/177

3.1.3.2) Level of Crime

Level of crime is derived from the social category, referring to possibility of criminal incidents during logistic transportation or retail stores. These can increase sunk costs due reduced effective quantities sold in the target location. As shown in table 3, it can be easily measurable by taking a crime index list, where South Africa is considered the most dangerous country. Nonetheless, such factor is considered the least important due to its lower significance respective of further variables. It yields a 10% weight total risks.

Table 3 Crime Index by Country

Angola	Brazil	South Africa
60%	67%	79%

3.1.3.3) Quality of Infrastructures

Public infrastructures are extremely important since without them no exports are able to be produced. The refrigeration dependency is another serious factor to take into account. The indicator is therefore 46%.

"Heading in Opposite Directions", Financial Times 11 February 2010.

[30] Source: Transparency International, 2014.

Table 4 Quality of Overall Infrastructure Rank by Country

Angola	Brazil	South Africa
141/142	104/142	60/142

3.1.3.4) Public Health Conditions

Public health conditions acts as an economic variable to assess the risk probability of units shipped suffering quality losses. This factor is especially relevant in the ice cream business, since lack of refrigeration methods leads to immediate product obsolescence. An illustrative case would be the lack of electrical facilities incurring in a point of sale loss. This limits availability of potential collaborative arrangements that are too risk averse. Given all this, health conditions assumes an overall weight of 32% and is calculated by looking at ranks of population without access to electricity[31]. Table 5 shows that Brazil is highly favourable regarding this analysis.

Table 5 Percentage of Population Without Access to Electricity[32]

Angola	Brazil	South Africa
26.2%	99.2%	75%

3.1.4)Market Attraction Factors

On the opposite side, market attraction factors reduce the amount of market risk bared by the target market.

3.1.4.1) Market Growth Rate

Market forecasts are important demographic factors that are particularly important to combine with market size calculations. Such values are computed from historical sales in each country, and offers a forward looking perspective of long-term market evolutions. Often, such variables are reflective of the economic environment and consumer preferences for a specific sector or industry. In particular, they can be influential if values

[31] This ranking can be complemented with Appendix 8, where Kenya gives an approximation for Angola with only 7% households owning refrigeration.
[32] Source: "Global Status Report", REN21, (2013).

are significantly higher than supply sources domestic market, which results in drivers to innovate and expand into new horizons. Figure 5[33] shows ice cream retail volume growth from 2014 to 2009, confirming the fact that the European ice cream industry has entered a maturity stage in comparison to African and Latin American countries. Hence, weight attributed to market growth as a push strategy yields a 40% indication. .

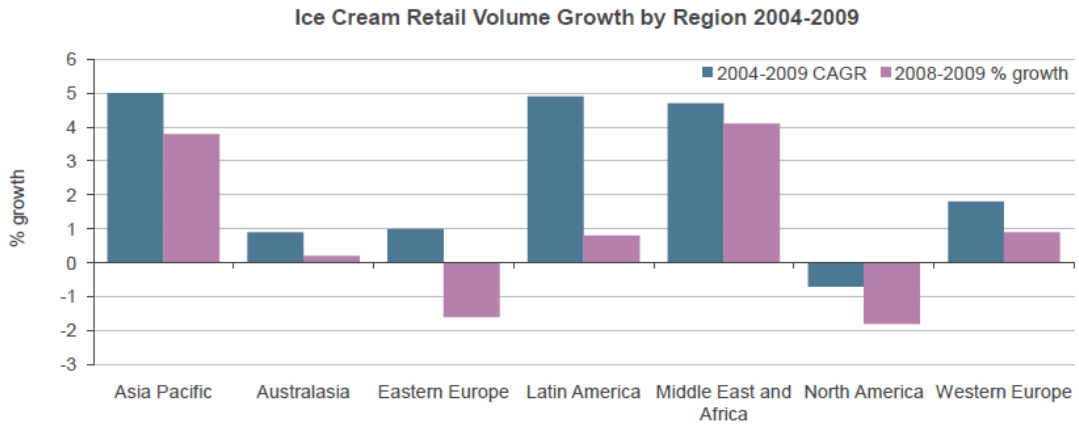


Figure 5 Ice Cream Retail Volume Growth by Region

In particular, Brazil is the country benefiting from highest values of growth, as shown through table 6.

Table 6 Countries Value Growth as Percentage of CAGR

Angola	Brazil	South Africa
4%	9%	3%

3.1.4.2) Ice Cream Consumption Per Capita

Similarly, consumption per capita is intended to take market forecasts and economic macro-environment categories into account. It provides a better estimation in comparison to market size values, since it gives an approximation of how much one person spend on ice cream per year. In addition, this is reflective of economic conditions

[33] Source: "Melting Under Pressure?: Global Opportunities for Ice Cream, Euromonitor International, May 2010.

and demand preferences. [34] Attributing the same indicator of 40% is therefore recommendable, in order to combine all environmental factors mentioned into consideration. Table 7 is indicative that Brazil is the country that most benefits from this variable, which is coherent with the former value found for market growth. Its impact however, is not as significant.

Table 7 Ice Cream Consumption per Capita

Angola	Brazil	South Africa
0.5%	1.4%	1%

3.1.4.3) Non-availability of Raw Materials

Moreover, limited availability of resources in destination countries constitute strong motive for internationalization. This can be regarded as an opportunity cost and is presented with a 7% weight on estimated revenues, in case supply sources benefit from lower raw material prices.[35]

Table 8 Milk Prices in €, Expressed as Pence per Liter as per January 2014

Angola	Brazil	South Africa	European Average
140€	30.68€	278€	31.11€

Table 8 lists an indication of the main raw material used during the confection of ice cream, in comparison to an average of European. In general, milk prices present fluctuation trends, nevertheless the European Union has done well in stabilizing prices using instruments such as the Common Agricultural Policy (CAP) and European Agriculture Guarantee Fund (EAGF) [36] . Thus table 8 gains better comparative significance, particularly when focusing on South Africa, the country that presents the best opportunity gains to be made, due to production decreases in the early 2013's and

[34] Refer to Appendix 7 to find a positive relation between disposable income and market growth.
[35] Refer to Appendix 9 for a closer description.
[36] Refer to Appendix 10, 9 for European Union milk historical prices and fluctuations.

climbing prices of feed. As a result, South Africa represents an attractive market to export ice creams not only because at the moment prices are lower in this market, but also because in the future European prices should remain more stable in contrast to fluctuating South African prices.[37]

Despite offering similar raw material prices to European supply sources, future increasing milk prices represent opportunity to exports. These are due milk shortages occurred during the second quarter of 2013, and partly attributed to the cost increase to producers from falling output in the main milk producing areas.[38] Such factors is added to the straightforward prices appraisal when electing the qualitative rank.

3.1.4.4) Weather Conditions

Although weather conditions are known for being extremely tropical in the southern hemisphere, certain countries report fewer precipitation percentages during the summer season than others. Since ice cream demand is positively related with warm weather conditions, inducing in impulse ice cream sales,[39] this variable should be considered as a push environmental factor. For these reasons, the weight on revenues should be considered but not inputted as a significant determinant of risk reduction, for instance a 13% value suffices. Furthermore, Angola is indeed the country that most benefits from such factor.[40]

---

[37] Sources: "Milk News from South Africa", AgriAfrica, 28/2/2014; "EU Farmgate Milk Prices", Dairy CO, 1/5/2014.
[38] Source: "Nestle Expands Milk Capabilities in Brazil", Passport, 5/12/2011.
[39] Appendix 1 proves that in Portugal, Sales increase from May to August.
[40] Refer to Appendix 11 for historical averages of precipitation days and values.

3.1.4.5) Estimation of Revenues and Appraisal

By looking at all previous factors and establishing the revenue function in the model, it is obvious that the sales expansion internationalization driver is met. Indeed table 9 presented below, gives incremental revenues generated with each country.

Table 9 Target Markets Total Revenues

Angola	Brazil	South Africa
31,472,727€	1,604,386€	28,320,279€

It is evident that **Brazil** represents the most valuable country in terms quantities. It is the destination country that presents the most potential quantities of *Cornetto* to sell, as well as a growing forecast for consumption of ice cream cones registered at 5%[41]. Even though sales price is relatively lower in comparison to Angola and South Africa, the amount of quantities sold make up for the loss in the latter variables. Additionally, Brazil yields 8% of market attraction factors and 14%[42] of market risks, which are considered the best parameters in the country comparative analysis. This is mainly due to geographical proximity and business proximity links, which tend favor international trade and limit failure of internationalization strategies.[43] A booming middle class showing no signs declining rates in terms of consumption of dairy consumer goods[44] plays a major factor, in particular when added to ongoing infrastructures investments for the 2014 World Cup and 2016 Olympic Games.

On the other hand, Angola is the definite winner in terms of sales price and shared cultural and linguistic heritage of Portuguese colonialism. Additionally, the lack of competitive productive local resources and willingness of supply sources distributors to

[41] Source: "Ice Cream in Brazil", Passport, February 2014.
[42] Refer to Appendix 13 for a detailed screenshot of optimal revenues from the model.
[43] Source: G. Johnson, R. Whittington, K. Scholes (2008).
[44] Source: "Nestle Expands Milk Capabilities in Brazil", Passport, April 2014.

engage in collaborative arrangements, [45] would seem highly recommendable. Nevertheless, these advantages are still subject to lack of proper infrastructures, political stability, refrigeration methods, significant middle class gap, and lack of information on consumer preferences. All things considered, the risk is too high and the country should not be regarded as a viable option in the short-term.

South Africa is the least desired target country since it is placed in between the other two countries in terms of all variables considered during the analysis. The only advantage that stands out is a 22%[46] forecast relatively to consumption of cones, which does not represent a main decision variable.

3.2) Internal Analysis

Internal resources provide sources of competitive advantages[47], as such it is crucial to establish a comparative assessment of country's cost structures when deciding the best supply source export *Cornettos* from.

3.2.1)Production Capacity

Incremental quantities demanded were estimated as the total difference between monthly estimated capacity and monthly quantities sold in 2013. This factor is highly important as it is a determinant of whether or not a supply source possesses the production required to export to destination markets. Since the cost structures do not represent a high amount of fixed costs, and the nature of the business takes a significant high amount of quantities to produce, higher production capacity can deter a supply source from entering

[45] Source: Meeting with José Bravo, 17/4/2014.
[46] Source: "Ice Cream in South Africa", Passport, April 2013.
[47] Source: Pankaj Ghemawa, et al, (2006).

a market. Additionally, Unilever should take into account that engaging in this project could make origin countries benefit from economies of scale.

3.2.2)Variable and Fixed Incremental Costs

As mentioned previously, most fixed costs are disregarded since they incur without the implementation of the project, thus only effluent waste, repairs and maintenance are accounted as incremental costs. In addition, based on the Value Chain Framework[48] a series of costs that account for less than 5% of total variable and fixed costs are disregarded. This reduced the dependency on variable costs.

Choose Product: Cornetto		Country		
Cost Type	Item List	Portugal	Germany2	Poland
⊞Raw Materials (p/ liton)		0.41 €	0.42 €	0.50 €
⊞Packaging (p/ liton)		0.05 €		
⊞Labour (p/ liton)		0.13 €	0.15 €	0.11 €
⊞Energy (p/ liton)		0.05 €	0.02 €	0.08 €
⊞Conversion Costs (p/ liton)		0.05 €	0.05 €	0.05 €
Total Fixed and Variable Costs		**0.70 €**	**0.64 €**	**0.74 €**

Figure 6 Variable and Fixed Incremental Costs

3.2.3)Distribution Costs

From the supply source side logistical costs is the variable to pay attention to. Since material, energy and labour costs do not provide distinguishable values between them, transportation costs represent the most important determinant of total costs. Different optimal solutions would be constituted of single changes to origin and destination countries' distribution cost functions. Nonetheless, such changes do not give close approximations to reality due to current supply and demand factors, which drive maritime cost routes. Also, globalization and technological innovations created competitive logistic

[48] Refer to Appendix 5.

prices other client options.[49] Santa Iria da Azóia will therefore represent the best supply source scenario in the medium and long-term. Regarding destination countries, it is evident from table 10, that by ascending order it is cheaper to ship units to Brazil, then South Africa and only the Angola. As mentioned in the last paragraph, this is in fact generated from supply and demand equilibria, as well as inherent market risks that were mentioned in the risk appraisal chapter.

Table 10 Distribution Costs from Origin Country to Destination Country

Distribution Costs	Portugal	Germany	Poland
Local Charges	90,000 €	330,000 €	120,000 €
To Brazil	684,000 €	684,000 €	900,000 €
To South Africa	1,098,000 €	1,491,000 €	1,650,000 €
To Angola	1,560,000 €	1,788,000 €	1,605,000 €

3.2.4)Incremental Total Costs

Combining all previous factors gives the total cost structures of all origin countries shown in table 11.

Table 11 Total Incremental Costs from the Supply Source to the Destination Source

Incremental Total Costs	Portugal	Germany	Poland
Brazil	7,814,927 €	8,054,927 €	8,498,533 €
South Africa	1,492,421 €	2,101,263 €	2,093,342 €
Angola	6,392,265 €	6,483,926 €	6,762,006 €

Academic literature supports a perceivable argument shown throughout the model and related with competitive advantages of nations.[50] Looking at figure 6, it is evident that specific countries are specialized in certain areas. For instance, Portugal's energy costs are significantly higher than Germany's. Country politics of stable inflation rates and lower spending resulted in development in a more efficient energy industry. On the other hand labour costs are lower in Poland and Portugal, reflecting the countries' lower competitiveness within the European Economic Area. Moreover, Portugal shows the

[49] Refer to Appendix 4 for a price comparison of two different logistics companies.
[50] Michael, Porter, (1987).

lower cost structure mainly due to its geographical distance and closer proximity to destination countries. However, close attention must be paid to available capacity, since if destination countries represent quantities exportable higher than 10,541,340 litons, Germany and Poland be the only supply sources to consider. Lastly, Total incremental costs appear to be higher for Brazil than exporting to Angola and South Africa, this is due to quantities required by Angolans and South African representing only 60% and 5% of Brazil's quantities. Such result is not a final determinant and should be matched with revenues for make a final assessment.

4) Recommendations

4.1) Profit Assessment and Scenario Analysis

Upon junction of estimated revenues with total costs, the optimal solution to the problem is laid out. Table 12 checks and confirms that exporting from Portugal to Brazil would reward Unilever JM with an increase of 23,657,801€, showing consistency of results found throughout the project's appraisal and urging the company to go forward with the project. Additionally, the recommended supply is confirmed as the Portuguese production factory, supported by the analysis from chapter 3.2.

Table 12 Overall Comparison of Profits and Optimal Solution

Incremental Total Profit	Portugal	Germany	Poland
Brazil	23,657,801 €	23,417,801 €	22,974,194 €
South Africa	111,964 €	-496,877 €	-488,956 €
Angola	21,928,013 €	21,836,353 €	21,558,273 €

Regarding destination countries, break-even profit is found with 318,735 litons exported[51], which represents 3% of incremental capacity available for an incremental total cost amount of 997,057€. This value clearly allows for a comfortable margin miscalculation of market size exporting quantities. While this value might appear excessive, this is due to the incremental nature of the model and low percentage of fixed and distribution costs. Such statement is not valid for South Africa that suffers from meaningful market size and never represents a possible solution for this project. Emphasis is given to the fact that a miscalculation of only 712,330 litons[52] favours production directed to Angola, therefore turning this target country into a viable alternative scenario. For South Africa to enter in the optimal solution, exporting more ice cream varieties at the same time would be necessary to increase possible market demand.

This recommendation is valid for the other two destination countries as well, since more, more innovative ice cream types would build brand loyalty by keeping products relevant and fun for consumers. As the Portuguese plant benefits from the most technological machines[53] and Brazil and Angola's consumers share cultural links and preferences with the Portuguese market, adapting to local preferences would reduce the increasing pressure of local players that take part of the profits.

A final observation to this paragraph goes for the fact that break-even sales price is 1€ per liton,[54] showing higher dependency on profits made and lower margin for estimation errors, especially due to Angola's unbeatable sales price.

[51] Refer to Appendix 14 for a screenshot of Excel's Goal Seek Tool.
[52] Refer to Appendix 14 for a screenshot of Excel's Goal Seek Tool.
[53] Source: Meeting with José Bravo, 15/5/2014.
[54] Refer to Appendix 14 for a screenshot of Excel's Goal Seek Tool.

Additionally, the utilization of an adapted version of the BCG Matrix is recommended to be used as an extra decision tool. By contrasting Unilever market shares[55] for each destination country with their respective growth rate, Brazil is found as the most valuable destination country. South Africa does not present sustainable growth prospects is should therefore be discarded from the optimal solution. Special attention is given to Angola, since Unilever does not engage in production of ice creams in Angola.[56] Consequently, Angola is placed as a question mark, therefore showing fewer success profitability.

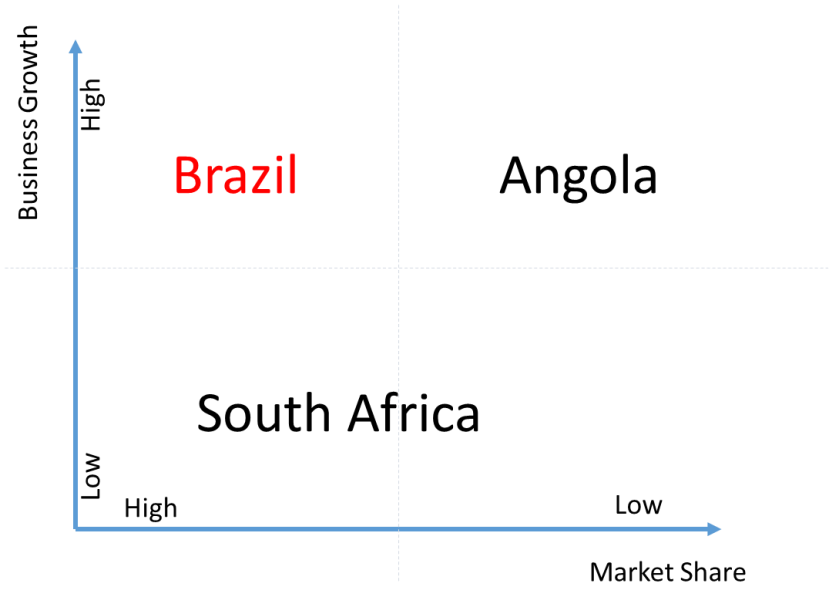


Figure 7 BCG's Matrix Adapted Framework

On the other hand, if Unilever JM were to start operations in Angola, thus valorizing entry in a new market that is highly attractive in terms of sales price and lack of competition, following a conservative strategy is advised. During the first years,

[55] Refer to Appendix 14 for a table representative of these values.
[56] Sources: Meeting with José Bravo, 15/5/2014; Meeting with Unilever 6/2/2014.

exporting at break-even, 474,217 litons[57] should be taken as the main objective, allowing for benchmarking assessments and losses minimization in case of bad scenarios.

4.2) Mode of Entry

Restrictions concerning the mode of entry are imposed, derived from the fact that Unilever's internal policy favors[58] full utilization of existing facilities in contrast to foreign direct investments. Similarly, preference is given to investments that are closer to the headquarters in Holland, as past improvement of operations and supply chains has already generated economies of scale, lower machinery depreciation and innovative processes. Thus Unilever JM will rely on direct exportation to the selected market through a set of willing wholesale distributors.[59] Since there is a subsidiary in Brazil, Unilever JM should first contact their local distributor. If negative feedback is received, the company should turn to distributors that benefit from sales experience in the targeted country. The fact is that it is hard to reach tiny, crowded and often chaotic retail stores is hard, in addition to poor refrigeration facilities common in these poorer countries. Following Procter & Gamble's example, hiring a team of local reliable sales agents to build ties with store owners and educate them in the importance of shelf display is highly recommended.[60] Also, advising the distributor to hire independent ambulant vendors equipped with a cooler box on their desired transportation method (i.e: bicycle) would represent an innovative method to reach untapped consumer bases and utilize traditional vendor networks. This strategy has already been implemented by Danone and should be

[57] Refer to Appendix 14 a screenshot of Excel's Goal Seek Tool.
[58] Meeting with José Bravo, 17/4/2014.
[59] Source: Meeting with José Bravo, 15/5/2014.
[60] Source: The Economic Times, 11/1/2010.

taken as a best practice example.[61] In addition, establishing customer data sharing and transparent reporting rules is advantageous for sustainable long-term continuity of profits. Additionally, hiring trade insurance agencies offering risks mitigation facilities for exporter is beneficial to Unilever JM.[62]

5) Conclusion

In conclusion, Unilever should export 10,061,067 litons of *Cornettos* to Brazil from the Portuguese ice-cream factory referring to a local distributor, giving a profit of 23,657,801€. This supply source would always be recommended unless it would have insufficient available productive capacity, as opposed to the German and Polish. If Portugal could not serve a market, Germany would be the following choice due to cheaper distribution costs and the highest capacity available. Alternatively, Angola is another source of high profits, but Unilever JM should be mindful of total risks that the market contains, the highest recorded at 21%, and take a pessimistic approach if it were to start operations to this country. Nevertheless total profits of directs export from Portugal to this country would be incremented by 21,836,353€. In the future, further work could be centered on adding economies of scale, opportunity costs and hourly labour rates to the model. This would abolish the linearity assumption Also, incremental production costs of the destination source's factory should be taken into account, therefore giving a sort of initial investment that would permit to establish a more realistic net present value decision. Finally, it would be interesting to include similar data for other origin and

[61] Source: "Indulgence and Emerging Markets Fuel Global Retail Ice Cream Growth", Euromonitor International, 2/2014.
[62] Source: African Trade Insurance.

destination countries to the spreadsheet model. Indeed this would make it into a powerful strategic decision tool, allowing for several comparisons.

6) References

AICEP. Portugal Global.2014.Como Internacionalizar. (Accessed April 2014).

Barney, J.B. (1991). Firm resources and sustained competitive advantage. Journal of Management, 19. pp. 99-12.

Brandenburger, A., & Stuart, H. W. (1996). Value Based Business Strategy. Journal of Economics & Management Strategy.

Brodie, R., Glynn, M., & Little, V. (2006). The Service Brand and the Service Dominant Logic . Marketing Theory, vol n.3, pp. 26.

Cyert, Richard.1963. A behavioral theory of the firm. Englewood Cliffs: Prentice-Hall.

G. Johnson, R. Whittington, K. Scholes. (2008). Exploring Global Strategy. 9th Pearson.

Euromonitor International (2014). Indulgence and Emergent Markets Fuel Global Ice Cream growth". (Accessed April 2014).

Euromonitor International. (2010). Diverse Corporate Strategies to Exploit Opportunities in Local Dairy. (Accessed April 2014).

Euromonitor International. (2012). Ice Cream in South Africa. (Accessed February 2014).

Euromonitor International. (2013). Ice Cream in Nigeria. (Accessed May 2014).

Euromonitor International. (2013). Ice Cream in Portugal. (Accessed February 2014).

Euromonitor International. (2014). Ice Cream in Brazil. (Accessed March 2014).

Euromonitor International. (2014). Nestle Expands Milk Capabilities in Brazil. (Accessed March 2014).

Financial Times (11 February 2010). Heading in Opposite Directions. (Accessed March 2014).

Financial Times. (2 December 2009). Unilever to offload Italian Frozen Food Unit. (Accessed January 2014).

Financial Times. (2010). Brazil accelerates investment in Africa. (Accessed April 2014).

Financial Times. (24 October 2013). Unilever Sales Problems Mount. (Accessed May 2014).

Financial Times. (25 February 2010). Vale's Transformation. (Accessed April 2014)

G. Yip, (2003). An Invigorating Perspective on International Strategy. Total Global Strategy II, Prentice Hall.

Ghemawat, P. (2001). Distance Still Matters. Harvard Business Review.

Helpman, E., Melitz, M. J., & Yeaple, S. P. (2004). Export Versus FDI with Heterogenous Firm. The American Economic Review.

http://www.portugalglobal.pt/PT/Internacionalizar/Paginas/MenuInternacionalizar.aspx (accessed April 23, 2014).

Latorre, M. C. (n.d.). Multinationals and Foreign Direct Investment. Universidad Complutense Madrid Working Paper.

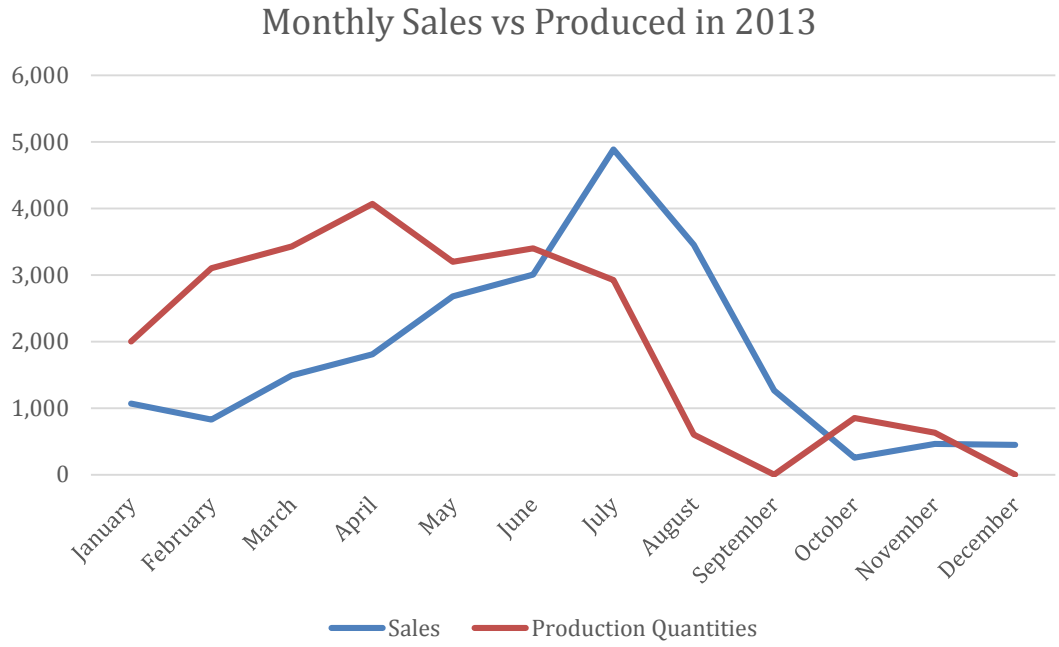
Michael, Porter. (Changing patterns of international competition), pp. 9-39. California Management Review, vol. 28, no. 2.

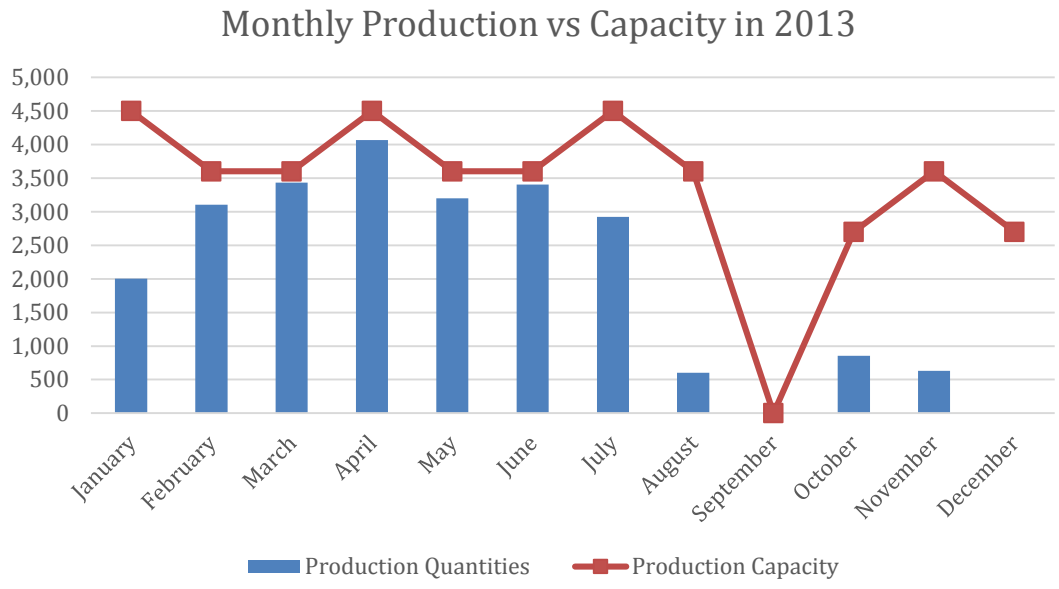
Ngobo, P.V. (1999). Industry versus firm effects: What drives firm performance in customer satisfaction (Working Paper). University of Montpellier II, France.

Prahalad, C., & Hammond, A. (2002). Serving the World's Poor, Profitably. Harvard Business Review.

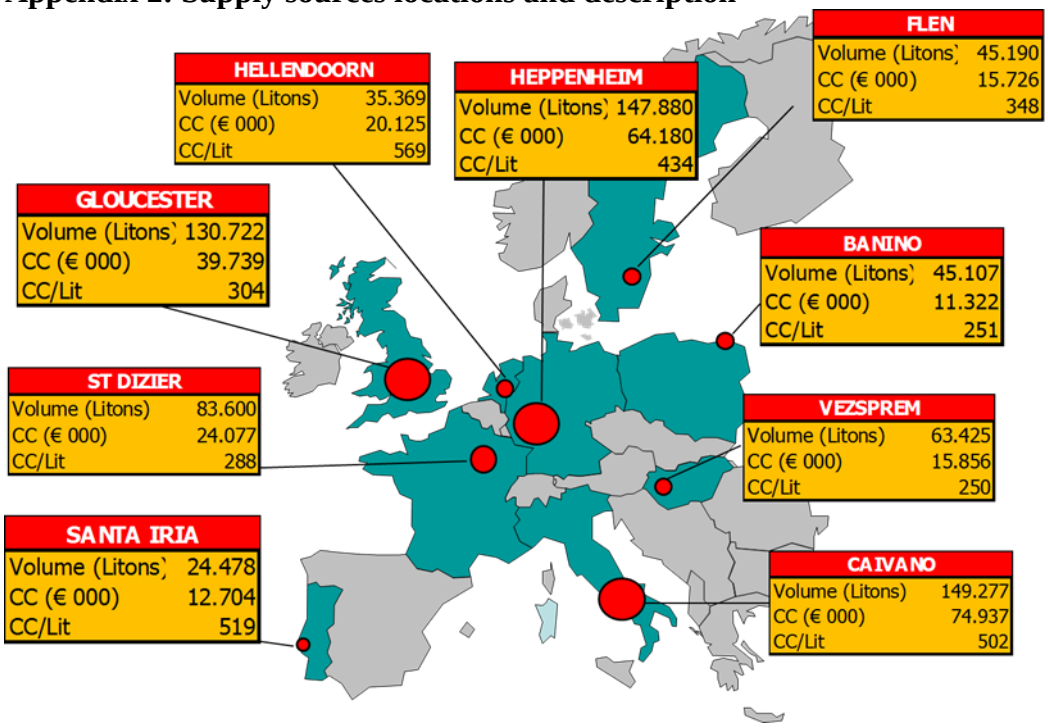
7) Appendixes

Appendix 1: Seasonality of Ice Cream and Capacity Availability





Appendix 2: Supply sources locations and description



Appendix 3: Unilever's Board Structure and Members

Figure 8 Unilever's Board Structure and Members

Appendix 4: Benchmarking of Distribution Routes costs by DAMCO and MSC

Table 13 MSC Distribution Costs

Sines – Santos (pier – Pier) || Direct service TT 12 days
20RF | Eur 1000 + BUC Eur 605 + OTHC Eur 210 + LCs Eur 47
40HR | Eur 1800 (BUC inc) + OTHC Eur 210 + LCs Eur 47
Sines – Luanda (pier – Pier) || Direct service TT 13 days
20RF | Eur 2800 + BUC Eur 546 + OTHC Eur 210 + LCs Eur 47
40HR | Eur 3600 + BUC Eur 1092 + OTHC EUR 210 + LCs Eur 47
Sines – Cape Town (pier – Pier) || Direct service TT 16 days – only 40HR
40HR | USD 3800 (BUC inc) + OTHC Eur 210 + LCs Eur 47

Table 14DAMCO Distribution Costs

Basic Freight

Charge	From	To	Transit	Currency	20'	40'	40'HC	45'	Type	Unit
FRETE MARITIMO ALL IN	Lisbon	Luanda		EUR	3,930.00	5,200.00	5,200.00	-	Reefer	Container
FRETE MARITIMO ALL IN	Lisbon	Santos		EUR	1,935.00	2,280.00	2,280.00	-	Reefer	Container
FRETE MARITIMO ALL IN	Lisbon	Cape Town		EUR	-	-	3,660.00	-	Reefer	Container
TRANSPORTE CAMIAO STA IRIA - CAIS				EUR	145.00	150.00	150.00	-	Reefer	Container

Appendix 5 : Costs Structure of Unilever for Portugal, Germany and Poland and P&L

Figure 9 Unilever's Costs Structures

Material Costs	All products	All Products (p/liton)	Country
Adhesive or Tape	€ 111,476	€ 0.005	Portugal
Adhesive or Tape	€ 130,000	€ 0.001	Germany
Adhesive or Tape	€ 140,000	€ 0.003	Poland
Carton/Carton Board	€ 790,794	€ 0.033	Portugal
Carton/Carton Board	€ 810,000	€ 0.005	Germany
Carton/Carton Board	€ 820,000	€ 0.018	Poland
Case/Tray	€ 852,282	€ 0.035	Portugal
Case/Tray	€ 870,000	€ 0.006	Germany
Case/Tray	€ 880,000	€ 0.020	Poland
Flexible Packaging	€ 1,253,248	€ 0.052	Portugal
Flexible Packaging	€ 1,400,000	€ 0.009	Germany
Flexible Packaging	€ 1,450,000	€ 0.032	Poland
Label	€ 74,316	€ 0.003	Portugal
Label	€ 80,000	€ 0.001	Germany
Label	€ 82,000	€ 0.002	Poland
Lid	€ 1,634,470	€ 0.067	Portugal
Lid	€ 1,720,000	€ 0.012	Germany
Lid	€ 1,800,000	€ 0.040	Poland
No Appropriate Type Choice	€ 33,543	€ 0.001	Portugal
No Appropriate Type Choice	€ 40,000	€ 0.000	Germany
No Appropriate Type Choice	€ 41,000	€ 0.001	Poland
Seal	€ 64,971	€ 0.003	Portugal
Seal	€ 72,000	€ 0.000	Germany
Seal	€ 74,000	€ 0.002	Poland
Stick/Spoon/Straw etc	€ 340,487	€ 0.014	Portugal
Stick/Spoon/Straw etc	€ 360,000	€ 0.002	Germany
Stick/Spoon/Straw etc	€ 380,000	€ 0.008	Poland
Tub/Pot/Cup	€ 2,851,361	€ 0.118	Portugal
Tub/Pot/Cup	€ 3,100,000	€ 0.021	Germany
Tub/Pot/Cup	€ 3,200,000	€ 0.071	Poland
Tube	€ 287,737	€ 0.012	Portugal
Tube	€ 300,000	€ 0.002	Germany
Tube	€ 320,000	€ 0.007	Poland
Acids and Salts Organic	€ 18,939	€ 0.001	Portugal
Acids and Salts Organic	€ 40,000	€ 0.002	Germany
Acids and Salts Organic	€ 35,000	€ 0.001	Poland
Alcoholic Products	€ 3,573	€ 0.000	Portugal
Alcoholic Products	€ 10,000	€ 0.000	Germany
Alcoholic Products	€ 8,000	€ 0.000	Poland
Alcohols and Glycols	€ 1,664	€ 0.000	Portugal
Alcohols and Glycols	€ 5,000	€ 0.000	Germany
Alcohols and Glycols	€ 4,000	€ 0.000	Poland

Baked Goods	€	1,266,216	€	0.052	Portugal
Baked Goods	€	3,000,000	€	0.124	Germany
Baked Goods	€	2,000,000	€	0.083	Poland
Cocoa / Chocolate Products	€	2,021,168	€	0.083	Portugal
Cocoa / Chocolate Products	€	10,000,000	€	0.413	Germany
Cocoa / Chocolate Products	€	8,000,000	€	0.330	Poland
Coffee	€	23,355	€	0.001	Portugal
Coffee	€	100,000	€	0.004	Germany
Coffee	€	90,000	€	0.004	Poland
Colourants	€	95,161	€	0.004	Portugal
Colourants	€	400,000	€	0.017	Germany
Colourants	€	200,000	€	0.008	Poland
Confectionery	€	359,008	€	0.015	Portugal
Confectionery	€	1,000,000	€	0.041	Germany
Confectionery	€	800,000	€	0.033	Poland
Dairy Products	€	3,835,205	€	0.158	Portugal
Dairy Products	€	10,000,000	€	0.413	Germany
Dairy Products	€	8,000,000	€	0.330	Poland
Eggs	€	34,990	€	0.001	Portugal
Eggs	€	80,000	€	0.003	Germany
Eggs	€	60,000	€	0.002	Poland
Fats and Oils Vegetable	€	1,033,963	€	0.043	Portugal
Fats and Oils Vegetable	€	3,000,000	€	0.124	Germany
Fats and Oils Vegetable	€	2,500,000	€	0.103	Poland
Fatty Acid Glyceride Ester	€	64,244	€	0.003	Portugal
Fatty Acid Glyceride Ester	€	100,000	€	0.004	Germany
Fatty Acid Glyceride Ester	€	80,000	€	0.003	Poland
Flavours - Foods	€	815,830	€	0.034	Portugal
Flavours - Foods	€	3,000,000	€	0.124	Germany
Flavours - Foods	€	1,500,000	€	0.062	Poland
Fruits Juices Purees and Preps	€	1,200,271	€	0.050	Portugal
Fruits Juices Purees and Preps	€	4,000,000	€	0.165	Germany
Fruits Juices Purees and Preps	€	2,000,000	€	0.083	Poland
Gums and Derivatives	€	231,444	€	0.010	Portugal
Gums and Derivatives	€	800,000	€	0.033	Germany
Gums and Derivatives	€	600,000	€	0.025	Poland
Hydrocolloids Seaweed	€	24,817	€	0.001	Portugal
Hydrocolloids Seaweed	€	80,000	€	0.003	Germany
Hydrocolloids Seaweed	€	70,000	€	0.003	Poland
Nuts	€	460,551	€	0.019	Portugal
Nuts	€	1,500,000	€	0.062	Germany
Nuts	€	1,200,000	€	0.050	Poland
Polyols	€	3,957	€	0.000	Portugal
Polyols	€	40,000	€	0.002	Germany
Polyols	€	30,000	€	0.001	Poland

Salts and Oxides Inorganic	€	8	€	0.0000003	Portugal
Salts and Oxides Inorganic	€	20	€	0.0000008	Germany
Salts and Oxides Inorganic	€	15	€	0.0000006	Poland
Spices	€	167	€	0.0000069	Portugal
Spices	€	400	€	0.0000165	Germany
Spices	€	300	€	0.0000124	Poland
Starches and Derivatives	€	1,002,840	€	0.041	Portugal
Starches and Derivatives	€	4,000,000	€	0.165	Germany
Starches and Derivatives	€	3,000,000	€	0.124	Poland
Sugars	€	1,415,437	€	0.058	Portugal
Sugars	€	4,500,000	€	0.186	Germany
Sugars	€	4,000,000	€	0.165	Poland
Vitamins and Derivatives	€	33,451	€	0.001	Portugal
Vitamins and Derivatives	€	1,000,000	€	0.041	Germany
Vitamins and Derivatives	€	900,000	€	0.037	Poland
Direct Labour Packing Lines	€	3,115,104	€	0.130	Portugal
Direct Labour Packing Lines	€	22,000,000	€	0.150	Germany
Direct Labour Packing Lines	€	5,000,000	€	0.110	Poland
Electricity Variable	€	868,596	€	0.036	Portugal
Electricity Variable	€	3,000,000	€	0.020	Germany
Electricity Variable	€	900,000	€	0.020	Poland
Steam Variable	€	95,000	€	0.004	Portugal
Steam Variable	€	550,000	€	0.004	Germany
Steam Variable	€	94,000	€	0.002	Poland
Water Variable	€	111,079	€	0.005	Portugal
Water Variable	€	600,000	€	0.004	Germany
Water Variable	€	250,000	€	0.006	Poland
Refrigeration Variable	€	20,000	€	0.001	Portugal
Refrigeration Variable	€	110,000	€	0.001	Germany
Refrigeration Variable	€	40,000	€	0.001	Poland
Other Variable Energy & Utilities	€	222,310	€	0.009	Portugal
Other Variable Energy & Utilities	€	1,300,000	€	0.009	Germany
Other Variable Energy & Utilities	€	500,000	€	0.011	Poland
Effluent & Waste	€	204,049	€	0.008	Portugal
Effluent & Waste	€	1,200,000	€	0.008	Germany
Effluent & Waste	€	190,000	€	0.004	Poland
Repairs&Maintenance	€	1,024,892	€	0.042	Portugal
Repairs&Maintenance	€	6,000,000	€	0.041	Germany
Repairs&Maintenance	€	3,000,000	€	0.067	Poland

Table 15Unilever's P&L Account

	BP	FY	BP	Fcst
Volume (LiTons)	**2013**	**2013**	**2014**	**2014**
TURNOVER	**39,046**	**35,802**	**36,146**	**36,146**
MATERIAL COSTS	**24,986**	**21,960**	**22,241**	**22,241**
Own Production		415		
CONVERSION COSTS	**12,391**	**11,683**	**11,381**	**11,381**
Variable Costs	4,607	4,919	4,472	4,472
Fixed Costs	7,783	6,764	6,909	6,909
Other Items		1,135	1,500	1,500
SUR OLÁ	**1,669**	**1,024**	**1,024**	**1,024**
Conversion Cost per ton	424	444	415	415

Appendix 6: Production of *Cornetto's* bottleneck is the the ageing and Freezing stages.

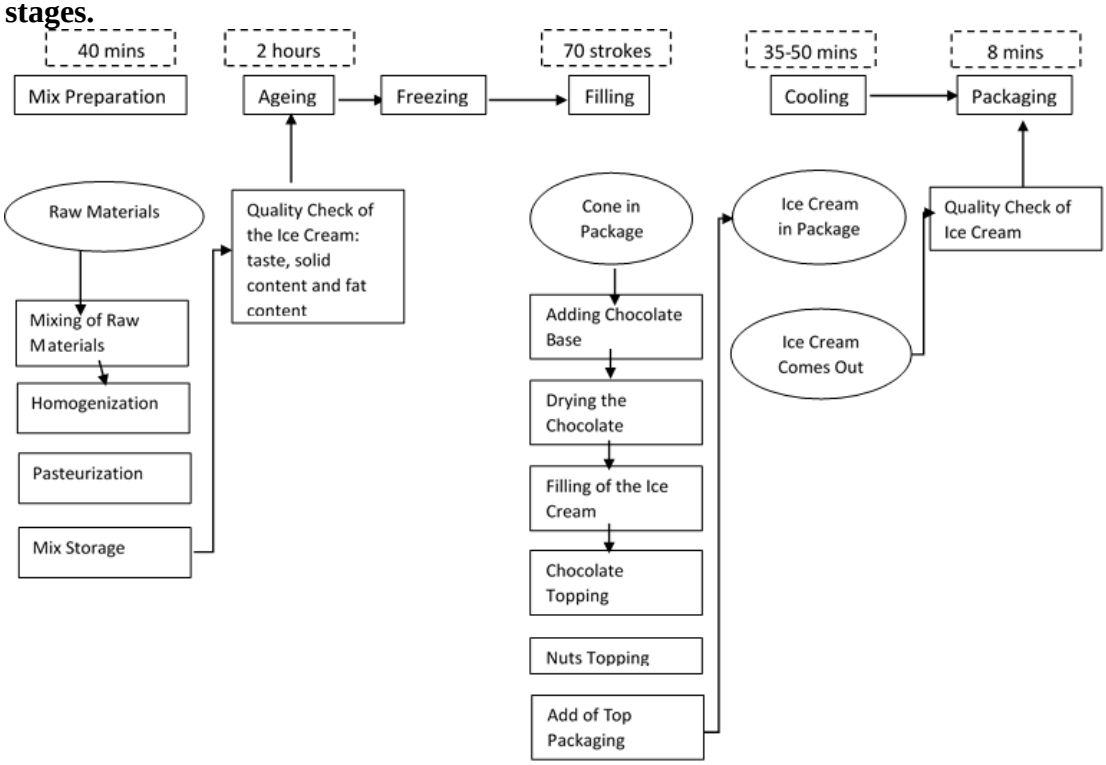


Figure 10 Supply Chain Proceses for producing a batch of Cornettos

Appendix 7. Source: "Indulgence and Emergent Markets Fuel Global Ice Cream growth", Passport, February 2014

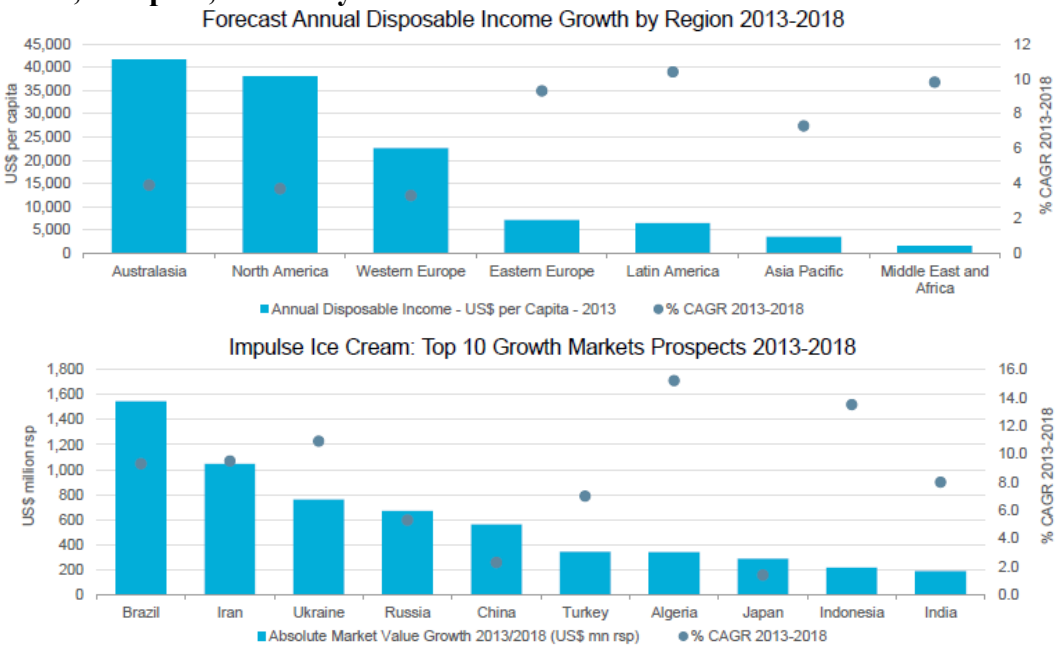


Figure 11Impulse Ice Cream Market Comparisons, aligned with Disposable Income

Appendix 8: Unit Prices of Impulse Ice Cream in 2013

Source: "Indulgence and Emergent Markets Fuel Global Ice Cream growth", Passport, February 2014

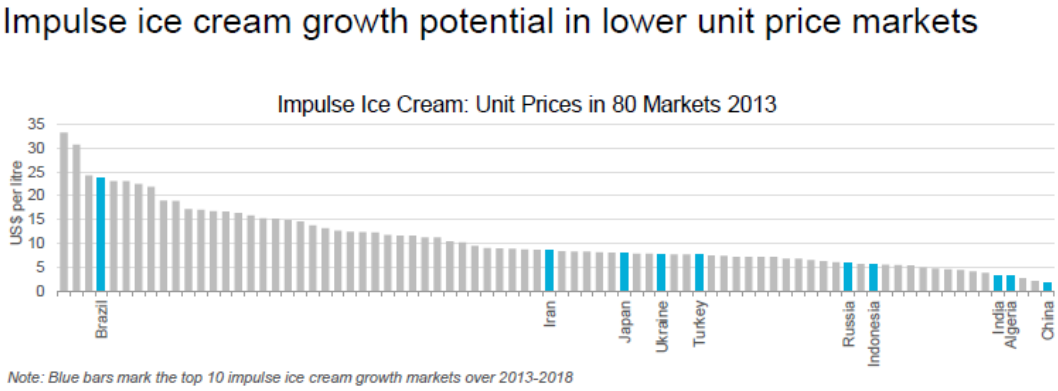


Figure 12Impulse Ic Cream Potential Unit Price markets

Appendix 9: Target Market Comparisons

Table 16Target Market Comparisons between Brazil, South Africa and Angola

	Brazil	South Africa	Angola
Consumption liters per capita	1	1	1
Market Size liters	260,200,000	52,700,000	8,131,700
Impulse Size liters	86,500,000	8,200,000	868,000
Market Size litons	433,666,667	87,000,000	13,552,833
Impulse Size litons	144,166,667	13,666,667	1,446,667
Cornetto Share %	5%	1%	0%
Unilever Share	29%	33%	0%
Volume Growth 2008/2013 of CAGR	9%	3%	4%

Appendix 10: List of historical prices of Milk for the European Union, from 2009 to 2014

Table 17Historical Prices of Milk for the EU

	2009/10 *	2010/11	2011/12	2012/13	2013/14
Apr	11,887	11,881	12,214	12,367	12,041
May	12,394	12,623	12,723	12,974	12,903
Jun	11,692	11,957	12,016	12,274	12,219
Jul	11,470	11,720	12,071	11,998	12,217
Aug	11,071	11,448	11,672	11,558	11,873
Sep	10,352	10,938	11,092	10,883	11,286
Oct	10,533	11,060	11,154	10,988	11,451
Nov	10,101	10,541	10,701	10,541	10,987
Dec	10,656	10,908	11,286	11,053	11,534
Jan	10,891	11,330	11,664	11,438	11,971
Feb	10,240	10,563	11,046	10,667	11,209
Mar	11,689	12,074	12,361	12,036	
Total	132,977	137,043	140,001	138,775	

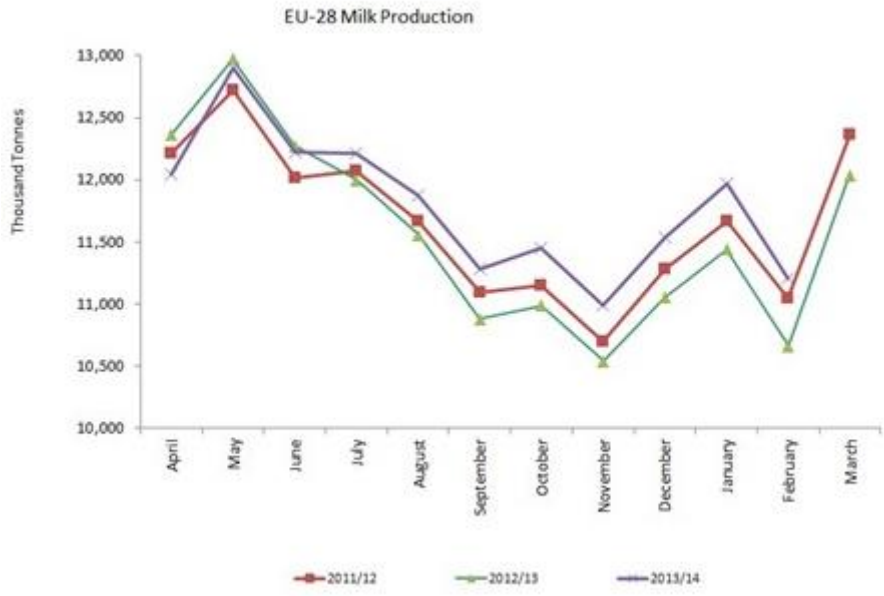


Figure 13 Milk production fluctuations from 2012 to 2014

Appendix 11: Monthly Precipitation in mm and days for Angola, Brazil, South Africa

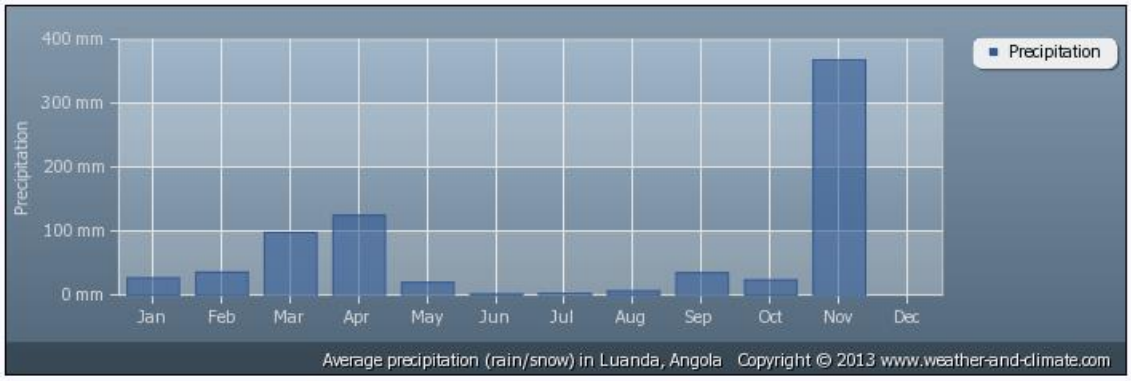


Figure 14Monthly Precipitation in Angola expressed in mm

Figure 15Monthly Precipitation in Angola expressed in days

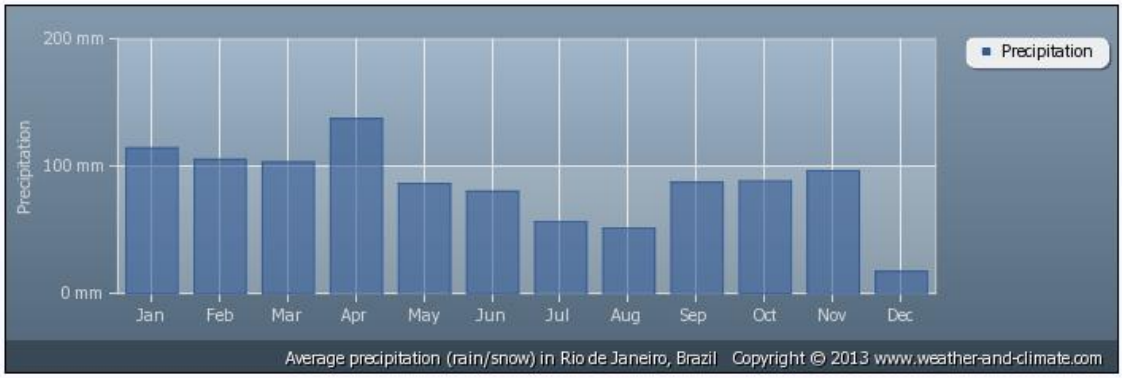


Figure 16Monthly Precipitation in Brazil expressed in mm

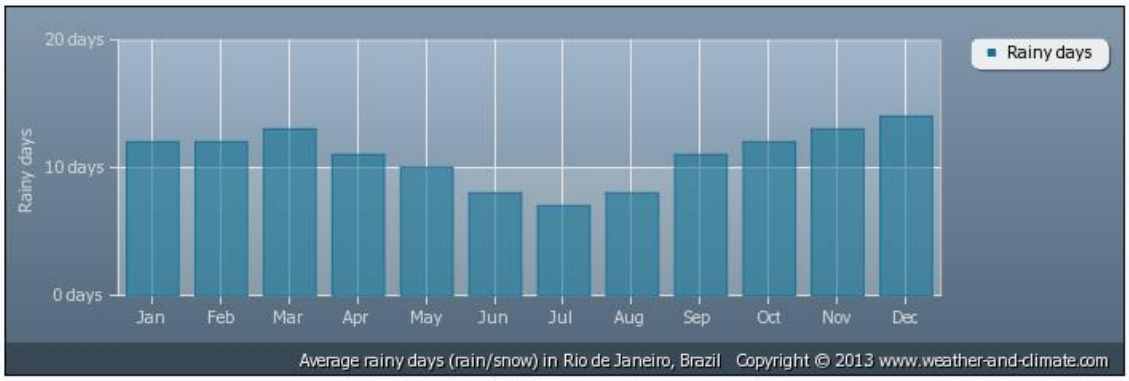


Figure 17Monthly Precipitation in Brazil expressed in days

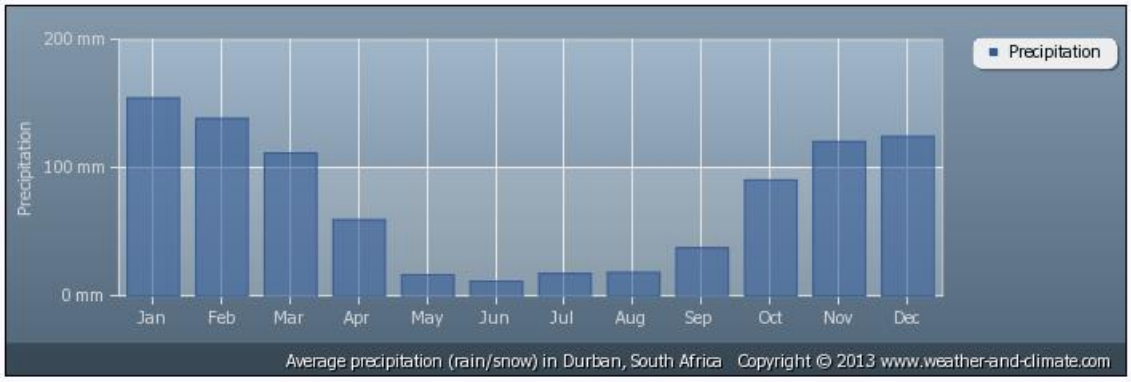


Figure 18Monthly Precipitation in South Africa expressed in days

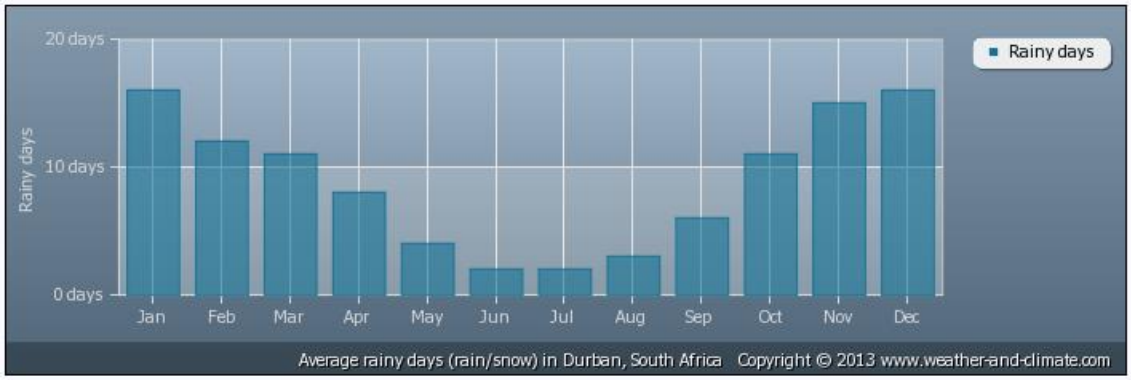


Figure 19 Monthly Precipitation in South Africa expressed in mm

Appendix 12: Screenshot of Optimal Revenues Values from Strategic Decision Model

Destination Countries		Brazil	South Africa	Angola
Market Risk Factors				
	Indicator	Rank	Rank	Rank
Political Stability & Corruption	12%	41%	41%	86%
Public Health Conditions	32%	1%	25%	74%
Level of Crime	10%	67%	79%	60%
Quality of Infrastructures	46%	73%	42%	99%
Total Risks	=	**14%**	**12%**	**26%**
Market Attractiveness Factors				
	Indicator	Rank	Rank	Rank
Market Growth Rate %	40%	100%	20%	60%
Market consumption per capita (in liters)	40%	80%	50%	30%
Non availability of raw materials	7%	0%	100%	60%
Weather conditions	13%	75%	50%	50%
Total Attractive Factors	=	**8%**	**4%**	**5%**

Appendix 13: Visualization of Model

Capacity Match	Volume in Litons		Portugal	Germany	Poland
Brazil	10,061,067	≤			
South Africa	435,000	≤	10,541,340	59,891,400	18,268,740
Angola	6,776,417	≤			

Incremental Total Costs	Portugal	Germany	Poland
Brazil	7,814,927 €	8,054,927 €	8,498,533 €
South Africa	1,492,421 €	2,101,263 €	2,093,342 €
Angola	6,392,265.89 €	6,483,926 €	6,762,006 €

Incremental Total Revenue	Portugal	Germany	Poland
Brazil	31,472,727 €	31,472,727 €	31,472,727 €
South Africa	1,604,386 €	1,604,386 €	1,604,386 €
Angola	28,320,279 €	28,320,279 €	28,320,279 €

Incremental Total Profit	Portugal	Germany	Poland
Brazil	23,657,801 €	23,417,801 €	22,974,194 €
South Africa	111,964 €	-496,877 €	-488,956 €
Angola	21,928,013 €	21,836,353 €	21,558,273 €

Figure 20 Data Entry and Overall Comparison

Incremental Costs	Portugal	Germany	Poland
Incremental Distribution & Material & Conversion	€ 7,630,915	€ 8,491,915	€ 8,473,915

Aggregated Distribution Costs	Portugal	Germany	Poland
Local Distribution Costs	90,000 €	330,000 €	120,000 €
Distribution Costs to Brazil	€ 684,000	€ 684,000	€ 900,000
Distribution Costs to South Africa	€ 1,098,000	€ 1,491,000	€ 1,650,000
Distribution Costs to Angola	€ 1,560,000	€ 1,788,000	€ 1,605,000
Total Distribution Costs	€ 3,432,000	€ 4,293,000	€ 4,275,000

Choose Product: Cornetto		Country		
Cost Type	Item List	Portugal	Germany2	Poland
⊞Raw Materials (p/ liton)		0.41 €	0.42 €	0.50 €
⊞Packaging (p/ liton)		0.05 €		
⊞Labour (p/ liton)		0.13 €	0.15 €	0.11 €
⊞Energy (p/ liton)		0.05 €	0.02 €	0.08 €
⊞Conversion Costs (p/ liton)		0.05 €	0.05 €	0.05 €
Total Fixed and Variable Costs		**0.70 €**	**0.64 €**	**0.74 €**

Figure 21 Total Incremental Costs

Destination Countries		Brazil	South Africa	Angola
Market Risk Factors				
	Indicator	Rank	Rank	Rank
Political Stability & Corruption	12%	41%	41%	86%
Public Health Conditions	32%	1%	25%	74%
Level of Crime	10%	67%	79%	60%
Quality of Infrastructures	46%	73%	42%	99%
Total Risks	=	**14%**	**12%**	**26%**
Market Attractiveness Factors				
	Indicator	Rank	Rank	Rank
Market Growth Rate %	40%	100%	20%	60%
Market consumption per capita (in liters)	40%	80%	50%	30%
Non availability of raw materials	7%	0%	100%	60%
Weather conditions	13%	75%	50%	50%
Total Attractive Factors	=	**8%**	**4%**	**5%**
Incremental Potential Net Revenues		€ 24,000,000	€ 1,914,000	€ 40,658,500
Estimated Revenues w/ Market Risk and Attractiveness Factors		**€ 19,752,720**	**€ 176,386**	**€ 26,670,279**

Figure 22 Profit Estimation with Total Risk and Attraction Factors

Appendix 14: Break-even Solutions

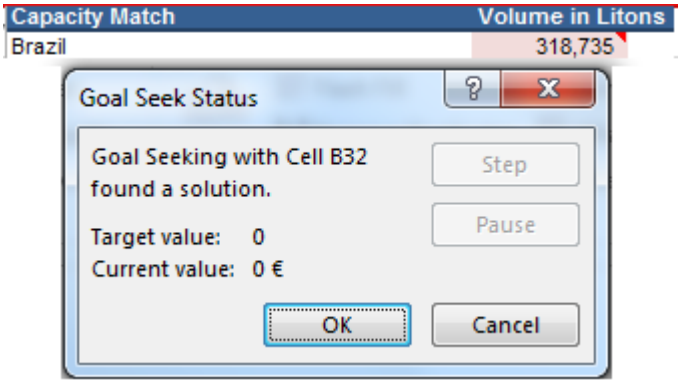


Figure 23 Break-even Quantities from Portugal to Brazil

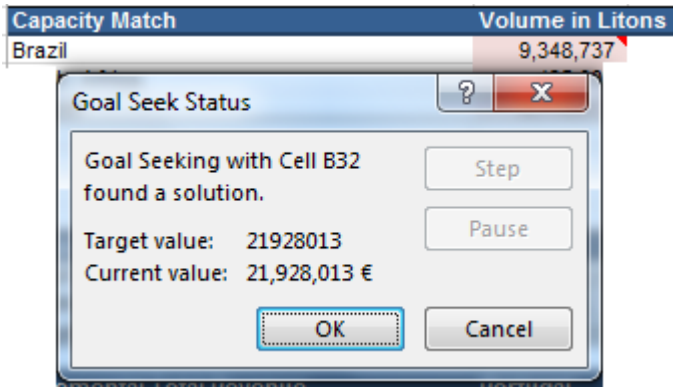


Figure 24Break-even Sales Price from Portugal to Brazil

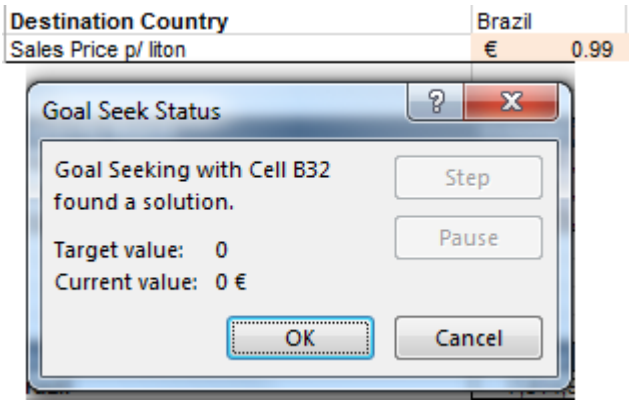


Figure 25Break-even Quantities that favour Exporting from Portugal to Angola instead of Brazil

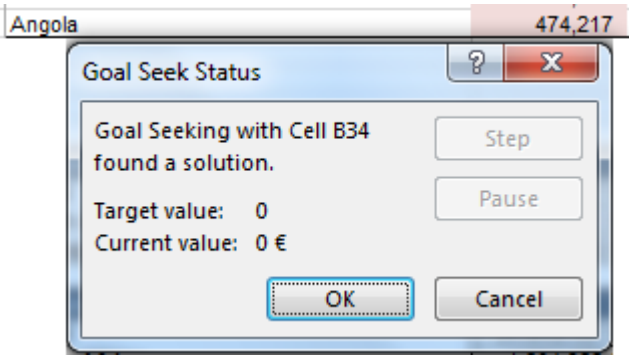


Figure 26 Break-even quantities of exporting from Portugal to Angola