Module 3. Costs structure

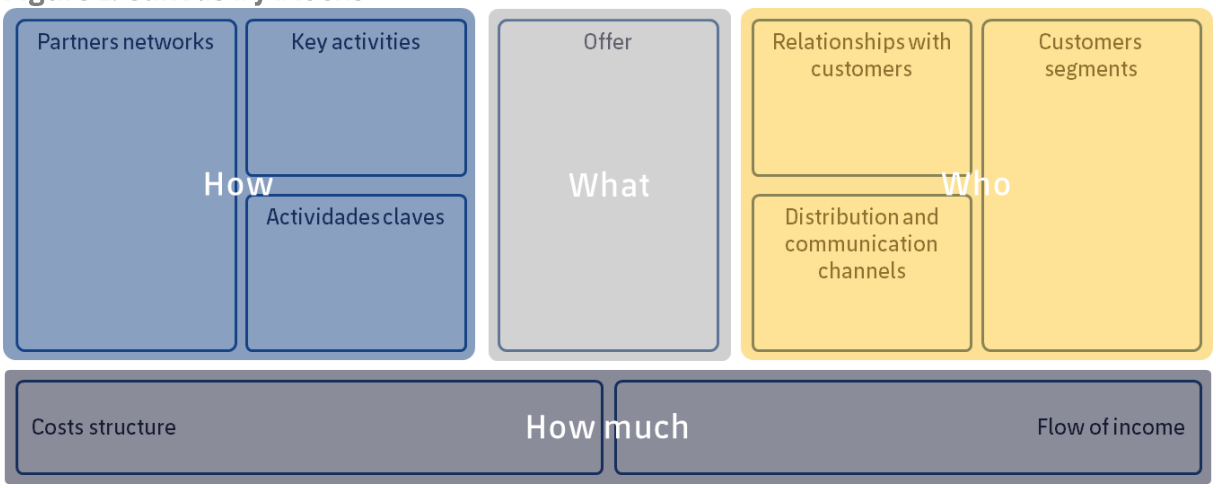
Unit 3.1 Costs structure and income structure

3.1.1 Introduction to costs analysis

After having seen each element on the canvas model in detail and having applied it to your start-up, you should work on the costs structure and the flow of income, which are part of the finances block in the model.

Seeing it in another way, it could be read as, after having worked with the way, with the content and with the participants, now you will work on the quantity.

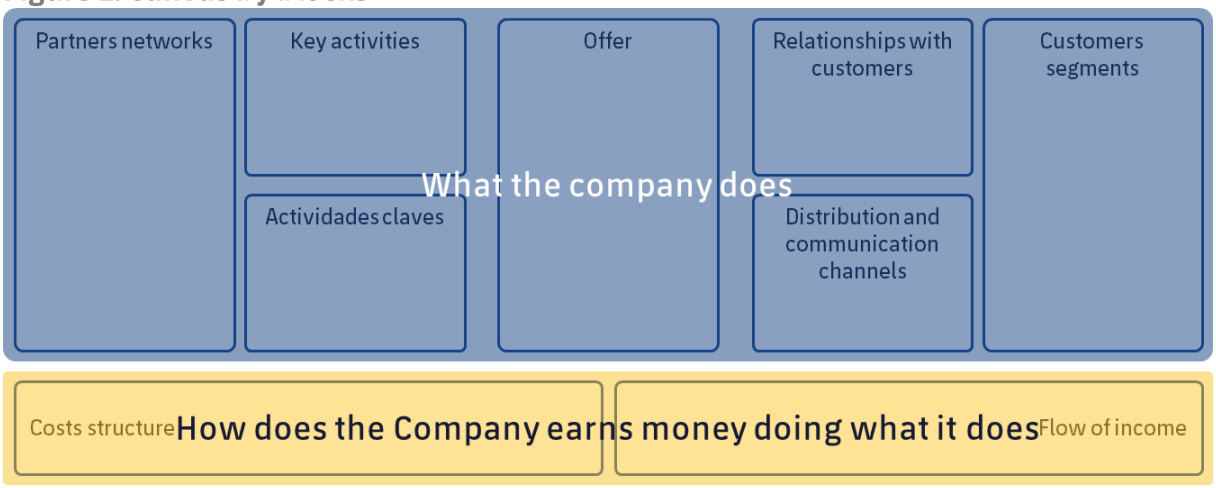
Figure 1: Canvas by blocks



Source: Adapted from Osterwalder and Pigneur, 2017.

In the previous figure, the model communicates what the company does and in the one below we will see how the company earns money doing what it does.

Figure 2: Canvas by blocks



Source: Adapted from Osterwalder and Pigneur, 2017.

The finance block is composed of two important points: the income structure and the costs structure.

1. Income structure

At this point, it should be clear to you why customers are willing to pay for your product or service, which payment methods they use and how they would like to pay. These are some questions you should ask yourselves to complete the canvas income structure, as well as the amounts reported by the sources of income since a business model can have different income models combined at the same time.

The following questions are the ones that will help you to complete the income structure part in the canvas:

How much are our customers willing to pay?
What do they pay for currently?
How are they paying nowadays?
How would they like to pay?
How much do different income sources bring to the total income amount?

Some income models are the following:

- Products´ sales
- Pay per use
- Rent
- Licenses
- Intermediation
- Advertising

2. Costs structure

At this point, you should identify the most important costs you have to operate and generate the value proposition; for example, which are your most expensive key resources, among other things.

The key questions that will help you to complete the expenses structure are the following:

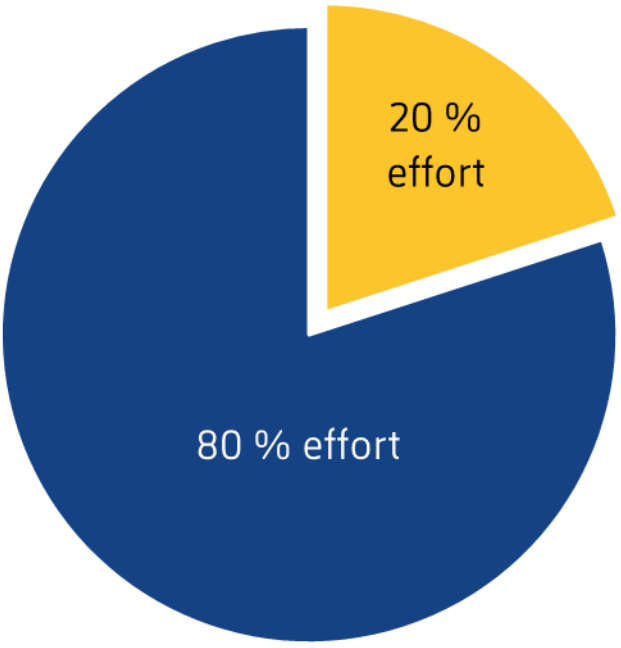
Which are the most important costs that are inherent to our business model?
Which are the most expensive key resources?
Which are the most expensive key activities?

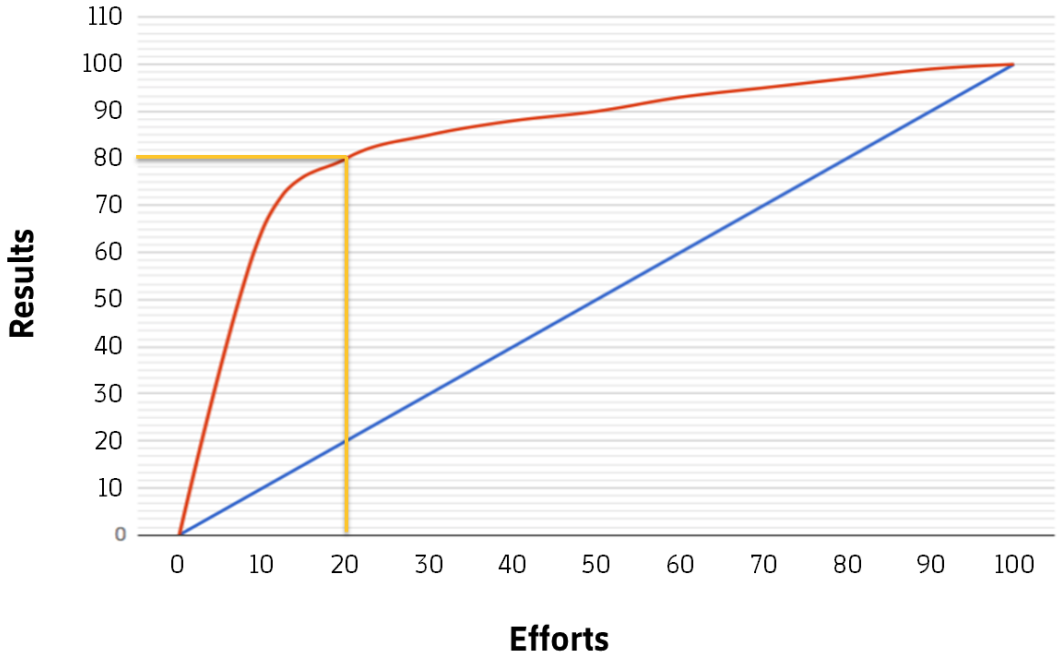
3.1.2 Pareto on the analysis of income and expenses structure

In the income structure as well as in the expenses structure, it is important to provide a Pareto schema and detect which is the 20 % of the elements that explain the 80 % of expenses and income.

These elements are the ones on which you have to focus your management since an improvement or damage in them will have a great impact on your startup result.

Figure 3: Pareto on the analysis of income and expenses





Source: Own creation, 2020.

3.1.3 Costs definition

> According to the book Costs Accounting, accountants define cost as a resource sacrifice that is assigned in order to achieve a specific goal. A cost (direct materials or advertising) is measured in general as the monetary quantity that must be paid to acquire goods or services. (Horngren, Datar and Rajan, 2012, p. 27).

Concerning costs classification:

> A variable cost changes completely in proportion to the changes related to the activity level or the total volume.
>
> A fixed cost remains stable during a certain period of time, despite big changes in the activity level or the total volume. Costs are defined as variable or fixed in relation to a specific activity and during a certain period of time. (Horngren, Datar and Rajan, 2012, p. 30).

Variable cost is constant by unit, but it varies in its total amount (in proportion to the number of units). The more it is produced, the more it is used. The fixed cost varies in an inversely proportional way to the activity (the unitary cost decreases). The more it is produced, the less it is used.

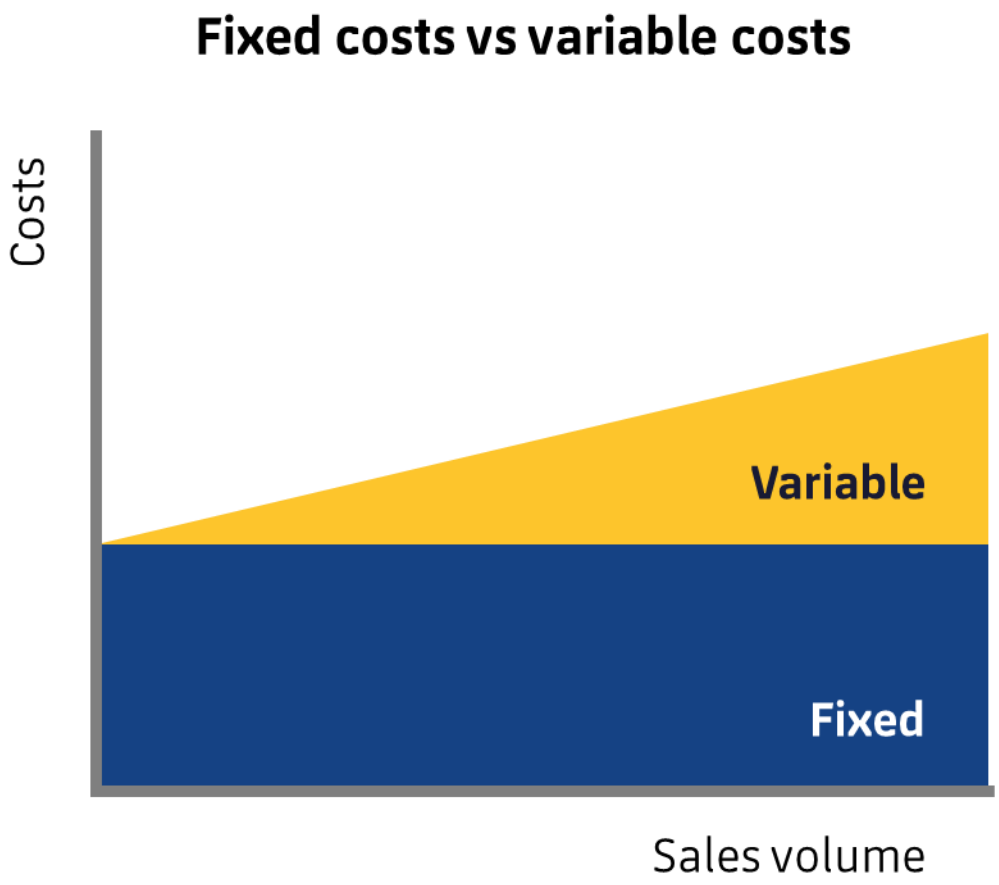
The following are some examples for variable costs:

- Raw material
- Direct labor
- Supplies
- Services (water, electricity and gas)
- Logistics
- Commissions

The following are some examples for fixed costs:

- Rents
- Indirect salaries (cleaning, managers, consultants and sellers)
- Expenses on marketing (social networks)
- Taxes
- Expenses in office supplies
- Services

Figure 4: Variable and fixed costs curves



Source: Adaptation of [Untitled image about variable and fixed costs curve], n.d., retrieved from https://goo.gl/CDFcjr

Below, we will see some financial concepts only as an introduction, given that, although they are not part of the canvas model we are analyzing, they are related to the start-up costs and numbers.

3.1 4 Budget

The budget allows you to think about how you expect the future to be for a particular period (in 3, 6 or 12 months, for example).

Thinking about the variables that can condition your start-up survival gives you the possibility of anticipating possible problems, so you can plan multiple courses of action that would enable your project sustainability.

The budget is then useful for the following reasons:

- It is used as a tool for thinking about reality and the environment.
- It is defined for a particular period of time.
- It establishes more effective courses of actions.
- It allows you to determine efficiency and efficacy parameters in using resources.
- It allows you to segregate variables which were the cause of distortions between what was planned and what was executed.

The budget also works for establishing responsibilities, such as the following:

- What should be achieved?
- In how much time?
- With which resources?
- On which market?
- On which scenarios?
- Who is in charge?

So, the budget is a tool for control, reflection and planning.

Thinking about the whole process before executing it allows us to detect bottlenecks or inconveniences that could appear in the future. For example, by detecting that you might not get the whole amount of money for sold things, it will allow you then to think about what to do, since you will need additional funds.

It is worth mentioning that, by doing this simulation with the total process analysis beforehand, you are doing an exercise of thinking about the future, projecting, being prepared and being able to anticipate events.

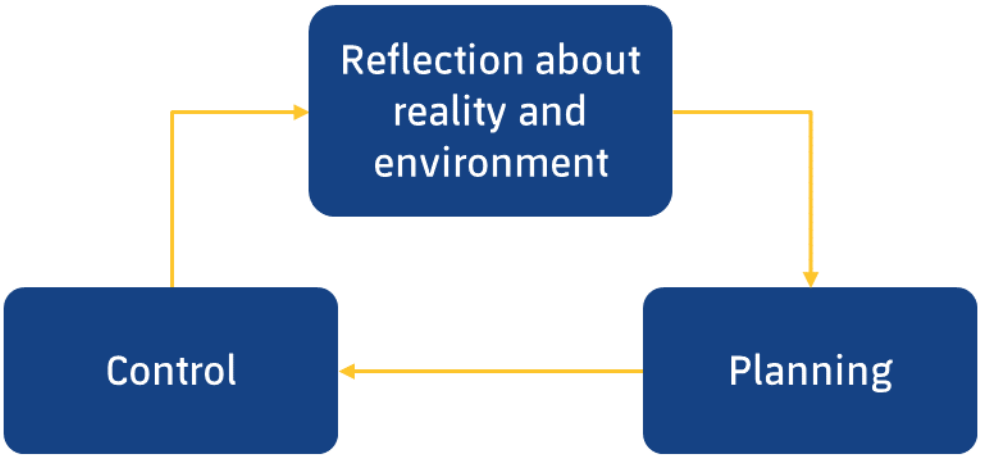
At the same time, as time goes by, there are chances of detours or gaps between what was estimated and what is happening. If, in effect, you sold and spent as expected or if that did not happen, you will be able to detect the cause of the problem and take the necessary corrective actions; in other words, why the budget is a control tool.

The budget, then, allows you to know about what it must be achieved and to define a goal, as well as to delimit resources and people in charge.

The budget is also a communication and coordination tool, since it helps everybody to focus their efforts towards the same direction, understanding numbers, establishing sales prospects and anticipating infrastructure and finance tools.

Finally, it is useful for determining if goals were achieved when evaluating efficacy, but also efficiency; in other words, achieving set goals using resources reasonably.

Figure 5: Budget



Source: Own creation, 2020.

Types of budget

Budgets can be economic or financial. Let's see the definition for each of them:

a. **Economic**: it is the one that enables you to know if your company or start-up is profitable. Regardless of having received payment for expenses or having paid expenses, the economic activity result is an estimation.

The base concept is the accrued one. This implies that income and expenses in each period must be assessed (in general, corresponding to a month), no matter they

have been paid. With this, the purpose is to get precise information about a punctual moment that would allow establishing the result of an activity.

b. **Financial**: everything becomes complex when you do not receive the payment for everything you sell and you do not pay everything you buy; at that moment you enter in a financial perspective and income and expenses start to happen at different moments in time.

For the start-up to be sustainable, payments should always be received before paying expenses; this is a finance maxim: get paid before paying. Credits can be given, but suppliers will be paid in a longer period than the one for getting payments, otherwise, there will be a discrepancy that will have to be covered with additional own working capital or money from your pocket.

3.1.5 Economic and financial perspective

Table 1: Economic and financial perspective

<table>
<tr><td rowspan="2">INCOME AND EXPENSES</td><td>Income: sales and allowances

Expenses: purchases and salaries</td><td rowspan="2">ECONOMIC MANAGEMENT</td><td>If income is bigger than expenses, there will be profits.

If income is smaller than expenses, there will be loss.</td><td rowspan="2">PROFIT AND LOSS STATEMENT</td></tr>
<tr><td>Payments received: company money inflow.

Payments made: company outlay.</td><td>If payments received are bigger than payments made, there will be surplus.

If payments received are smaller than payments made, there will be deficit.</td></tr>
<tr><td>PAYMENTS RECEIVED AND PAYMENTS MADE</td><td></td><td>FINANCIAL MANAGEMENT</td><td></td><td>CASH FLOW</td></tr>
</table>

Source: Own creation, 2020.

It is important to highlight that, in case of having deficit on cash flow, you will be facing a financial problem, which will require additional funds (additional working capital). This situation can be solved by finding additional finance sources like a new contribution from partners or a bank loan.

On the contrary, if you have a profit and loss statement with permanent loss, you are facing an economic problem that indicates that value is being destroyed and it is no so simple to fix.

3.1.6 Financial statements

Financial statements can be classified into two big types of reports: the basic compulsory financial statements and internal financial statements.

Basic compulsory financial statements are made for users that are external to the start-up and they are required by organizations like banks or government bodies, among others.

There are four basic compulsory financial statements for external users:

1) Statement of financial position: it is a picture taken at a given moment and it tells us about the rights or obligations the partnership has.
2) Profit and loss statement: it tells us if we earned money or lost it.
3) Statement of changes in shareholders equity: it expresses how partners' contributions change throughout the year.
4) Statement of cash flows: it explains the sources that generated funds and how they were used, which can be investment, operation or financing activities.

The internal financial statements are reports that are used internally to facilitate start-up management.

There are as many internal management reports as the company needs to make better decisions, but the most used ones are cash flow and the break-even point analysis.

These concepts are important because they are the base in the information system that allows for better decision making.

For correct decision making, you will have to consider the different visions or make an analysis from the different perspectives of the start-up reality.

Table 2: Information system analysis

Financial analysis	It analyzes the liquidity and the soundness to make investments and payments.
Economic analysis	It studies profitability and results obtained.
Financial position analysis	It studies the balance structure.

Source: Own creation, 2020.

All these analyses are part of the information system that facilitates decision making in your start-up.

3.1.7 Financial budget or projected cash flow

For making a financial analysis, there is a report called cash flow that is completed about payments received and payments made that you expect to receive in each period. A period closing balance is an initial balance for the next one (as you can observe in Table 3).

In the accumulative difference line, you can detect if there is a need for funds or if there is an excess of funds for each month.

Table 3: Example of financial budget or projected cash flow

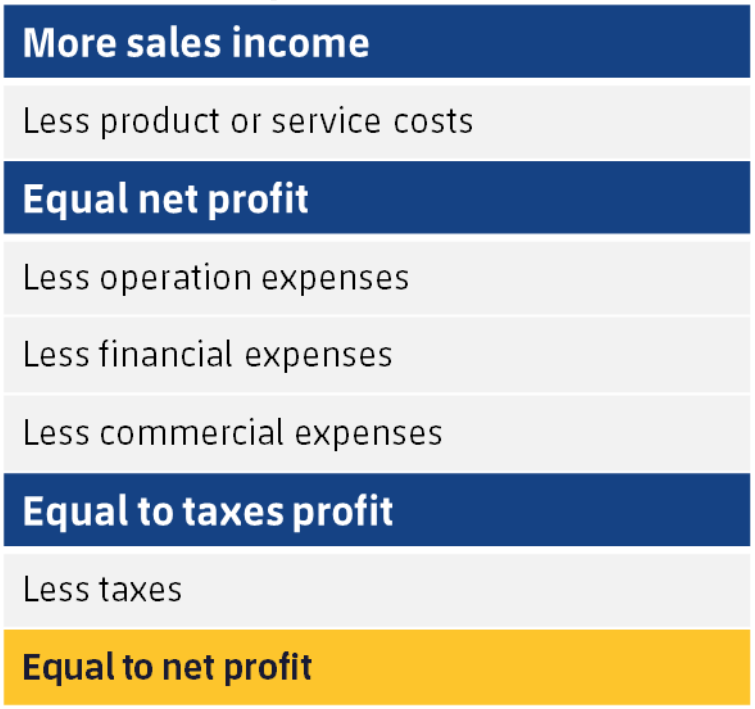
CONCEPTS	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6
Cash initial balance and Banks						
Sales						
Partners' contributions						
Loans repayment from received loans						
PAYMENTS RECEIVED AMOUNT						
Bank loans repayment						
Suppliers						
Electricity, gas and cleaning services						
Rent						
Advertising and marketing						
Salaries						
Insurance						
Professional fees						
Taxes						
Others						
PAYMENTS MADE AMOUNT						
DIFFERENCE ON PAYMENTS RECEIVED AND PAYMENTS MADE						

Source: Own creation, 2020.

3.1.8 Economic budget or profit and loss statement

The profit and loss statement report is generated by the start-up's accounting system. Thanks to it, by looking at previous months behaviour, we can infer how its behaviour will be in the future and adjust it in relation to expected subsequent changes on each of the concepts.

Figure 7: Example of economic budget or profit and loss statement



Source: Own creation, 2020.

Below, we will see an example of how you should plan the economic budget and the financial budget or cash flow, taking the presented information as a base.

Scenario 1: projecting for three months (January, February and March)

Data:

- There is no goods inventory at the start or at close.
- Projected sales: €90, 000 each month
- Sales cost: two thirds of the sale (€60, 000 each month)
- Fixed expenses: €10, 000 each month
- All expenses are distributed.
- All sales are in cash.
- All expenses are in cash.
- Cash flow starts with €10, 000.

Table 4: Example for Financial position

FINANCIAL POSITION		
Concepts	**Start**	**Close**
Cash flows	10, 000	0
Receivable		0
ASSET	10, 000	0
Payable		0
LIABILITY	0	0
Capital	10, 000	10, 000
Result		0
Net assets	10, 000	10, 000
Liability + Net assets	10, 000	10, 000

Source: Own creation, 2020.

Scenario 1 example solution

Table 5: Example of Projected profit and loss statement

PROJECTED PROFIT AND LOSS STATEMENT				
	January	February	March	Total
Sales	90, 000	90, 000	90, 000	270, 000
Sales costs	-60, 000	-60, 000	-60, 000	-180, 000
Expenses	-10, 000	-10, 000	-10, 000	-30, 000
Result	20,000	20, 000	20, 000	60, 000

Source: Own creation, 2020.

Table 6: Example of cash flow

CASH FLOW			
	January	February	March
Initial balance	10, 000	30, 000	50, 000
Sales collection	90, 000	90, 000	90, 000
Costs payment	-60, 000	-60, 000	-60, 000
Expenses payment	-10, 000	-10, 000	-10, 000
Closing balance	30, 000	50, 000	70, 000

Source: Own creation, 2020.

On table 6, we can observe that the cash initial balance is obtained from the statement of financial position and the closing balance each month is the initial balance for the following month.

In scenario 1 solution we can observe that the economic and financial performance is similar because receivables and payables are in cash; financial aspects are relevant when payables and receivables are deferred in time.

On the other hand, we can observe on the closing balance line that amounts are positive, which indicates that there are no financial discrepancies that must be covered with additional working capital or with partners' contributions or with any other financing means like a bank.

Indicators

An indicator is a comparison between two or more pieces of data that are useful for taking quantitative measures. In general, it is a quotient between two magnitudes. The indicator result is meaningful to the person who analyzes it.

The indicators should meet a series of requirements to be considered as such:

- Specific
- Measurable
- Attainable
- Relevant
- For a particular period of time

Indicators that are mostly used by start-ups are the following:

- ***Burn rate*:**

It is used to determine a start-up lifetime since if our burn rate is €100, 000 and we have €1, 000, 000 in cash, this means that we have a 10 months lifetime, until we are left without funds.

- **Churn rate:**

It is the index that shows people that stop paying our service, given that we do not only incorporate customers, but we also lose them.

Estimation:

Churn rate = Lost customers/ Total customers

- **Run rate:**

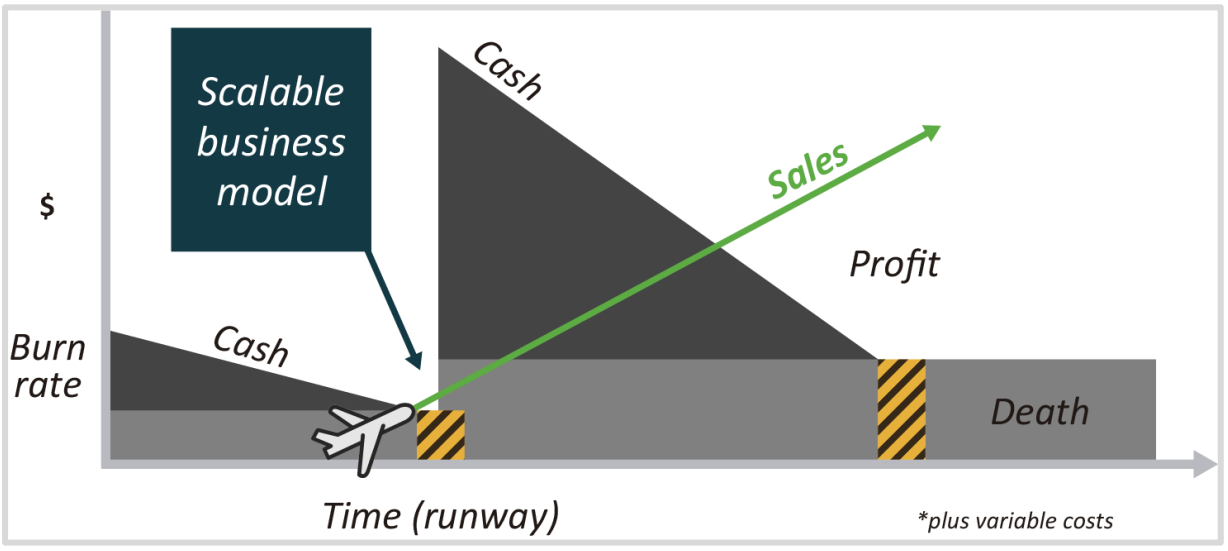
It indicates the operation time on months that are available with funds possessed at a given time.

Estimation:

Current cash flow + Monthly sales / Monthly expenses

This indicator is important because it determines the time available for sales to get off and be enough to cover operation expenses, before being left without funds for operations and that determining the start-up bankruptcy.

Figure 8: Run rate graphic



Source: Hatch, 2014, https://goo.gl/Y2wnuS

- **Customer acquisition cost (CAC):**

It is an essential indicator since it allows you to know the price for acquiring new customers.

CAC = All incurred expenses in marketing and sales / Number of new customers

- ***Life time value* (LTV):**

It indicates a customer's lifetime on the company.

LTV = Average ticket x Annual recurrence x Customer's lifetime in years x Margin

For a business to be sustainable, the lifetime value should always be higher than the customer acquisition cost.

LTV > CAC

- **Conversion rate:**

It measures the purchase efficacy by each one of the visits to the site or the commercial platform.

CR = Amount of purchases / Visits received

- **Average ticket:**

AT = Sales / Amount of tickets or purchases

- **Cost per lead or by contact with the customer:**

CPL = Investment on marketing and sales / Amount of lead or received contacts

- **Ebitda** (earnings before interest, taxes, depreciation and amortization)**:**

This indicator shows the benefit before interests, taxes depreciations and amortizations. In other words, the exploitation of gross benefit calculated before financial expenses deductibility.

It is based on an accounting concept as the Profit and loss statement, but with some adjustments to try to get closer to a cash flow concept, so that its generation can be seen on each business and there is a possibility for comparison among different companies.

Unit 3.2 Analysis among the cost, the volume and the earning

> The break-even point (BEP) is that sold production amount in which the total revenues are equal to the total costs, e. g., the sold production amount which results in a $ 0 earning (Horngren et al., 2012, p. 68).

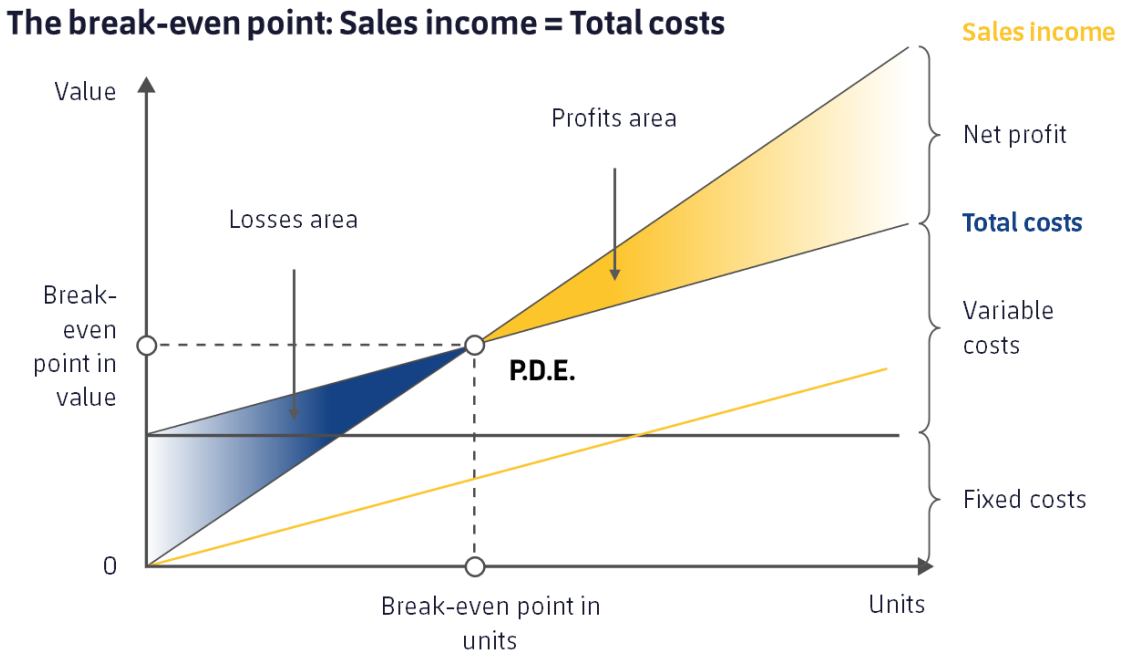
That is why, if you sell a quantity that is smaller than the one indicated in your break-even point, you will incur in losses and if you sell more, profits will be generated.

A break-even point is a strategic tool that should always be taken into account, since it allows, with a basic estimation, to quickly locate the economic situation. If there is information about sold units until a given moment, you can know if you are earning or losing money with the sales volume obtained until the moment.

Formula:

Break-even point = Total fixed costs / (Price per unit – Variable costs per unit)

Figure 9: Break-even point



Source: Educaconta, 2010, https://goo.gl/2NAccP

Let's see an example:

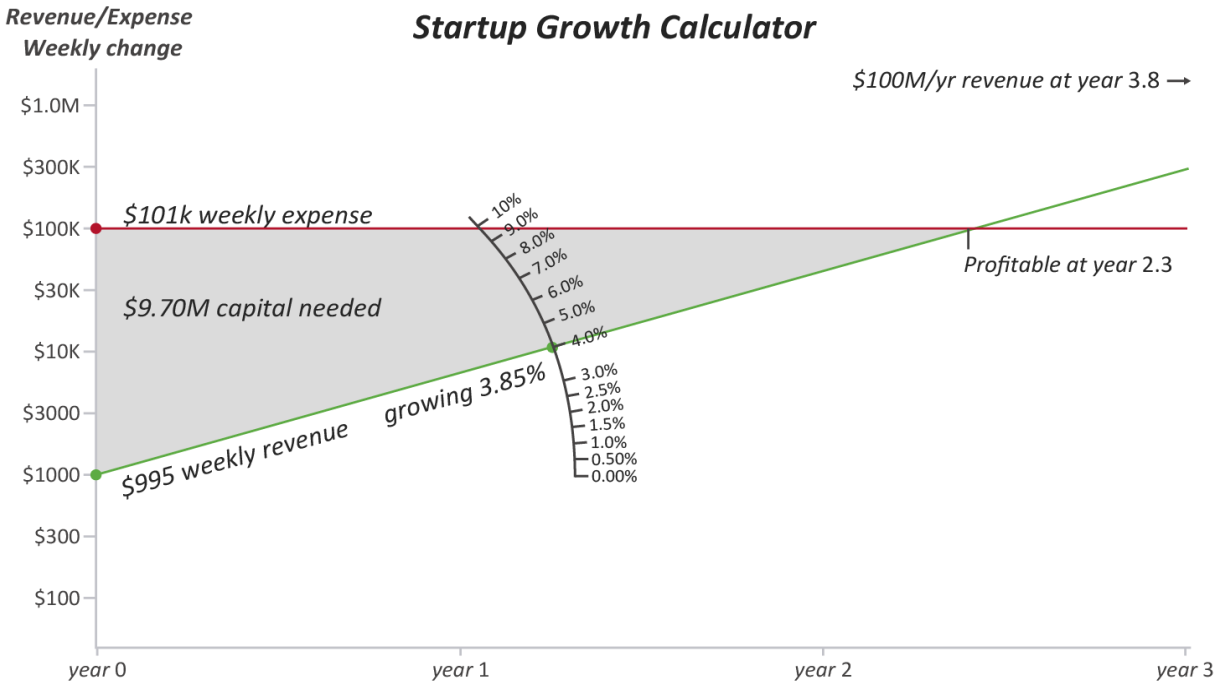
- Total fixed costs: € 10, 000
- Price per unit: € 10
- Variable cost per unit: €5
- Break-even point on units: € 10, 000 / (€10 - € 5)

Result: 2000 units are the break-even point, that is, with that quantity of sold units, you can cover the total costs. Above that 2000 sold units, you enter in the benefits zone.

The relation between growth and break-even point

The bigger and more accelerated the sales growth, the quicker the costs will be covered and the quicker you will be in the profits zone.

Figure 10: Effects of growth on the break-even point



Source: Barba, 2014, https://goo.gl/g4HExH

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