Analysis on the Feasibility of Business Investment

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Abstract

The writing that is developed below is the analysis of profitability, and further development of the financial viability of an investment project. That analysis is focused on the decision of implementing the product known as *Prama System* in the company Consultoría Impulsaesport through its sport center situated in Castellon.

While carrying out this project, a constant communication between the author of this text and the applicant company has been maintained. The exchange of information has served to make some adjusted estimates needed to develop the desires of the company.

Therefore, the results obtained from the investment analysis of that system developed in the following pages have served as a contribution to clarify the intention of the company on the implementation of this product.

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1. Introduction

Urban Sport Club is a sport centre situated in Castellon with 4 years of experience that is in constantly updating; for this reason, it's aim is to determine the viability of acquire for their installations the known as *Prama System*. This mechanism is developed by the Pavigym's Company which is located in the city of Elche. The company's business is based on the sale, installation, promotion and manufacture of *Prama System*, along with a wide range of other sport products.

By its part, *Prama System* consists of a multifunctional area that allows doing different kinds of exercises as well as covering different types of needs demanded by users. Its distribution makes activities be developed as a dynamic and entertaining way to keep fit.

Urban Sport Club has provided all the data needed to perform the analysis of the investment project in order to be able to obtain some reasonable results that will be used to help the company to decide whether to carry out the proposed investment analysis. Among these data, the company has provided the inmates scorecard balances from the previous years, billing and accounting of the Urban's activity. They were useful to develop the estimations of the prices and the subscribers needed to calculate the inputs and outputs that *Prama System* could generate to the company in the following years.

As Urban is a sport centre in expansion, the estimations have been made based on historical data of the company since its inception to make tighter projections of revenues and expenses.

All the investment project is focused on the study of the generation of income and expenses that the *Prama System* will generate individually. However, there has been also made an effort to understand the present business idea of the company.

The structure of this project is composed mainly by two blocks. On the one hand, in the analysis to determine the feasibility of the investment project proposed by Urban Sport Club we have obtained negative results that, initially, would lead to the revocation of the decision to perform that system. However, the project mainly depends on a variable, the number of subscribers, and part of them determined by the evolution of subscribers throughout the year and in part by the distribution of these subscribers within each type of subscription. Achieving or exceeding the minimum expected number of subscribers will cause changes on the decision criteria of the investment project; defining it as profitable or unprofitable. For this reason, it was decided to carry out financial planning of it, because, despite being a seemingly unprofitable project, the sensitivity of the main

variable would cause a rectification of the qualification to a profitable investment. It will be developed throughout this document how a small variation of the maximum capacity of the sport centre subscribers changes the investment valuation.

To obtain the results described above, we have developed a range of parts that together allow to obtain a set of assumptions and estimates with mathematical foundation used to develop conclusions about the project analysed.

Likewise, carrying out of the investment analysis significant conclusions are drawn. On the one hand, the estimation of the net free cash flow projection that the company will obtain after the installation of the *Prama System* allowed the use of analysis tools as the Net Present Value or the Internal Rate of Return, concluding that this specific project will not generate, apparently, positive results to the company with the estimates and the assumptions made. However, to develop these analysis tools, the business planning of the project must be developed before. It has to be include to expenses, incomes, tax rates, budgets and amortizations. So, after doing all the estimations referred to concepts related with the net free cash flows, they are obtained.

These cash flows are the base to obtain reasonable results in all the developed methods in the investment viability analysis part.

I have not also used tools referred to know the profitability of the project, I have used tools to introduce the risk in the investment analysis, to study the behaviour of the Net Present Value in probability, or the approach of different scenarios that have allowed to know the importance of some variables within the project and a sensitivity analysis on the project which will reveal how to manage those most sensitive analysis variables on the *Prama System*.

For that second part, I have been raised two scenarios that allow finance the initial outlay; on the one hand, there is the possibility that the company collect this amount through external sources of finance, as could be the hiring of a loan to an entity. Moreover, it has raised that the company obtains sufficient resources to carry out the investment through an internal financing, such as the realization of a capital increase.

Through financial planning it has been demostrated that the project, although it has been qualified as not profitable, it has a clear appeal in the liquidity that it generates.

On the one hand, to carry out the scenario based on the loan, it has been proposed to the enteprise an ICO loan, due to Urban currently possess one of similar characteristics. The ICO loan would cause to the enteprise annual costs through interest and fees,

despite being an unprofitable project, it would provide liquidity surpluses in all periods in which the project is developed.

On the other hand, the scenario based on the capital increase would cause that the enteprise would have few obligations although the final amount to be paid would be similar as in the case developed above. As return, the enteprise would to reward their partners through dividends, so the cost of financing would be determined via the pursuit of profit.

In short, this project has served not only to the Consulting Impulsaesport enteprise to know the feasibility of the investment project that they think to carry out, it also has helped me personally to face the daily difficulties of a enteprise, helping them through my assessment on all aspects that I could serve as support, both financially and in the sporting aspect.

2. Investment Analysis for Urban Sport Club.

2.1. Main Concepts in Investment analysis.

2.1.1. Study Methods.

Every investment project should be carefully analysed so that the enterprise can decide whether to finally carry out the project or not. In order do so, two of the main evaluation methods used are the Net Present Value (NPV) and the Internal Rate of Return (IRR).

The Net Present Value (NPV) is an evaluation method of business investments that consists on the cash flow present value's update that the aforesaid investment will obtain, in an estimated time, to a discount rate equal to the interest rate (k). Nevertheless, this method has a series of failures that need to be reasonably treated so that the enterprise can obtain a as-close-as-real life result. By means of its calculation, a monetary figure that gathers the investment's present value is obtained. The formula used is the one as follows:

$$\text{NPV} = -D + \frac{FNC1}{(1+k)} + \frac{FNC2}{(1+k)^2} + \frac{FNC3}{(1+k)^3} + \cdots + \frac{FNCn}{(1+k)^n}$$

,where D stands for the initial outlay, k is the discount rate and FNC are the net cash flow that the enterprise aspires to obtain in each of the periods that the project will be carried out.

On its side, the Internal Rate of Return (IRR) is used for decision making regarding business' investments. Similar to the NPV, the IRR also presents a series of failures that

will be further explained. Since the IRR is the discount rate that transforms the NPV to a null value, the IRR calculation is similar to the Net Present Value's one. Thus, the IRR calculation is obtained by updating the provisional net cash flow in every period of the aforesaid discount rate (r).

$$\text{IRR} = -D + \frac{FNC1}{(1+r)} + \frac{FNC2}{(1+r)^2} + \frac{FNC3}{(1+r)^3} + \cdots + \frac{FNCn}{(1+r)^n}$$

, where D stands for the initial outlay, r is the Internal Rate of Return and FNC are the expected cash flows in every period.

The use of NPV and the IRR has different consideration taking into account that the IRR measures the project's profitability as a ratio. On the other hand, the NPV measures it by means of a monetary figure. According to a survey carried out by Graham and Harvey in 2001, they concluded that, in the case of the IRR, these managers tended to maximise it by means of the temporary cash flows' variation. By doing so, they could present projects' acceptance or refusal valuations that were not exact *(Graham, J.R and Harvey, C.R., 2001)*.

In turn, the above-mentioned survey's aim was to know the enterprise's tendency in the use of the CFOs on both the NPV and the IRR when analysing investment projects. The result was that the use of both NPV and IRR was majoritarian among the analysed enterprises. The aforesaid survey resolved that the 75% of the CFOs survey respondents used these two valuation methods when analysing to what extent an investment project was viable or not.

The Net Present Value presents a series of advantages since it is the most reliable decision-making criteria developed in a conceptual sense. Furthermore, the NPV uses updated cash flows, so it takes into account the money's value along the project.

As regards the Internal Rate of Return's advantages, they can be compared to the project's cost of capital. By doing so, the project's net profitability is obtained.

However, there are some objections as regards the use of both the NPV and the IRR. These aforesaid objections may not like the project's investors when finding its profitability. In the case of the NPV, it presents a series of problems enumerated as follows. The first problem we encounter is the difficulty of obtaining an appropriate value for the cost of capital. The second problem we find is that the NPV assumes that the flows obtained along the investment's project are reinvested to the same cost of capital, which tends not to be true *(Koller, T., Goedhart, M. and Wessels, D. (2005))*.

Regarding the IRR, it presents two different flaws. On the one hand, the first flaw the IRR has is the difficulty to calculate its own value because it entails a problem when obtaining its rate. On the other hand, the second flaw that the IRR presents is its mathematic incoherence since additional payments cannot be considered. Moreover, the project's provisional profitability tends to be overestimated in those cases where the reinvestment rate is lower than the IRR obtained along the project's evaluation. *(Koller, T., Goedhart, M. and Wessels, D. (2005))*.

2.1.2. Net Cash Flows.

The net cash flows are the net accumulation of liquid assets in a specific period of time. Therefore, these aforesaid assets constitute an important indicator of the enterprise's liquidity.

Its evaluation can be carried out either throughout static or dynamic models *(Suárez Suárez, Andrés S., 1980)*. Nevertheless, both models share the same starting point. Firstly, the investor places himself or herself in a secure ambiance, which is that he or she will know the amount of receipts and payments made. Secondly, the investments that the enterprise possesses at the beginning of the investment will be "independent".

The static model comprehends three different selection tools for the investment projects' evaluation. The first tool is the total net cash flow criteria per committed monetary figure. It consists on the total amount of the expected net flows divided into the aforesaid initial outlay. By doing so, what we get is the average net cash flow per committed monetary figure. The second tool is the annual average net cash flow criteria per committed monetary figure. In this case, it relates the annual average net cash flow with the annual investment's payment. The third and last tool is the pay-back which pretends to gather the appropriate amount of time so that the investment can be recovered.

However, both the static models and the above-mentioned tools entail a series of disadvantages that provoke their low use among investment analysts. Among the most noteworthy, this aforesaid model does not take into account the net cash flows' temporary attainment since it considers them heterogeneous quantities. Nevertheless, we can affirm that this last statement is not true since the more flows an enterprise obtains during the first years, the more money it will be able to reinvest. Furthermore, the recovery method does not take into account the cash flows' due date. Hence, this entails a problem due to the fact that those projects with a lower recovery period will have a higher preference than the rest.

On the other hand, dynamic models mainly comprehend two different analysis tools, the Net Present Value and the Internal Rate of Return. Since both of them have already been

explained, we are just going to focus on their advantages and inconvenients that make them different from the static model. In this method, a series of simplifications such as using the net cash flow's point estimate and single (normally, its mathematical expectation), reducing the risk of a single discount rate or fixing the investment's duration are assumed. For this reason, those methods developed in this method include some statistical applications used to provoke the net cash flow randomness over time.

Within any enterprise, the aforesaid methods' study could be used to determine any liquid assets. The main reason is that the fact that a project is intended to be profitable does not necessarily mean that its own enough liquid assets to be carried out. It could also be used to analyse any investment project's feasibility due to the fact that it is the basis when calculating the Net Present Value and the Internal Rate of Return. Furthermore, they are also a reliable indicators of any project's profitability or any business's expansion.

2.1.3. Cost of Capital and Introduction to Risk in Investment Projects.

The investment project's evaluation entails a series of variables that need to be applied properly when analysing it. Otherwise, the expected result would differ a lot from the real one. One of the most important and fundamental variable is the discount rate. This latter focuses on the enterprise's capacity to sponsor the operational costs.

The Weighted Average Cost of Capital (WACC) is the commonest tool to determine an enterprise's cost of capital. This method enables the enterprise to know the cost of those resources used for its financing and weighing. By doing so what the enterprise gets is the average cost. In order to calculate the average cost, the enterprise needs to take into account three assumptions: the amount of debts the enterprise may have with other enterprises, its own participation in privileged sources and, finally, its own resources. These figures are used to determine the degree of burden of the latter-mentioned assumptions. The W_D is used to determine the debt burden of the total. The W_P is used to resolve the preference shares burden of the total and, finally, the W_E is used to resolve the enterprise's own resources burden. Next, the formula used to calculate the Weighted Average Cost of Capital (WACC) is shown.

$$WACC = [W_D\ x\ R_D x\ (1 - tax\ rate)] + [W_P\ x\ R_P] + [W_E\ x\ R_E]$$

The relevant figure corresponding to the debt burden should be diminished by (1 – tax rate) since the debt should be known before taxing it to calculate the WACC. *(Wahlen, J.M., Baginski S. P., Bradshaw, M. (2010))*.

The WACC is used to know the enterprise's financing average cost. However, there exist other methods used to know the aforesaid enterprise's financing average cost to evaluate an investment project. By doing so, what the enterprise gets is the debt's incapacity to affect the new project's development.

The cost of capital – or discount rate – has to include a parameter that measures the investment's risk along its running period. Those models in charge of measuring the investment's risk demarcate it through two different components. On the one hand, there exists a specific component that exclusively measures the risk of a specific investment. On the other hand, there exists another component that measures all the investment projects' risk. Therefore, these two models in charge of measuring any investment project's risk can be defined as diversifiable and non-diversifiable respectively. The diversifiable risk can be erased through the enterprise investment portfolio's diversification. That is, the diversifiable risk can be reduced, or even eliminated, if the enterprise invests on projects of different natures. By doing so, the enterprise can distribute the risk among different projects of many different kinds. Nevertheless, the non-diversifiable risk cannot be either reduced or eliminated since it includes all those risky situations that cannot be controlled because they belong to the economics sector. The non-diversifiable risk can be measured but not controlled. Thus, it would entail higher profitability since the risk assumed is also higher (Damodaran, A (1999) Estimating Risk Parameters).

As a consequence, the most widely used model to measure an investment project's cost is the Capital Asset Pricing Model (CAPM). This model is used to evaluate financial assets. Moreover, it enables the enterprise to know the required profitability's percentage in a specific asset. At the same time, it also allows the enterprise to notice, in an intuitive way, an asset's risk separating them in two categories: systemic and non-systemic assets.

In turn, the use of CAPM implies the acceptance of a series of assumptions that are the absence of financial frictions, the sponsors' rationality or the lack of information's asymmetry, among others. This model also assumes the existence of a risk-free rate to which investors can in debt.

According to the CAPM, the expected profitability of a specific asset can be measured as the total amount of the risk-free asset and the market risk premium multiplied by the enterprise's beta.

$$R_{Ej} = R_F + \beta_j \, (R_M - R_F)$$

, where R_E is the expected return, R_F is the Risk-free rate of return, β_j is the Market Beta for the firm "j" and, R_M is the required return on market wide portfolio. The difference between R_M and R_F is known as "market risk premium".

Nevertheless, the CAPM presents a series of problems when applying it. One of the main problems that it presents is that a market beta does not exist for those enterprises that are not quoted. However, various studies emphasise that the use of an enterprise's beta can be taken into account to calculate the expected profitability. Nevertheless, it cannot always be applied due to the fact that neither the analysed enterprise nor none of the existing ones in the same sector may be quoted. An example of it, it is the enterprise analysed in this end-of-degree project.

There also exist a series of objections on the market risk premium due to its instability over time and, in this case, it is considered stable.

The discount rate can be established following different methods. However, it is the project's evaluator who has to establish it reasonably. It can be defined either as a cost's percentage or as an adjusted-risk rate that could the operation could contain.

3. Prama System.

As mentioned above, the sports centre Urban Sport Club aims to determine both the viability and profitability that the *Prama System* would have if they ever implement it on their facilities. The *Prama System* is a multifunctional training tool that aims at carrying out dynamic trainings composed by five different interactive areas in which users perform the different activities through specific routes planned by the personal trainer. Pavigym is the enterprise in charge of carrying out this system.

It consists on an expansion investment aimed at increasing the enterprise's potential within the market throughout the establishment of a series of innovative activities that allow the users to perform a different variant of the typical and routine cardiovascular works.

In order to understand the analysis' results, we are going to show the different steps made and the adopted estimations taken into account to establish a series of reasonable parameters. Some estimations do not need to be real-life oriented when developing a project. Nevertheless, all of these estimations are based on mathematical operations.

3.1. Initial outlay:

The *Prama System* cost is that of 60,000€. However, a 35,000€ reform needs to be done so that the enterprise can install it.

Moreover, the enterprise intends to expand the fitting-rooms area due to the fact that the *Prama System* instalment will raise the number of users. The estimated cost is 20,000€.

A part from its cost, other aspects – such as its amortisation and location – need to be taken into consideration. Firstly, the product's lifetime is estimated to be that of six years (October 2015 to October 2021). Nevertheless, the study will be carried out until the 31st of December 2020 coinciding with the end-of-lease premises that the enterprise has with the landlord. The property's residual value is null because it cannot be either sold or immobilised. Secondly, Urban Sport aims at renting the adjacent building in order to install the *Prama System*. This would entail an annual cost of 4,800€.

The instalment due date and the system launch are the following on the Annex 1, configured the necessary period of time for its installation as 3 months and, in that period of time, Pavigym's company will realize the activities to teach the trainers, marketing about the *Prama System*,… all of them if they have been hired.

If the investment's analysis viability is finally proven, the enterprise would hire the *Prama System* in July given that it is the month when many users rescind their subscriptions. By doing so, the enterprise would be able to inaugurate the new facilities in October, when users' subscriptions increase.

Next, the expected incomes and expenditures used to obtain the expected net cash flows will be shown.

3.2. Incomes:

Nowadays, the enterprise considers that the total amount of subscriber that the club can accommodate is that of 550. Thus, after the *Prama System* instalment, the enterprise expects a total amount of 650 people.

The conditions of use that *Prama System* establishes are the following:

- Only those users with general season ticket would be able to use these facilities:
  - S. General BRONZE 001.
  - S. General PLATINUM 002.
  - S. General SILVER 003.
  - S. General GOLD 004.
  - S. General Partner 005.
- The enterprise will facilitate a special pass for those who do not have a general season ticket (Called: S. Use of *Prama System*).

- The enterprise will maintain the general season ticket's price.
- The Master Trainers' formation is included in the *Prama System* price. That is that the enterprise will ask all the instructors to undergo an on-going formation in order to carry out the classes successfully.
- The exclusive use of *Prama System* during all the classes.
- Regarding the annual incomes, it has been estimated that:
- Subscribers' price: The season tickets' price has varied over the last years. However, the enterprise aims at maintaining the 2014 prices in 2015 as well. In upcoming years, the season tickets' price will be increased a 3% annually. In turn, the *Prama System* season ticket's price will be that of 32€ a month and it will be increased a 3% annually too.

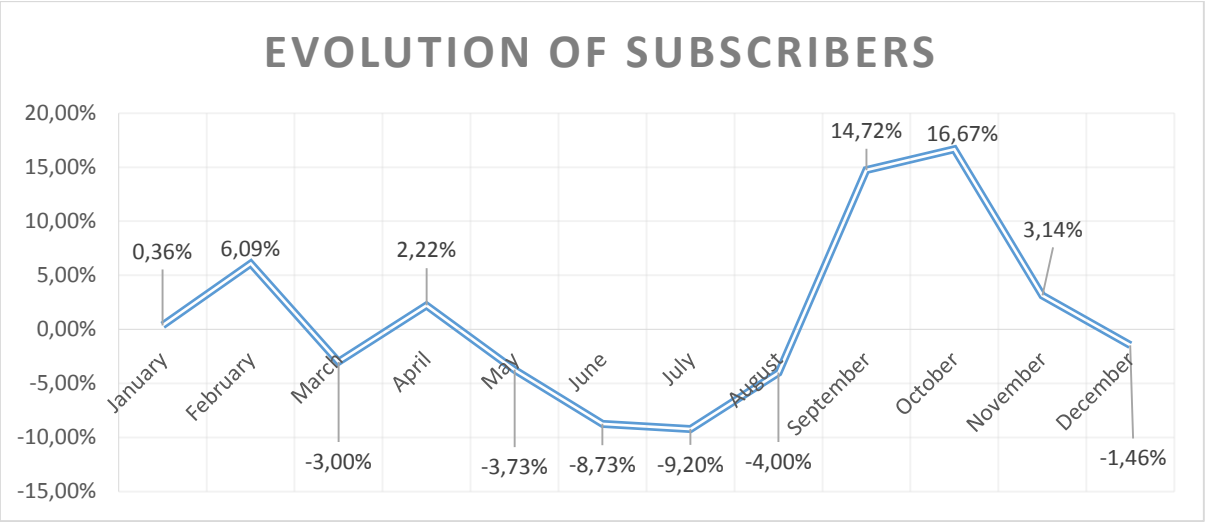
The different season tickets' prices are shown in the following grid:

Subscriber's Prices	2015	2016	2017	2018	2019	2020
S. General BRONZE 001	47,7 €	49,1 €	50,6 €	52,1 €	53,7 €	55,3 €
S. General PLATINUM 002	40,4 €	41,6 €	42,9 €	44,1 €	45,5 €	46,8 €
S. General SILVER 003	45,3 €	46,7 €	48,1 €	49,5 €	51,0 €	52,5 €
S. General GOLD 004	42,9 €	44,2 €	45,5 €	46,9 €	48,3 €	49,8 €
S. General Partner 005	40,5 €	41,8 €	43,0 €	44,3 €	45,6 €	47,0 €
S. USE of *Prama System*	32,0 €	33,0 €	33,9 €	35,0 €	36,0 €	37,1 €

- Estimated number of subscribers in the future: the enterprise aims at achieving, at least, 100 new subscribers per month. Nevertheless, it is almost impossible that the number of new subscribers equalises the number of those who unsubscribe. For this reason, the enterprise has estimated the number of new subscribers every month according to previous years data.

The estimation has been carried out according two main factors. On the one hand, the previous years data. On the other hand, the average percentage that each different kind of season ticket represents in the total amount of subscribers. By doing so what the enterprise gets to know is the subscribers' evolution over the months. Finally, it has been estimated that 93 new subscribers will enrol in the club after the *Prama System*'s installation. This amount of new subscribers is one of the key variables due to the fact that it provokes significant disparities in the analysis' results.

The different percentages that represent the registrations and deregistration's fluctuation are the following:



Once both the amount of subscribers' total variation and the season ticket's specific variation have been obtained, we can establish a reciprocity in order to estimate the total amount of new subscribers that *Prama System* will bring into the sports club and the different kinds of season tickets that the club will offer. The different calculations made to explain this last study are shown in the following grid:

Forecasted Subscribers	January	February	March	April	May	June	July
S. General BRONZE	14	17	15	15	14	12	9
S. General PLATINUM	38	36	33	33	30	28	20
S. General SILVER	8	8	10	12	12	10	7
S. General GOLD	6	7	8	7	8	8	6
S. General Partner	12	13	13	14	14	12	9
S. Use of *Prama System*	18	19	19	19	18	17	29
	95	101	98	100	96	88	80

Forecasted Subscribers	August	September	October	November	December
S. General BRONZE	7	9	19	21	22
S. General PLATINUM	13	22	27	27	25
S. General SILVER	5	8	8	7	7
S. General GOLD	5	9	8	9	9
S. General Partner	7	10	17	19	20
S. Use of *Prama System*	39	30	14	14	12
	88	93	96	95	96

Therefore, the sum product of the existing number of subscribers each estimated month by the estimated price for the analysed years, the annual figure that is estimated to be collected by the *Prama System* is obtained.

Income from Forecasted Subscribers	2015	2016	2017
S. General BRONZE	2.913,21 €	8.485,23 €	8.739,79 €
S. General PLATINUM	3.169,19 €	13.791,17 €	14.204,91 €
S. General SILVER	1.000,89 €	4.793,01 €	4.936,80 €
S. General GOLD	1.115,74 €	4.025,30 €	4.146,06 €
S. General Partner	2.249,67 €	6.631,10 €	6.830,03 €
S. Use of *Prama System*	1.291,13 €	8.143,63 €	8.387,94 €
Total	11.739,83 €	45.869,44 €	47.245,52 €

Income from Forecasted Subscribers	2018	2019	2020
S. General BRONZE	9.001,98 €	9.272,04 €	9.550,20 €
S. General PLATINUM	14.631,05 €	15.069,98 €	15.522,08 €
S. General SILVER	5.084,91 €	5.237,45 €	5.394,58 €
S. General GOLD	4.270,44 €	4.398,56 €	4.530,51 €
S. General Partner	7.034,93 €	7.245,98 €	7.463,36 €
S. Use of *Prama System*	8.639,57 €	8.898,76 €	9.165,72 €
Total	48.662,89 €	50.122,77 €	51.626,46 €

At the same time, the enterprise suggested to include two new swimming courses. However, since the participation in these swimming courses does not allow the users to use the *Prama System*, these courses are not taken into account in the analysis. Therefore, only the *Prama System* viability should be analysed to conclude whether it is profitable or not.

3.3. Expenses:

RENTAL:

As previously mentioned, the enterprise will rental an adjacent building next to the sports club. These two buildings belong to the same owner. She or he asks for 4,800€ annually.

SUPPLIES:

The enterprise has estimated that the total annual amount would be the following:

- Water: the enterprise foretells that they will spend 500€ on water in the establishment where *Prama System* is going to be installed.
- Power: a total annual amount of 3,600€ has been estimated for power supply.
- Gas: a total annual amount of 2,000€ has been estimated for gas supply.

STAFF:

The staff in charge of leading the classes have a fixed rate of 17,5€ per hour in which withholding taxes are already included.

Number and costs of annual classes in *Prama System*:

- Number of Classes:
  - Daily: 3.
  - Weakly: 15.
  - Monthly: 60.
  - Annual: 720.

- Cost of the Classes:
  - Time per class: 30 minutes.
  - Cost per monitor/hora: 17,50€.
  - Cost per monitor/class: 8,75€.
  - Cost:
    - Daily: 13,13€.
    - Weakly: 65,63€.
    - Monthly: 262,50€.
    - Annual: 3.150,00€.

Annual Expense *Prama System*	2015	2016	2017	2018	2019	2020
Number of classes per year	180	720	720	720	720	720
Annual Trainer's Expense	1.575,00 €	6.300,00 €	6.300,00 €	6.300,00 €	6.300,00 €	6.300,00 €

OTHER EXPENSES:

In this section, *Prama System* cleaning and maintenance is included. The total estimated cost is that of 2,000€.

AMORTIZATION:

The *Prama System* lifetime is estimated to be that of six years. Also, the enlargement of the locker room has the same useful life as *Prama System.*

Prama System Amortization	15.833,33
Cost	95.000,00
Useful Life	6 years

Locker's Room Amortization	3.333,33
Cost	20.000,00
Useful life	6 years

4. Net Cash Flows Measurement:

In this section, we will show the net cash flows achievements that will help us to determine whether the project is profitable or not. In this way, the net cash flows are

those resources generated because of the difference between the incoming and the outgoing cash flows.

Once the enterprise's incomes and expenses have been intended, the next step is the calculation of the net cash flows' estimations that will be obtained.

The following grid gathers these flows where the correspondent incomes and expenses and amortizations have been previously explained. At the same time, BI is the result of reducing the obtained amount with the withstood amortization's result. In turn, a 30% of the corporate tax is applied to the resulting amount. After having deducted it from the total operating result, the expected net cash flows in each period are obtained.

	2015	2016	2017	2018	2019	2020
S. General BRONZE	2.913,21[1]	8.485,23	8.739,79	9.001,98	9.272,04	9.550,20
S. General PLATINUM	3.169,19	13.791,17	14.204,91	14.631,05	15.069,98	15.522,08
S. General SILVER	1.000,89	4.793,01	4.936,80	5.084,91	5.237,45	5.394,58
S. General GOLD	1.115,74	4.025,30	4.146,06	4.270,44	4.398,56	4.530,51
S. General Partner	2.249,67	6.631,10	6.830,03	7.034,93	7.245,98	7.463,36
S. Use of *Prama System*	1.291,13	8.143,63	8.387,94	8.639,57	8.898,76	9.165,72
Total Income	11.739,83	45.869,44	47.245,52	48.662,89	50.122,77	51.626,46
Renting	1.600	4.800	4.896	4.994	5.094	5.196
Electricity Supply	900	3.600	3.672	3.745	3.820	3.897
Gas Supply	500	2.000	2.040	2.081	2.122	2.165
Water Supply	125	500	510	520	531	541
Prama System Trainers	1.575	6.300	6.426	6.555	6.686	6.819
Other Expenses	500	2.000	2.040	2.081	2.122	2.165
Total Expenses	5.200	19.200	19.584	19.976	20.375	20.783
Operating Income	6.539,83	26.669,44	27.661,52	28.687,21	29.747,58	30.843,76
Prama System Amortization	3.958,33	15.833,33	15.833,33	15.833,33	15.833,33	15.833,33
Locker's Room Amortization	833,33	3.333,33	3.333,33	3.333,33	3.333,33	3.333,33
Taxable	1.748,16	7.502,77	8.494,86	9.520,54	10.580,91	11.677,09
Taxes	524,45	2.250,83	2.548,46	2.856,16	3.174,27	3.503,13
Initial outlay (-115.000€)						
Net Free Cash Flows	6.015,38	24.418,61	25.113,07	25.831,05	26.573,31	27.340,63

After the net cash flows' estimation, the appropriate evaluation of the project's profitability can be carried out.

[1] Numbers are expressed in €.

4.1. The Project's Cost of Capital Measurement.

As previously explained, the cost of capital establishes the enterprise's monetary resources financial cost. The cost of capital's concretion aims at its own establishment by the resolution of two key issues. The first one is the liquidity preferences' cost and, the second one is associated with the risk posed by the investment realisation. The liquidity preference's cost is defined as the invested-money unavailability; however, this money can be made more profitable if invested in other investments. The associated risk is determined by the systematic risk that cannot be controlled at the time of investment.

Different sections corresponding to the varied criteria used to determine de cost of capital will be developed in the following sections.

4.1.1. The Use of the Weighted Average Cost of Capital..

The mathematic formula used to determine Urban Sport Club's cost of capital project will be shown next.

On the one hand, the WACC has been calculated to establish a reference point that enables the enterprise to obtain a project's reasonable cost of capital. To calculate it, the Urban Sport Club data has been used. The formula is as follows

$$WACC = [W_D \; x \; R_D x \; (1 - tax \; rate)] + \; [W_P \; x \; R_P] + \; [W_E \; x \; R_E]$$

, where W_D stands for the 92,92% of the total amount of resources, W_E is the 7,71% and W_P is 0 since the enterprise does not own privileged shares.

In turn, the debt cost (R_D) is equal to the total debt's paid interests, whose percentage was equal to 15,10% in 2012. For its part, the own resources' cost (R_E) is equal to 0% since the enterprise does not reward its subscribers.

Therefore, the Weighted Average Cost of Capital is equal to

$$CMPC = [92.29\% * 15.10\% * (1 - 30\%)] + [7.71\% * 0\%] = 9.76\%$$

In the case study, varied costs of capital have been assumed to calculate the investment's profitability. On the one hand, a 9% and a 11% discount rates have been determined. The reason why is that, in the first case, the enterprise's financial cost has been that of the 9% in previous years. In the second case, it is assumed that the financial cost would be higher since the investment's initial outlay is really high.

On the other hand, the operation's risk has been introduced throughout a market risk premium that, being summed to the discount rate, an adjusted risk rate is obtained.

	Cost of Capital	NPV	IRR	NET Profitability
CMPC	11%	-23.996,50 €	4,29%	-6,71%
CMPC	9%	-17.664,24 €	4,29%	-4,71%
Adjusted Risk Tax	12%	-26.941,66 €	4,29%	-7,71%
Adjusted Risk Tax	10%	-20.907,03 €	4,29%	-5,71%

Even that the Capital Asset Pricing Model (CAPM) cannot be applied to the Urban Sports Club, the process to determine the CAPM will be explained. That is why the discount rate would be that of the 11% since it is the most reasonable one.

4.1.2. The Use of the Capital Asset Pricing Model (CAPM).

The Capital Asset Pricing Model presents a series of problems that do not allow to obtain any result. The CAPM formula is the following,

$$R_E = R_F + \beta_j\,(R_M - R_F).$$

This formula allows to know the expected return of an asset; however, any result cannot be found by using this method when the enterprise is not listed on a stock exchange or belongs to an unlisted sector. In our case, the Urban Sport Club is an unlisted enterprise like other enterprises in the sports sector. Therefore, it is not possible to obtain a market Beta that allows the difference's increment caused by the risk premium. The lack of a market Beta causes that the CAPM is equal to risk-free asset's profitability, an assertion that is entirely unambiguous.

The formula that contains our data is the one that follows.

$$E(R_E) = 0.19\% + \beta\,(5\%)$$

, where the risk-free rate asset corresponds to the Spanish treasury bills' profitability during one year (0,19%). And, the market risk premium is the difference between the expected profitability less the risk-free asset's profitability that has just been described.

The market risk premium has been calculated based on a survey conducted in 2011. This survey showed a analysts, teachers and administrators' tendency to use different market premiums and even the aforesaid's non-use. In times of economic crisis, the market risk premium is set to 5% since the liquidity is preferred and the finance's cost increases. Everything together causes the cost of capital's increment. Nevertheless, the risk premium is not considered that important due to the Beta's absence *(Fernández P., Aguirreamalloa J., Corres L. (2011))*.

4.1.2.1. An Asset's Beta Development.

An asset's beta measures the reciprocity between the currently valued investments and the investment projects' profitability that are being developed.

The beta is classified according to three different values. Firstly, when beta is equal to 1, it tends to express that the investment's profitability variability is equal to the benchmarking index variability. That is, the enterprise will receive the expansive and restrictive periods with the same market's intensity.

In turn, the beta can be positioned in both higher and lower figures than 1. In the first case (b>1), the enterprise will receive a minor impact within an economic crisis context. On the contrary, the enterprise will be able to increase its benefits at the same time as the economy will do. In the second case (b<1), the enterprise will have more difficulties within an economic crisis context; however, it will experience an evident growth during the expansive periods.

In the previously explained CAPM, the beta is calculated by the established regression between the historical data of the enterprise's share price in comparison to the benchmark market. In the Urban Sport Club's assumption, the market beta cannot be calculated. Urban Sport Club is an unlisted enterprise, so we do not have any historical data of its shares. However, there are some theories that state that, in the case of analysing an unlisted enterprise, the beta can be adjusted through the beta of a similar listed enterprise in the same industry. In this case, the sports centre field is a sector in which none of the enterprises are listed *(Wahlen, J. M., Baginski S. P., Bradshaw, M. (2010))*.

Brealey, Myers and Allen expound that, for those cases in which the enterprise does not have a beta, the investment's project operating leverage throughout an asset's beta, being understood as the existing proportion between its fixed and variable costs *(Healy P.M. & K. G. Palepu (2007))*.

The calculation of an asset's beta can be derived from the net cash flows' calculation. The formula to obtain these flows is the following:

$$Net\ Free\ Cash\ Flows = Income - Fixed\ Expenses - Variable\ Expenses$$

, where the incomes and the variable costs depend on the enterprise's production level. However, fixed costs correspond to cash outflows that do not take into account whether the analysed asset generates wealth or not. Fixed costs can be associated with project's debt holders since, on the one hand, they will receive a fixed remuneration On the other

hand, those who will receive production's cash can be identified as the common stock holders, which is the surplus capital having made the fixed costs' payments.

Therefore, an asset's beta is obtained after updating the previous formula,

$$PV\ (asset) = PV(incomes) - VP\ (Fixed\ Expenses) - VP\ (Variable\ Expenses)$$

, where, if we solve the incomes' present value

$$VP\ (incomes) = VP(asset) + VP\ (fixed\ cost) + VP\ (variable\ cost)$$

Once the incomes are known, an asset's beta can be developed throughout the incomes and expenses' betas. Therefore, the present value's beta of the incomes is defined as the weighted average of the fixed and variable's costs betas.

$$\beta_{incomes} = \beta_{fixed\ expenses}\frac{PV(fixed\ expenses)}{PV(incomes)} + \beta_{variable\ expenses}\frac{PV(variable\ expenses)}{PV(incomes)} + \beta_{asset}\frac{PV(asset)}{PV(incomes)}$$

, in this case, the fixed costs' beta gets close to zero since the active debt's holder will obtain a fixed cash payment. For its part, the variable costs and incomes' betas will have a similar value since their achievement depends on the same variable, the production.

So, if we establish that βfixed expenses = 0 and βincomes = βvariable cost, an asset's beta is summarised in the following expression.

$$\beta_{asset} = \beta_{incomes}\left(1 + \frac{PV(variable\ expenses)}{PV(income)}\right)$$

4.1.2.2. Obtención de la Prima de riesgo del mercado.

The market risk premium is used to determine the CAPM. It is calculated by the difference between an asset's expected return and the risk-free rate asset.

$$Market\ Risk\ Premium = Required\ Return - Risk\ Free\ Premium$$

As shown above, the risk premium is multiplied by the enterprise's beta. By doing so, one of the main components of the CAPM is obtained. In the developed case study, the market risk premium is 5%. This percentage is derived from the difference between the market expected return and the risk-free asset's profitability.

5. The Investment Analysis' Results:

After having finished the investment analysis, the final conclusion we can draw is that if the enterprise finally decides to undertake the project, it will obtain a negative value of 23,996.50€. Nevertheless, the project's profitability will be positive standing at 4.29%.

As explained above, the analysis of the project's viability has been carried out taking into account that the enterprise will be financed with an 11% of the cost of capital. In turn, we can calculate the net project's profitability if we deduct the cost of capital from the Internal Rate of Return's value. Therefore, the results obtained regarding the *Prama System* implementation are as follows:

Cost of Capital	11%
NPV	- 23.996,50 €
IRR	4,29%
Net Profitability	-6,71%

5.1. Sensitivity Analysis on the Project's Fundamental Variables.

One of the most important sections in investments' analysis is the sensitivity analysis. It allows us to know to what extent the project's variables affect the investment's present value. By means of the Ceteris Paribus, we get to know the minimum quantities that the enterprise should obtain in order to obtain a Net Present Value equal to 0. Since our project deduces that the enterprise would obtain a negative NPV, we can estimate the minimum number of incomes, customers and the minimum net cash flows, among others.

Firstly, the sensitivity analysis carried out on the net cash flows shows that the enterprise would obtain a NPV equal to 0 in the following values.

FNC Forecasted Value	Minimum FNC
6.015,38 €	6.533,01 €
24.418,61 €	32.103,10 €
25.113,07 €	32.435,40 €
25.831,05 €	32.810,33 €
26.573,31 €	33.227,50 €
27.340,63 €	33.686,61 €

Secondly, the minimum enterprise's incomes per year in order to obtain a NPV that could help the project's acceptance are the following:

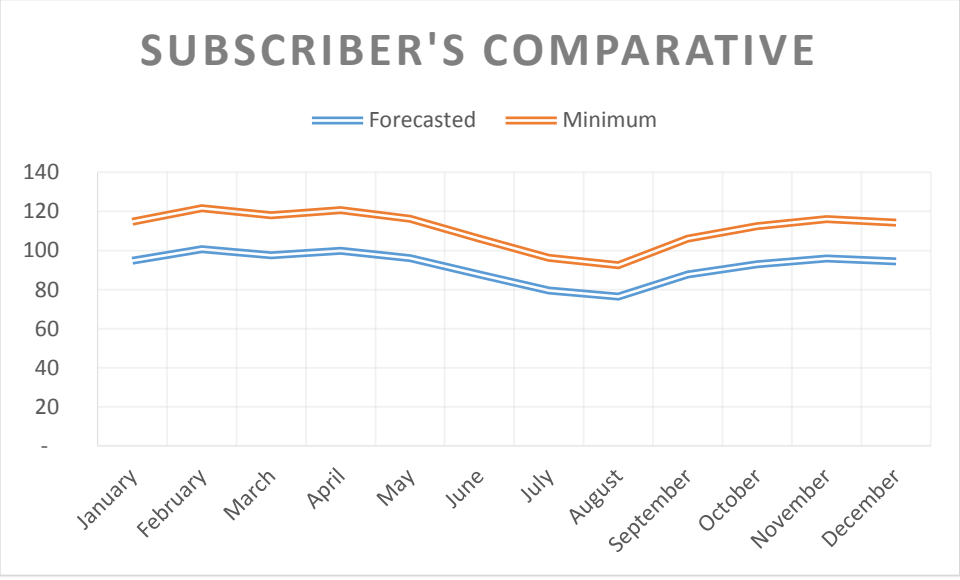
Income forecasted Value	Minimum Income
11.739,83 €	12.533,14 €
45.869,44 €	56.779,97 €
47.245,52 €	57.673,44 €
48.662,89 €	58.629,53 €
50.122,77 €	59.648,55 €
51.626,46 €	60.730,87 €

Thirdly, the sensitivity analysis has been focused on the minimum number of subscribers. The data that has been obtained offers significant variations depending on the month:

Month	Value	Minimum Value
January	95	115
February	101	122
March	98	118
April	100	121
May	96	116
June	88	106
July	80	96
August	76	92
September	88	106
October	93	112
November	96	116
December	95	114

As it can be observed, the enterprise would have to achieve a higher number of subscribers each month. However, the line between whether to carry out the project or not is just that of 20 subscribers per month. Nevertheless, due to the fact that the *Prama System* would bring more subscribers, the so-called “minimum” figures would not allow the project’s implementation because the Urban Sport Club would have more subscribers than permitted.

In the following grid, the number of subscribers’ variation is summarised.



Fourthly, a sensitivity analysis on the season ticket's price rate has been conducted. As it has been mentioned along the project, the enterprise's intention is to maintain the 2015 prices constant. Therefore, the analysis has focused on the period between 2016 and 2020. Firstly, an annual growth of a 3% was set. However, in order the project to have a positive profitability, the aforesaid growth should be equal to the following figures:

Name	Forecasted Increase	Minimum Increase
Price Increase 2016-2020	3,00%	8,15%

Thus, the sensitivity analysis allows to find the minimum figures that need to be achieved in order the project's NPV equals 0 throughout the study of different variables as long as the rest figures remain the same.

5.2. The Investment Project's Scenario analysis.

The scenario analysis allows to carry out an investment risk's analysis in an implicit way. In order to use this tool, two different scenarios including the incomes' variations are created. By doing so, the enterprise minimizes the enterprise's risk if it does not achieve the expected figures.

Different to *Ceteris Paribus*, in this type of analysis, the initial outlay, the net cash flows and the cost of capital are reconsidered jointly *(Aragó, V., Cabedo, J.D, Matallín, J.C., Salvador, E. (2013))*. By using this tool, the risk is introduced throughout the different scenarios that reflect possible situations that can take place in economy or in the enterprise itself.

As mentioned above, two scenarios – the optimistic and the pessimistic – are considered. The same variation rates are used in both scenarios. Nevertheless, whereas, in the first one, the variation rates will lead to the incomes' increase, in the second one, they will lead to the incomes' decrease. The established growth and die-off rates are that of a 1% in 2016, 2% in 2017 and 2018 and, finally, 3% in 2019 and 2020.

Next, the summary of the data obtained will be shown:

On the one hand, the net cash flows obtained when introducing the risk by the scenarios analysis are the following:

	Initial outlay	NFC 2015	NFC 2016	NFC 2017	NFC 2018	NFC 2019	NFC 2020
Pessimist	-115.000 €	5.970 €	24.045 €	24.532 €	25.229 €	25.949 €	26.693 €
Probable	-115.000 €	6.015 €	24.419 €	25.113 €	25.831 €	26.573 €	27.341 €
Optimist	-115.000 €	6.061 €	24.792 €	25.694 €	26.433 €	27.198 €	27.988 €

After suggesting different scenarios, an alternative to the net cash flows' possible variations, in the following years, is formulated. The different scenarios' study allows the enterprise to know the possible results that would be obtained if the variable figures would either increase or decrease.

Therefore, in the case of experiencing the aforesaid variations, the enterprise will obtain the following results:

	NPV	IRR
Pessimist	-25.879 €	3,71%
Probable	-23.997 €	4,29%
Optimist	-22.114 €	4,86%

As it can be proved, the provisional results keep on being negative since the project cannot generate enough incomes.

5.3. The Study of the Net Present Value's Behavior in Probability.

The study of the Net Present Value's behavior in probability is another used tool to introduce the risk in investment projects' analysis. Considering that the NPV follows a common distribution, this model is supported by the Central Limit Theorem.

For its development, occurrence rates annexed to provisional cash flows are established. These cash flows simulate three scenarios in which the cash flows are the ones which measure the project's variables for further uncertainty.

Probabilities	Initial outlay	2015	2016	2017
30%	- 115.000,00	7.000,00	28.000,00	29.500,00
50%	- 115.000,00	6.015,38	24.418,61	25.113,07
20%	- 115.000,00	4.000,00	22.000,00	23.500,00

Probabilities	2018	2019	2020
30%	30.000,00	31.000,00	32.000,00
50%	25.831,05	26.573,31	27.340,63
20%	24.000,00	25.000,00	26.000,00

Once the percentage of occurrence and the net cash flows are established, the expected net cash flows are calculated. Its calculation is carried out by the sum product of the net cash flows established by their percentage of occurrence. Once the expected cash flows are obtained, this net cash flows' variance and its diversions are calculated.

The formulation and the provisional analysis results of the *Prama System* are the following:

$$E(Qi) = \sum (Qij * \%probability)$$

	Initial outlay	2015	2016	2017	2018	2019	2020
E(Qi)	- 115.000,00	5.907,69	25.009,30	26.106,53	26.715,52	27.586,65	28.470,32

$$VAR(Qi) = \sum (Qij - E(Qi))^2 * \%probability$$

	Initial outlay	2015	2016	2017	2018	2019	2020
VAR(Qi)	-	1.091.597,1	4.668.922,3	5.306.977,3	5.102.300,2	5.346.871,7	5.596.186,0

$$\sigma(Qi) = \sqrt{VAR(Qi)}$$

	Initial outlay	2015	2016	2017	2018	2019	2020
σ (Qi)	-	1.044,8	2.160,8	2.303,7	2.258,8	2.312,3	2.365,6

After having found the net cash flows' expectations, variance and typical diversion, the NPV and the IRR's expectation, variance and diversion need to be calculated. The formula is the following:

$$E(NPV) = E(-D) + \sum_{j=1}^{n} \frac{E(Qj)}{(1+k)^j}$$

E(NPV)	- 21.099,70

The NPV's expectation consists on maximizing the mathematical expectation to obtain the greatest possible benefit value.

$$E(IRR) = r => 0 = E(-D) + \sum_{j=1}^{n} \frac{E(Qj)}{(1+k)^j}$$

E(IRR)	5,17%

$$VAR(NPV) = \sum_{j=0}^{n} \frac{\sigma^2(Qj)}{(1+k)^{2j}} + 2 \sum_{p<h}^{n} \frac{\sigma(Qp, Qh)}{(1+k)^p + (1+k)^h}$$

In order to calculate the Net Present Value's variance, a series of hypotheses need to be assumed. The above expression implies the search of all existing covariances between all net cash flows' combinations. Therefore, the expression's simplification is summarized in three cases: the assumption that the net cash flows are independent of each other, that the net cash flows are perfectly and positively correlated or, finally, that a portion of the net cash flows is perfectly and positively correlated while another one is completely independent.

In the present case, we assume that the net cash flows are independent among them since the existing covariances calculation's difficulty among the different net cash flows does not allow us to assume any other assumption. The mathematical expression consists on the first component's amount since the second component is equal to 0.

$$VAR(NPV) = \sum_{j=0}^{n} \frac{\sigma^2(Qj)}{(1+k)^{2j}}$$

VAR(NPV)	12.495.582,15

$$\sigma(NPV) = \sqrt{VAR(NPV)}$$

Deviation (NPV)	3.534,91

Finally, the purpose of studying the Net Present Value's behavior probability is to obtain different percentages that reveal the probability that the investment project's NPV is lower, higher or equal to a certain monetary amount. Given that the NPV obtained is less than zero, the probability study has been conduction on negative amounts.

The mathematical expression to calculate the a value's probability is expressed as follows,

$$P\ (NPV < \lambda) = P\left(\frac{NPV - E(NPV)}{\sigma(NPV)} < \frac{\lambda - E(NPV)}{\sigma(NPV)}\right)$$

Probabilities must be reached above amounts that allows to show the actual uncertainty from the consecution of a specific benefits. Furthermore, established amounts as object to analysis have been, on the one hand, that the Net Present Value will be equal or minor to 0, despite of the result obtained from the NPV formula is negative, it is important to know if there are any possibility that the company may reach a positive Net Present Value. By other hand, it had been realized a study to know the probability that if the value

of the NPV could be higher or lower than determined amounts as -15.000€, 20.000€ and -30.000€. It is necessary due to the Net Present Value obtained in the previous parts of this project, and the expected NPV is around that amount. Also, probability that NPV is between 0€ and -20.000€ has been also calculated.

- NPV < 0 -> P (NPV < 0) = $P\left(\frac{\text{NPV}-E(\text{NPV})}{\sigma(\text{NPV})} < \frac{0-E(\text{NPV})}{\sigma(\text{NPV})}\right)$ = 5.969; Probability 100%. [2]

- NPV < -15.000 -> P (NPV < -15.000) = $P\left(\frac{\text{NPV}-E(\text{NPV})}{\sigma(\text{NPV})} < \frac{-15.000-E(\text{NPV})}{\sigma(\text{NPV})}\right)$ = 1,726; Probability 96%.[3]

- NPV < -20.000 -> P (NPV < -20.000) = $P\left(\frac{\text{NPV}-E(\text{NPV})}{\sigma(\text{NPV})} < \frac{-20.000-E(\text{NPV})}{\sigma(\text{NPV})}\right)$ = 0,311; Probability 62%.[4]

- NPV < -30.000 -> P (NPV < -30.000) = $P\left(\frac{\text{NPV}-E(\text{NPV})}{\sigma(\text{NPV})} < \frac{-30.000-E(\text{NPV})}{\sigma(\text{NPV})}\right)$ = -2,518; Probability 1%.[5]

- 0 > NPV > -20.000 -> P (-20.000< NPV <0) = $\left[1 - \left(\frac{\text{NPV}-E(\text{NPV})}{\sigma(\text{NPV})} < \frac{-20.000-E(\text{NPV})}{\sigma(\text{NPV})}\right)\right] -$ $- \left[1 - P\left(\frac{VAN-E(VAN)}{\sigma(VAN)} < \frac{0-E(VAN)}{\sigma(VAN)}\right)\right]$. Probabilidad 38%.

6. The Investment Project's Financial Planning.

Conducting the financial planning of an investment project arises from the necessity to know the estimated liquidity that the project will generate. There may be many cases in which positive results, after the investment analysis, encourage the realisation of it. However, the study of financial planning shows that the project will have liquidity deficiencies that will not allow the enterprise to carry it out without taking some palliative measures.

Therefore, the liquidity's study of an investment project is carried out to determine whether the project will generate the resources needed to be carried out in each of the periods *(Brealey, Myers and Allen (2006))*. Thus, the main objective of financial planning is to determine whether the enterprise can raise that amount of funds throughout the resources generated by the investment project in order the project to be carried out.

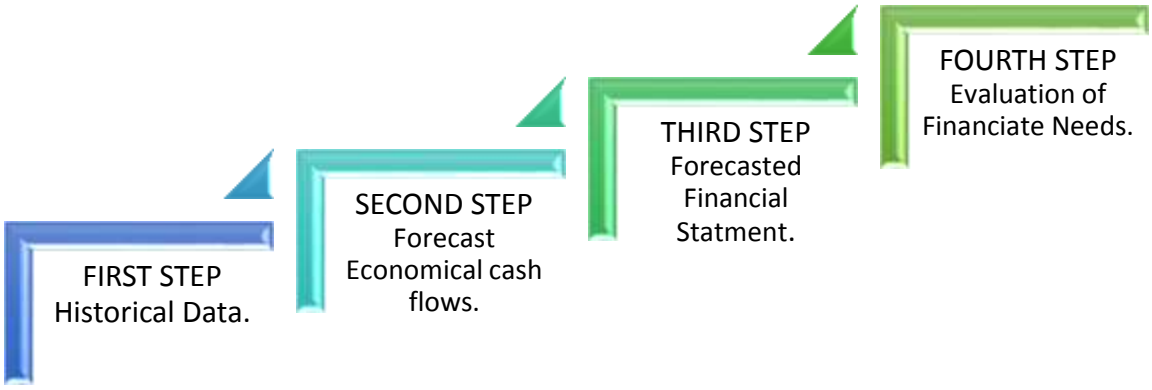
2 Graph Bell Curve 2.
3 Graph Bell Curve 3.
4 Graph Bell Curve 4.
5 Graph Bell Curve 5.

Financial planning should be approached from two different perspectives – the long and the short term. On the one hand, the long-term planning primarily aims to collect all the inputs and outputs resources that the project will generate in the capital budget. On the other hand, short-term planning provides a series of advantages in respect to the long-term planning. Firstly, the information available to the enterprise to carry out the study will be more concrete since the short-term planning assumes a smaller and more concrete space in its production. Secondly, the temporary concision generates a greater detail on those fundamentals variables that are analysed when obtaining the results of the investment project's generation of liquidity *(Aragó, V., Cabedo, J.D., Matallín, J. C., Salvador, E. (2013))*.

However, when carrying out the investment project study for Urban Sport Club, we only focus on the long-term financial planning since it expresses the same results that are obtained on the liquidity of a particular investment but in a more concisely way.

In order to carry it out, the capital budget is broken down in the long-term investment's plan where all the enterprise's investments are collected and in the financial planning where all the enterprise's resources are included.

To sum up, the steps that must be followed are showed in the next scheme.



6.1. Propositions for the Capital Budgeting:

As developed above, the investment project's viability analysis is not profitable. However, next the financial planning's study will be carried out. When a project's viability is negative, the financial planning is never done since the project will never be carried out. In contrast, in this example presented, the project's viability depends on its number of subscribers since if the enterprise had more space, the number of subscribers would be higher. Therefore, a financial study has been carried out to show that the project would generate enough liquidity to be carried out.

In order the capital budget can be carried out two different proposals have been adopted. Whereas the first one consists on hiring a French loan, the second one focuses on the capital increase's realization. Once these proposals are studied, the one that suits the best to the enterprise will be chosen.

Prior considerations to the different capital budget's development are, on the one hand, that, in both cases, the capital fund will 115,000€ since it is equal to the initial outlay. On the other hand, the interest rate that the bank will lend to the enterprise would be that of an 8%. By the capital increase, the subscribers will demand a greater share of profits which will increase from a current 10% to 75%. Finally, the enterprise will generate a self-financing amount that will be used as to pay the costs. Self-financing is determined by the sum of the reserves and the amortization to which the enterprise will be exposed to after implementing the *Prama System* and prior to the local's reform.

However, before going into detail on the funding proposals mentioned above, a study on the project capital's generation will be carried out to know to what extent the enterprise will have liquidity shortages.

6.2. The Capital Budget without External Financing.

In order to obtain the capital structure, the income previously generated by the *Prama System* over the years should be developed.

The following grid shows the annual result of gains and losses that the enterprise would get if the enterprise would not ask for additional funding from either external or internal sources. The incomes and the expenses that the enterprise will develop and the corresponding elements' amortization are collected in the grid below. All of these should reduce the amount of incomes whose volume will decline up to the amount collected on the gross benefits (EBT). To that amount, it will be reduced by the corresponding costs to the corporate tax that, for the Urban Sport Club, is that of a 30% since it corresponds to the general type.

	Gains & Losses			
	Initial outlay	2015	2016	2017
Incomes		11.740 €	45.869 €	47.246 €
Expenses		5.200,00	19.200,00	19.584,00
Prama System Amortization		3.958,33 €	15.833,33 €	15.833,33 €
Lookers Amortization		833,33 €	3.333,33 €	3.333,33 €
EBT		1.748,16	7.502,77	8.494,86
Taxes 30%		524,45	2.250,83	2.548,46
EAT	-115.000,00	1.223,71	5.251,94	5.946,40

	Gains & Losses		
	2018	2019	2020
Incomes	48.663 €	50.123 €	51.626 €
Expenses	19.975,68	20.375,19	20.782,70
Prama System Amortization	15.833,33 €	15.833,33 €	15.833,33 €
Lookers Amortization	3.333,33 €	3.333,33 €	3.333,33 €
EBT	9.520,54	10.580,91	11.677,09
Taxes 30%	2.856,16	3.174,27	3.503,13
EAT	6.664,38	7.406,64	8.173,97

Once the net benefits that the enterprise would have if it implements the *Prama System* are obtained, the self-financing that the enterprise would obtain by its development can be calculated.

Previously, in order to know the self-financing that the enterprise will have the dividend policy must be determined. The dividend policy is more focused on the possible project's self-financing than on the owners' compensation. Since the project's amount is quite high, the dividend policy will be equal to a 10% sharing of benefits.

Therefore, the self-financing will be obtained through the collection of the 90% of the annual net income; and, in turn, the corresponding amount to the amortized amount in each period. There amounts are expressed in the following grid.

	Initial outlay	2015	2016	2017
EAT	-115.000,00 €	1.223,71 €	5.251,94 €	5.946,40 €
Dividends 10%		122,37 €	525,19 €	594,64 €
Reserves 90%		1.101,34 €	4.726,75 €	5.351,76 €
Amortization		4.791,67 €	19.166,67 €	19.166,67 €
Self-financing	-115.000,00 €	5.893,01 €	23.893,41 €	24.518,43 €

EAT	2018	2019	2020
Dividends 10%	666,44 €	740,66 €	817,40 €
Reserves 90%	5.997,94 €	6.665,98 €	7.356,57 €
Amortization	19.166,67 €	19.166,67 €	19.166,67 €
Self-financing	25.164,61 €	25.832,64 €	26.523,24 €

Finally, once the self-financing that the enterprise would develop over the investment period is calculated, the capital budget can be defined. As previously developed, the capital budget consists of two parts. The first one is the investment budget, where all the items related to the enterprise's investments over the period analysed are gathered. The

second one is the budget funding, where both the external and the internal financings are collected. In this case, the enterprise will not obtain any type of financial help, so the only resources that it will generate are the ones corresponding to the self-financing.

	Capital Budged without External Financing			
	Initial outlay	2015	2016	2017
Investment Budget	115.000,00 €	- €	- €	- €
Investments	115.000,00 €	- €	- €	- €
Net Needs from Working Capital	- €	- €	- €	- €
Financial Amortizations	- €	- €	- €	- €
Others	- €	- €	- €	- €

Financing Budget	- €	5.893,01 €	23.893,41 €	24.518,43 €
Self-financing	- €	5.893,01 €	23.893,41 €	24.518,43 €
External Financing	- €	- €	- €	- €
Divestments	- €	- €	- €	- €
Others	- €	- €	- €	- €

	Capital Budged without External Financing		
	2018	2019	2020
Investment Budget	- €	- €	- €
Investments	- €	- €	- €
Net Needs from Working Capital	- €	- €	- €
Financial Amortizations	- €	- €	- €
Others	- €	- €	- €

Financing Budget	25.164,61 €	25.832,64 €	26.523,24 €
Self-financing	25.164,61 €	25.832,64 €	26.523,24 €
External Financing	- €	- €	- €
Divestments	- €	- €	- €
Others	- €	- €	- €

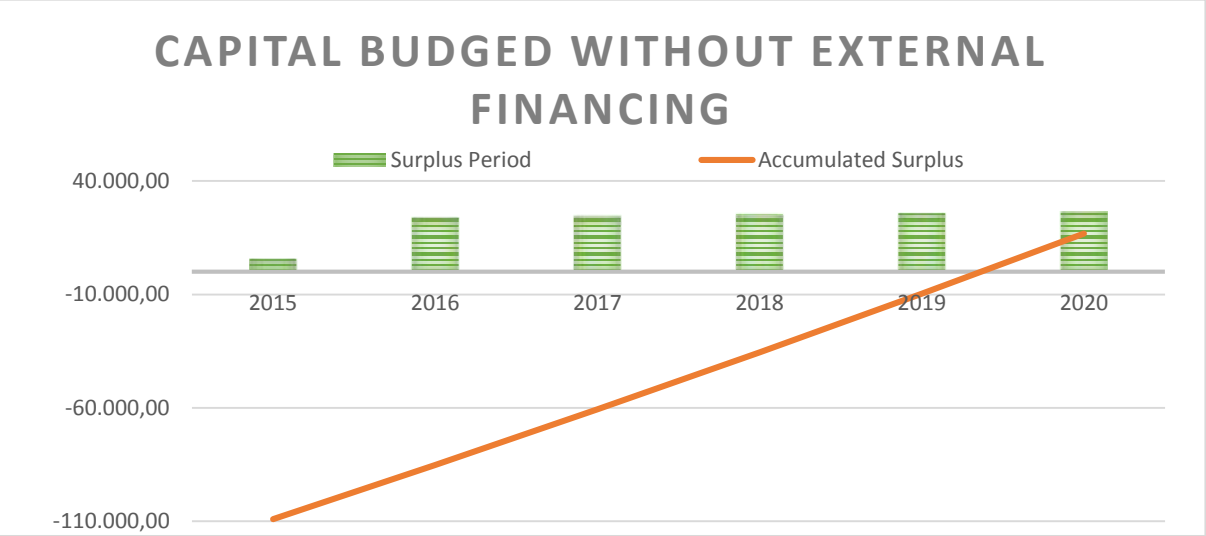
Once both budgets are obtained, the period and the accumulated surplus by the difference between them can be calculated to see whether the enterprise will have enough liquidity or it will have to ask for external financing.

Therefore, the surplus in the case of not asking for external financing will be the following:

	Initial outlay	2015	2016	2017
Surplus Period	-115.000,00	5.893,01	23.893,41	24.518,43
Accumulated Surplus	-115.000,00	-109.106,99	-85.213,58	-60.695,15

	2018	2019	2020
Surplus Period	25.164,61	25.832,64	26.523,24
Accumulated Surplus	-35.530,55	-9.697,90	16.825,33

In this case, since the enterprise does not ask for external financing, the enterprise will not be able to cover the initial investment until 2020. However, in each of the periods, the enterprise would obtain surpluses arising from the generation of the project's self-financing.



6.3. Capital Budged financed with a French Loan

Following the idea of carrying out the investment project without external financing to cover the initial outlay, the supposed capital budget that the enterprise would get if it hired a French loan will be calculated.

Prior considerations to its implementation are:

- Nominal: € 115,000.
- Loan Duration: 5 years and 3 months.
- Quarterly Loan duration: 21 quarters.
- Type Annual interest rate: 5.32% (ICO).
- Type quarterly interest: 3%.

After obtaining characteristics corresponding to the loan, the amount to which the enterprise will have to face over its lifetime are:

Year	Interests	Amortizable Share
2015	1.529,50	4.783,10
2016	5.473,33	19.777,05
2017	4.400,01	20.850,37
2018	3.268,45	21.981,94
2019	2.075,47	23.174,91
2020	817,75	24.432,63

The main difference when comparing the capital budget and the with the one above is that the interests to which the enterprise will have to face after hiring the loan will appear in the gains and losses account. In relation to the capital budget, the initial outlay (115,000) will be covered by the loan and, in this case, the enterprise will have to face the starting financial depreciation which corresponds to the repurchased shares that should be satisfied.

On the one hand, the income and losses that the enterprise would get if it buys a French loan to finance the investment project would be:

	Gains & Losses			
	Initial outlay	2015	2016	2017
Incomes		11.740 €	45.869 €	47.246 €
Expenses		5.200,00	19.200,00	19.584,00
Prama System Amortization		3.958,33	15.833,33	15.833,33
Lookers Amortization		833,33	3.333,33	3.333,33
EBIT		1.748,16	7.502,77	8.494,86
Loan Interests		1.529,50	5.473,33	4.400,01
EBT		218,66	2.029,44	4.094,84
Taxes 30%		65,60	608,83	1.228,45
EAT	-115.000,00	153,06	1.420,61	2.866,39

	Gains & Losses		
	2018	2019	2020
Incomes	48.663 €	50.123 €	51.626 €
Expenses	19.975,68	20.375,19	20.782,70
Prama System Amortization	15.833,33	15.833,33	15.833,33
Lookers Amortization	3.333,33	3.333,33	3.333,33
EBIT	9.520,54	10.580,91	11.677,09
Loan Interests	3.268,45	2.075,47	817,75
EBT	6.252,09	8.505,44	10.859,34
Taxes 30%	1.875,63	2.551,63	3.257,80
EAT	4.376,46	5.953,81	7.601,54

As it can be shown, in the first two periods after the project's start, the enterprise would obtain a negative result. In this case, it could not be distributed through dividends or be used as reserves to self-finance the project. However, in subsequent years, positive results exist and, they will be distributed or reserved for that purpose.

	Initial outlay	2015	2016	2017
EAT	-115.000,00	153,06	1.420,61	2.866,39
Dividends 10%		15,31	142,06	286,64
Reserves 90%		137,76	1.278,55	2.579,75
Amortization		4.791,67	19.166,67	19.166,67
Self-financing		4.929,42	20.445,21	21.746,42

EAT	2018	2019	2020
Dividends 10%	4.376,46	5.953,81	7.601,54
Reserves 90%	437,65	595,38	760,15
Amortization	3.938,82	5.358,43	6.841,39
Self-financing	19.166,67	19.166,67	19.166,67

Moreover, the capital budget will present variations from that previously shown in financial amortizations, since the loan ones are now included.

	Capital Budged through a French Loan			
	Initial outlay	2015	2016	2017
Investment Budget	115.000,00	4.783,10	19.777,05	20.850,37
Investments	115.000,00	-	-	-
Net Needs from Working Capital	-	-	-	-
Financial Amortizations	-	4.783,10	19.777,05	20.850,37
Others	-	-	-	-

Financing Budget	115.000,00	4.929,42	20.445,21	21.746,42
Self-financing	-	4.929,42	20.445,21	21.746,42
External Financing	115.000,00	0,00	0,00	0,00
Divestments				
Others	-	-	-	-

	Capital Budged through a French Loan		
	2018	2019	2020
Investment Budget	21.981,94	23.174,91	24.432,63
Investments	-	-	-
Net Needs from Working Capital	-	-	-
Financial Amortizations	21.981,94	23.174,91	24.432,63
Others	-	-	-

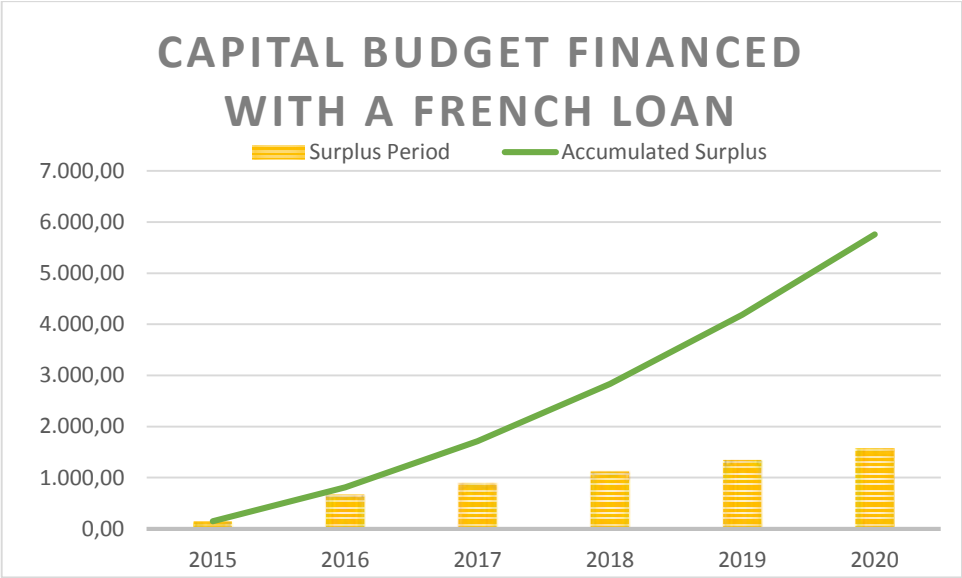
Financing Budget	23.105,48	24.525,09	26.008,05
Self-financing	23.105,48	24.525,09	26.008,05
External Financing	0,00	0,00	0,00
Divestments			
Others	-	-	-

For its part, the enterprise would obtain a surplus in each of the periods a part from the accumulated fund balance since hiring a loan will enable the enterprise to cover the initial outlay and, in later years, its refunding would generate a lower amount than the one generated by the project through the self-financing.

	Initial outlay	2015	2016	2017
Surplus Period	0,00	146,33	668,16	896,05
Accumulated Surplus	0,00	146,33	814,49	1.710,54

	2018	2019	2020
Surplus Period	1.123,55	1.350,18	1.575,42
Accumulated Surplus	2.834,08	4.184,27	5.759,69

Therefore, as long as the enterprise hires a French loan, it would obtain sufficient funds to carry out the project. Without any doubts, this proposal can be implemented because it brings positive results to the enterprise. However, the assumption that the enterprise decides to carry out a capital increase to determine which option would provide the enterprise with a greater benefit will be developed next.



6.4. The Capital Budget through a Capital Increase.

This section provides an alternative funding to cover the project's cost. In this case, the aforesaid cost's financing will be covered by the monetary contribution of two partners who, in turn, will receive a higher remuneration with dividends.

In this case, the profit and loss account would be identical to the first case since in none of them a funding source that forces the enterprise to a cash outflow in contractual obligations with credit institutions is adopted. The difference with the first case is that, in the capital increase, the amount that the enterprise will distribute to their shareholders will be higher than the enterprise intended to self-finance the project through reserves.

	Gains & Losses			
	Initial outlay	2015	2016	2017
Incomes		11.739,83 €	45.869,44 €	47.245,52 €
Expenses		5.200,00 €	19.200,00 €	19.584,00 €
Prama System Amortization		3.958,33 €	15.833,33 €	15.833,33 €
Lookers Amortization		833,33 €	3.333,33 €	3.333,33 €
EBIT		1.748,16 €	7.502,77 €	8.494,86 €
Loan's Interests		- €	- €	- €
EBT		1.748,16 €	7.502,77 €	8.494,86 €
Taxes		524,45 €	2.250,83 €	2.548,46 €
EAT	-115.000,00	1.223,71 €	5.251,94 €	5.946,40 €

	Gains & Losses		
	2018	2019	2020
Incomes	48.662,89 €	50.122,77 €	51.626,46 €
Expenses	19.975,68 €	20.375,19 €	20.782,70 €
Prama System Amortization	15.833,33 €	15.833,33 €	15.833,33 €
Lookers Amortization	3.333,33 €	3.333,33 €	3.333,33 €
EBIT	9.520,54 €	10.580,91 €	11.677,09 €
Loan Interests	- €	- €	- €
EBT	9.520,54 €	10.580,91 €	11.677,09 €
Taxes 30%	2.856,16 €	3.174,27 €	3.503,13 €
EAT	6.664,38 €	7.406,64 €	8.173,97 €

Similar to the previous case, the enterprise would obtain positive results in all the periods analysed. However, this option has, by far, better results than in the case of financing the investment's project with a French loan.

The profit sharing and the self-financing calculation are listed in the following grid:

	Initial outlay	2015	2016	2017
EAT	-115.000,00	1.223,71 €	5.251,94 €	5.946,40 €
Dividends 10%		917,79 €	3.938,96 €	4.459,80 €
Reserves 90%		305,93 €	1.312,99 €	1.486,60 €
Amortization		4.791,67 €	19.166,67 €	19.166,67 €
Self-financing		5.097,60 €	20.479,65 €	20.653,27 €

EAT	2018	2019	2020
Dividends 10%	6.664,38 €	7.406,64 €	8.173,97 €
Reserves 90%	4.998,28 €	5.554,98 €	6.130,47 €
Amortization	1.666,09 €	1.851,66 €	2.043,49 €
Self-financing	19.166,67 €	19.166,67 €	19.166,67 €

As in the profit and loss account, some capital budget will be identical to the first case. However, the funding provided by the capital increase, which will cover the initial outlay, will cause that the surpluses' result will be higher than those in other proposals.

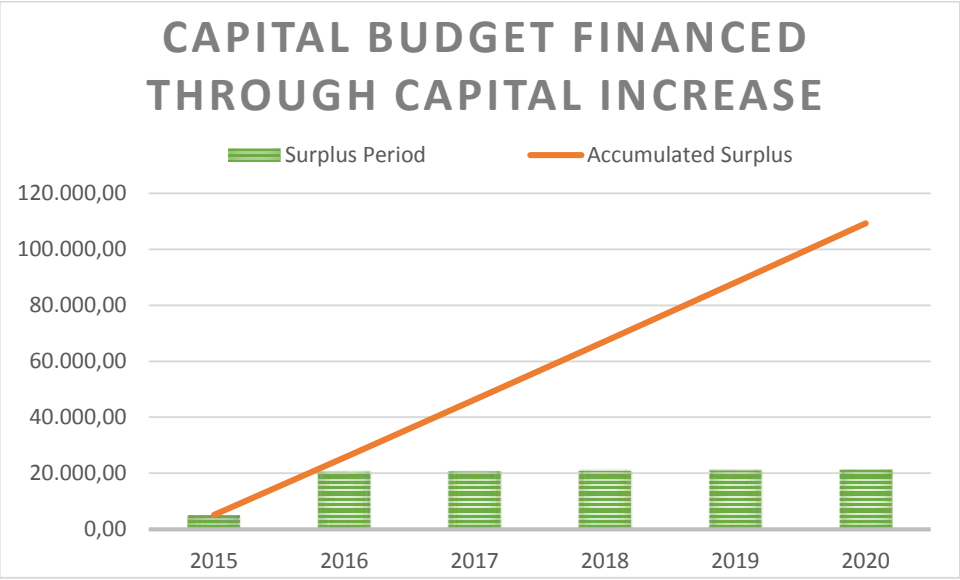
	Capital Budget through Capital Increase			
	Initial outlay	2015	2016	2017
Investment Budget	115.000,00 €	- €	- €	- €
Investments	115.000,00 €	- €	- €	- €
Net Needs from Working Capital	- €	- €	- €	- €
Financial Amortizations	- €	- €	- €	- €
Others	- €	- €	- €	- €

Financing Budget	115.000,00 €	5.097,60 €	20.479,65 €	20.653,27 €
Self-financing	- €	5.097,60 €	20.479,65 €	20.653,27 €
External Financing	115.000,00 €	- €	- €	- €
Divestments	- €	- €	- €	- €
Others	- €	- €	- €	- €

	Presupuesto de Capital PRESTAMO FRANCÉS		
	2018	2019	2020
Investment Budget	- €	- €	- €
Investments	- €	- €	- €
Net Needs from Working Capital	- €	- €	- €
Financial Amortizations	- €	- €	- €
Others	- €	- €	- €

Financing Budget	20.832,76 €	21.018,33 €	21.210,16 €
Self-financing	20.832,76 €	21.018,33 €	21.210,16 €
External Financing	- €	- €	- €
Divestments	- €	- €	- €
Others	- €	- €	- €

In this case, the surplus that the enterprise would obtain would also be positive in all of the periods and, at the same time, it would be the highest among all the proposals analysed.



In conclusion, the project's financial planning would focus towards the realization of a capital increase since it would allow the enterprise to achieve higher benefits. Moreover, it would also be able to finance the investment project at a lower cost because the payment to the shareholders will have a final figure similar to the one if the loan is hired. Nevertheless, the amounts to be returned are more balanced over the periods in the case of the capital increase. Therefore, the latter option would allow the enterprise to obtain surpluses and positive results in all periods.

However, it is noteworthy that the amount to be disbursed is very high, so the shareholders may not be able to cope with such big amounts. In that case, the enterprise should choose to hire a French loan since it would generate neither liquidity problems nor negative results in the profit and loss account.

7. Conclusions

In this section, all the results obtained during the development of the project analysis will be collected, extracting relevant conclusions and personal opinions.

Firstly, the implementation of the *Prama System* would mean that the enteprise would offer to its customers an innovative system that currently can only be found in two sports centres in Spain. In addition, the business idea of Urban Sport Club focuses on personal and family attention to each of its customers by providing them the care and services they require.

Therefore, the implementation of this system would lead a strong attraction of subscribers, as well as being a new system, its composition is very attractive and appealing.

Moreover, Urban Sport Club has a percentage of attendance of around 40%. This share well located above the average attendance of the subscribers to the existing sport centres that exists in Spain, located over 25%. This prompted that the enteprise decided to increase its maximum gauging only into 100 people, as they fear that the expansion of the centre and the number of subscribers results in a worse treatment management on customers.

In terms of the selection criteria for the investment project, I used the methods of dynamic analysis, corresponding to the NPV and IRR tools. The use of these criteria allows us to know the result of an investment, provided that the present values are reasonable as far as possible.

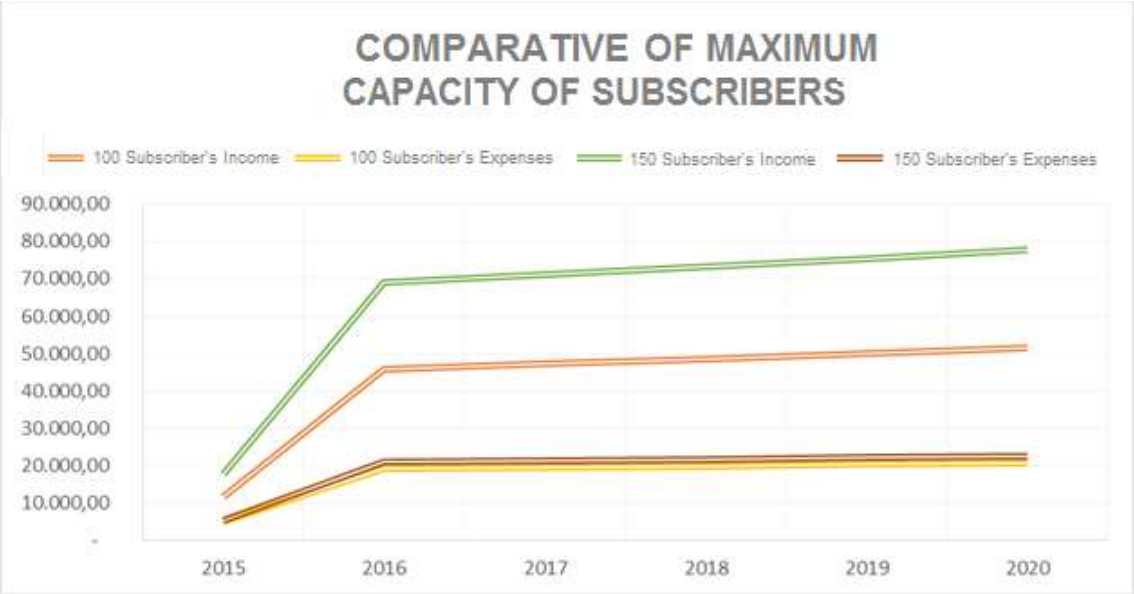
For application of the criterion of net present value, reasonably they settled the discount rate or cost of capital where the main difficulty lies in the NPV calculation because it is the cornerstone of its outcome, as a very high cost of capital causes negative results in the NPV and, if its rate is low, the result may be too high, reflecting a situation that cannot be achieved, in most cases, by companies. This has been solved by calculating the weighted average cost the enteprise currently owns, including in such calculation concerning debts and payments to partners. After obtaining this cost, it has been adjusted by the existing risk rate after increasing debt.

This situation has been solved through the calculation the weighted average cost of capital that the enteprise currently owns, including in the calculation the debts and the remuneration to partners. After obtaining this cost, it has been adjusted by the existing risk rate after increasing debt.

For its part, the results obtained should be noted that the investment analysis made on the implementation of *Prama System* has been negative for two main reasons. The first of them is that the down payment is significantly higher. The amount rise to 115.000 € which, however, could be reduced if the enteprise decides not to hire all the services that Pavigym's enteprise offers or, could also be reduced if the enteprise perform on their own part of the reform in its reach, reducing the cost of labour budget to a enteprise that will perform these services. The second reason is reflected in the number of new subscribers that the enteprise obtained after the implantation of *Prama System*. The realization of a project of this magnitude should be exploited through the attainment of a high number of new subscribers, transforming the project's valuation in profitable.

In the same context, an increase of the number of subscribers would provide a more than exponential increment on the revenue in front of the expenses. Currently, Urban Sport Club suffers a situation in which the variability of subscribers causes to them great disparities in the income statement. On the one hand, a small increase in the number of subscribers provides a small extra income, however, the reduction of the same number of subscribers to the enteprise causes substantial losses. Therefore, the implementation of this system was proposed as an alternative to the variability of subscribers.

In the following chart we can see how the amounts of income and expenses varies over the analysed years of the enteprise would decide to increase the maximum capacity of subscribers in 150 people in front of the increase of 100 people.



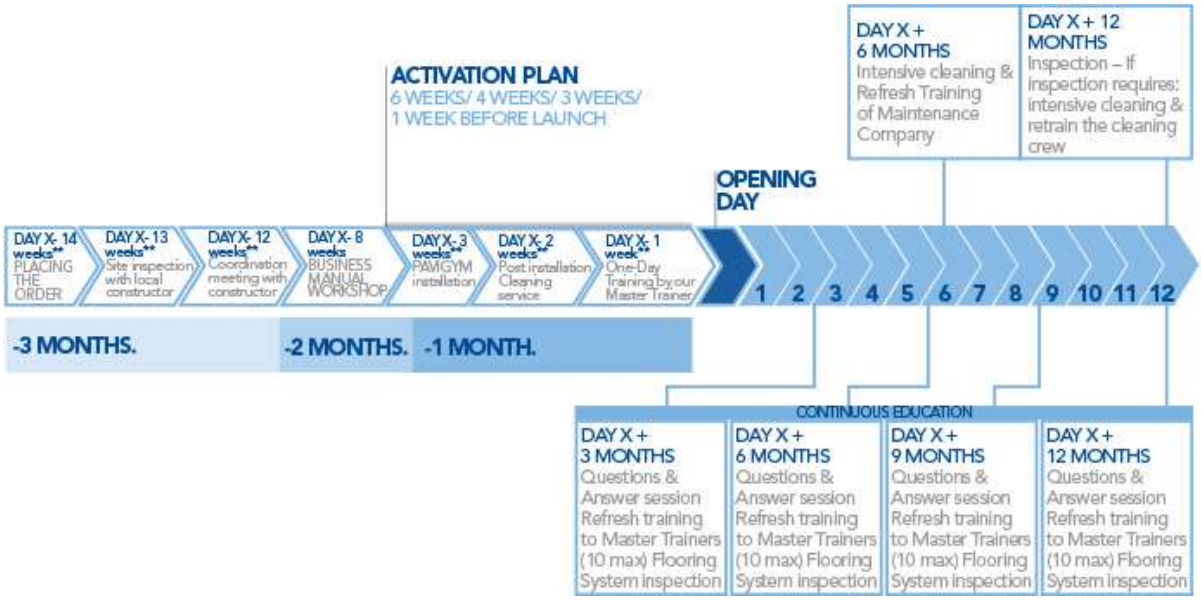
So, the main solution to overcome the infeasibility of the project would be the increase of the maximum capacity of subscribers on the sports centre, as long as the distribution of classes and subscribers avoids situations that might annoy customers.

After the review of the implementation of the *Prama System*, the enteprise has decided not to carry it out, however, due to the problems that can appear to them through the described variability of subscribers, Urban Sport Club is thinking in other sources of investment such as the construction of a room that allows to join hundreds of people at the same time in different kinds of activities in the location where it was proposed to install the *Prama System*.

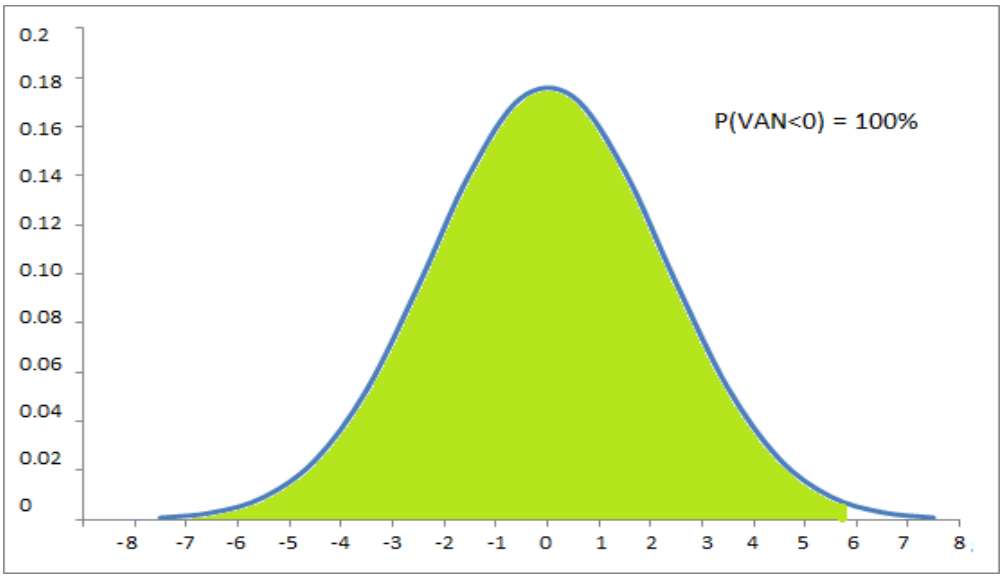
In contrast to the *Prama System* evaluation, the development of a room for massive classes allows to the enteprise subscribe more people, increasing their maximum capacity almost to a third of the amount that they currently own. Although the implementation of this room is not analysed in this text, it has made the same process of analysis for the investment that for the *Prama System*. This time, the investment analysis resulted positive and it will cause that Urban Sport Club start a new activity in the coming months.

Annex I. Graphs.

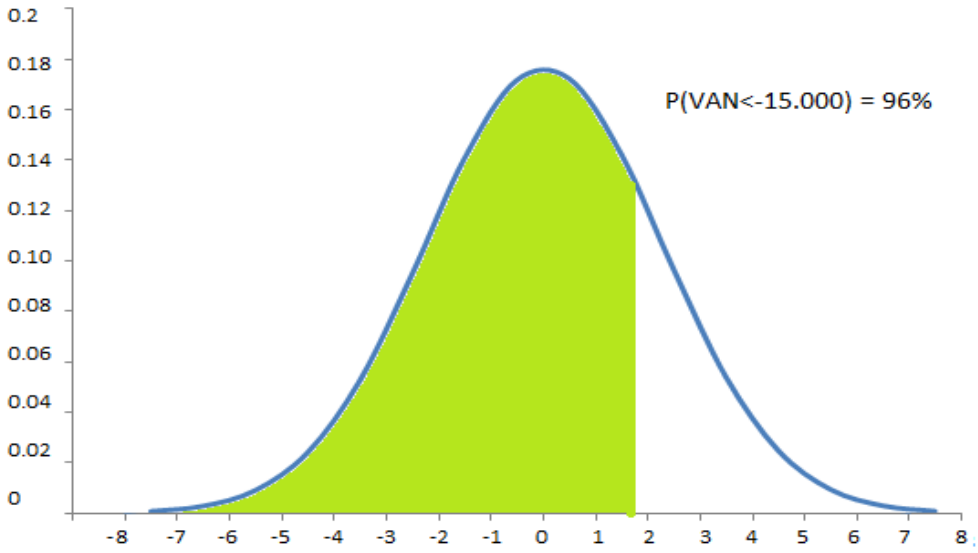
- Graph 1: Instalment and launching term of *Prama System*.



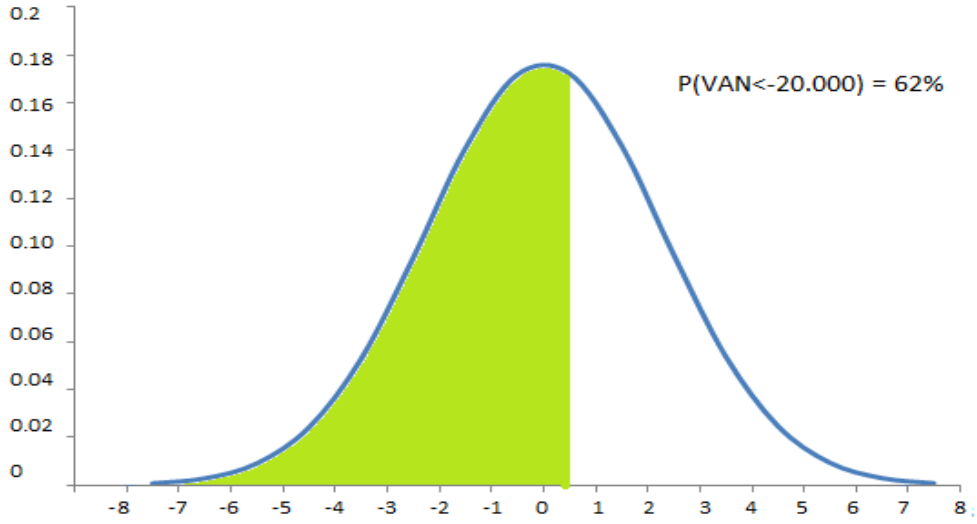
- Graph 2: Bell Curve.
  - Probability VAN < 0 €.



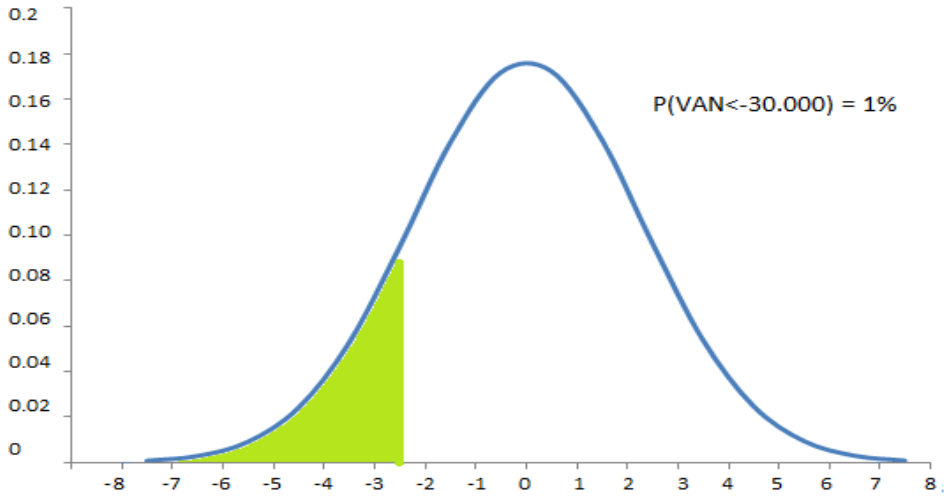
- Graph 3: Bell Curve.
  - Probability VAN < -15.000 €.



- Graph 4: Bell Curve.
  - Probability VAN < -20.000 €.



- Graph 5: Bell Curve.
  - Probability VAN < -30.000 €.



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