

MAKE OR BUY CHOICES: STRATEGIC, PROFITABILITY AND FINANCIAL ASPECTS

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Abstract

Make-or-buy choices are often analysed only from an income point of view, i.e. comparing the costs of the production process implemented within the company with the costs of the service acquired outside the company from third-party economies. This attitude can lead to severe problems in the decision-making process. In choosing the best option, point make or buy alternatives must be implemented primarily based on the strategic impact of the chance to be executed or from comparing the strategic implications of the two options. The strategic aspect of make-or-buy choices is an essential element to be considered since the lack of this type of analysis can lead to choices that are perhaps the most profitable. However, these choices have severe consequences at the level of the company's overall strategy, which is why top management must implement make-or-buy decisions, not the heads of operational departments. Alongside the strategic and profitability aspects, it must also implement make-or-buy choices by considering the financial impacts of the two options. The static and dynamic financial aspects analysed through ratios and flows, respectively, represent an essential element of analysis for the decision to fall on the most convenient option for the cartel, where the concept of convenience is understood in a broad sense and, therefore, also financial. The analysis of the strategic, profitability and financial aspects, thus, appears to be fundamental to analysing the make or buy choices from every point of view. The decision can fall on the most advantageous option for the enterprise where the concept of convenience contains elements of a strategic, profitability and financial nature within it.

Keywords

Make Or Buy, Make Or Buy And Strategy, Make Or Buy And Profitable, Make Or Buy And Financial Situation

1. CONCEPT OF MAKE-OR-BUY CHOICE: INTRODUCTORY CONSIDERATIONS¹

Make-or-buy choices represent the study of the option of carrying out a productive operation in-house or purchasing the necessary service or good subject to the make-or-buy choice from outside and thus from third economies. In these introductory considerations, it is essential to highlight that make-or-buy choices start from the assumption that the activity being analysed is already carried out by the enterprise in-house. In this case, we are talking about evaluating new investments and the technical tools that can use for such evaluations are profoundly different from those used in make-or-buy choices, which start from the assumption of considering an activity that is already being carried out within the company and concerning which it a decision must be made as to whether to continue the training within the company or to interrupt this work and purchase the service or good output of this production process externally. If the decision concerns making a new investment or outsourcing the activity under analysis, the assumptions of profitability, financial and capital and, of course, strategic calculations are entirely different.

This decision has two aspects which, while characterising every business choice, in this context, probably assume greater significance than any other decision. We intend here to refer to the almost ineliminable coexistence of the strategic aspect and the purely economic part of the make-or-buy option.

The following paragraphs will address the main issues concerning the strategic, income and financial considerations connected to the make-or-buy choice. As we shall see later, the choice between the two options mentioned above is characterised by either the eminently strategic or the purely economic aspect. As we will see in

¹ To facilitate reading, I have decided not to include in the text, except in exceptional cases, the names of the scholars who have dealt with the subject under analysis since the bibliography is endless, I have opted not to indicate all the terms of the scholars in the text because this would have meant a continuous interruption of the reading of the complete sentence in which I express my thought

the following pages, there are situations in which one of the three aspects prevails over the other two. This is due to the company's profitability, capital and financial conditions, or elements characterising the company's sector, or even to particular tactical problems of a strategic nature that describe the company that must implement the make-or-buy choice. I will address The hypotheses mentioned below in the paragraphs related to the three elements mentioned above.

2. MAKE-OR-BUY CHOICES: STRATEGIC CONSIDERATIONS

As far as considerations on the strategic nature of make-or-buy choices are concerned, it must first be pointed out that often, at the company level and in the professional literature, ample space is given to profitability issues, and the strategic aspects of make-or-buy choices are underestimated. Frequently in companies, these decisions are ignored by top management and evaluated by the departments connected with procurement and management of the production process under analysis. Procurement departments mainly consider the costs that purchasing departments face concerning the two choices. However, approaching this decision by focusing only on profitability is a grave mistake as the strategic elements may be the most relevant values when implementing the make-or-buy choice. If the strategic elements are underestimated, the company may be put in a situation where there is an under-optimisation of the company's position within the overall strategy. This situation prevents the maximisation of income and cash flows that management must realise over time. But the degree the doctrine agrees with the strategic relevance of make-or-buy choices, it can see that at the operational level, in many companies, the decision is made by the purchasing managers and only based on the purchase costs of the assets that can be purchased from third parties and the company's internal costs. In the writer's opinion, in most cases, make-or-buy decisions must be the responsibility of top management and not of individual operational or purchasing managers. If made solely on the basis of short-term costs and purchase prices, make-or-buy decisions fail to assess the best utilisation of the company's competitive advantages and cannot be integrated into the complexity of the company's overall strategy. It is well known that all companies must take the utmost care of the competitive advantages they can claim over their competitors. This is not the correct place to analyse a company's entire list of competitive advantages over other competing companies. However, it is well known that it cannot achieve competitive advantage if disconnected elements within the strategy do not allow the strategy, understood as a whole, to develop a managerial action consistent with all the features that make up the strategy. The strategic aspects that need to be considered in the context of make-or-buy choices can be various. It is possible that the strategic elements to be considered are of a short to medium-term nature, or they may be of a long-term nature and impact the corporate structure. The two situations must be handled, at the strategic level, in entirely different ways. Think, for example, of the difference between the case in which the make-or-buy choice entails the reabsorption of personnel in other departments and the purchase of a particular service from outside without impacting the company globally, or the situation in which the buy choice requires the closure of an entire branch of the company, which changes the overall structure of the company; it must analyse the two situations in a completely different way and according to other strategic parameters. The relevant point is to emphasise that every make or buy decision must be taken by the top manager because, in advance, it is possible that the company-wide consequences of the make or buy decision may not be fully understood. This is why only top management can have an overall view of the company and can understand the strategic implications of the make or buy decision.

Among the strategic issues raised by make-or-buy choices is the guarantee of the quality level of the purchased product. When we speak of make-or-buy decisions, we refer to equality of quality between the service or good produced in-house or the service or good purchased from third economies. It is much simpler to manage and control the quality level within the company rather than to carry out this control on goods purchased from outside since the direct and accurate control of the production process can only be carried out within the company and not within the company that constitute the potential suppliers of the service or good purchased from a third economy. In addition to all this, always in the context of the strategic problem connected to make-or-buy choices, there is a fact to be considered, which some call notional costs or potential costs. This refers to the circumstance that the acquisition of goods or services from outside obviously causes the company's internal production process to fail. In this way, it is evident that workers working in the production lines or centres or in the activities connected with these choices are placed in other centres or dismissed or retired early. Suppose they remain within the company with other tasks. In that case, their capacity to develop the activity for which the outside purchase was opted for is practically reduced over time to zero. This element is often underestimated, primarily when the production process consists of complex or specialised work operations. As can be easily understood, this element has hefty effects when the company, reconsidering the choice made previously of make or buy, opts to return to the internal production of the good or service; it is evident that in this case, it would find itself having to retrain dear workers even though the same workers years before, were doing the same work for which they are called upon to act after the change of choice and therefore after the decision to return to the internal production of a good. This strategic element is often underestimated and not taken sufficiently into account, except when one realises, at the moment one reconsiders the decision taken previously, that the loss of workers' qualifications, which is inevitable when one no longer does a certain job or a certain operation, especially if the fields are specialised, seriously entail an

aggravation of costs for the retraining of personnel who, in previous years, were already qualified in a specialised manner and were left in other centres where they lost those specialised characteristics that at the time of the option to return to the internal production of a certain good or product would serve.

The strategic aspect, therefore, assumes a role of primary importance, so much to put, in certain circumstances, clearly in the background the income impact of choice, which we will discuss in the next section. By way of example and to supplement the above observations, let us consider the case in which the service of interest represents an element of primary importance at the level of corporate image. In such a case, the choice may fall on the decision that, although less economically convenient, represents the "best" choice at a strategic level. Consider, for example, the case where a company is known worldwide for a specific technical production. Even if it is conceivable that the management might purchase such an asset externally, it is reasonable to assume that it will never make such a decision. Entrusting third parties with the production of a product that represents the characterising element of the company and with which the company identifies may have particularly damaging consequences in terms of corporate image. One thinks, for example, of the disruptive negative strategic impact that a delay in the supply of the good or a drop in the quality of the raw materials used to produce, by third parties, the good itself can cause in the corporate sphere. Such considerations may lead to the strategically relevant option being considered appropriate even if this would have a not entirely favourable economic impact.

However, this can occur if the company's income/financial/equity situation is sufficiently positive. When a company operates in 'emergency' management conditions, i.e. presenting economic imbalance, financial tensions, under capitalisation, etc., economic considerations should necessarily, take precedence over strategic considerations since, acting otherwise, the company would be doomed to inevitable bankruptcy.

Although it may make some make-or-buy decisions on the basis of the strategic impact of the option, it is undeniable that whenever managers have to decide, they must be aware of the economic impact of the choices on which their attention is focused.

Regardless, therefore, of the final decision, knowledge of the economics involved in each option is indispensable if the management of the enterprise is to be carried out with a view to maximising effectiveness and efficiency as the objective to be achieved.

Consideration of the strategic implications of the make-or-buy decision, while undeniable and highly relevant in the context of the company's management, must, therefore, always be accompanied by an analysis of profitability and finance. It must make strategic choices and options in awareness of the impact that the choice may have on the company's economic, financial and asset situation. It is unthinkable to implement strategies without having this income and financial information. After having, therefore, highlighted how vital the strategic aspect is in make-or-buy choices, it is essential to emphasise how such decisions must always be accompanied by an analysis of an income and financial nature. As already pointed out in the preceding pages, there is nothing to prevent the option from falling on the least convenient income and financial choice when the choice to be made has an extremely significant strategic impact that suggests opting for the least convenient option but one that is more in keeping with the company's situation in the strategic sphere. Nevertheless, knowledge of the two options' income, financial and asset aspects is indispensable even if the option falls on the income- or financially-less convenient choice.

3. MAKE-OR-BUY CHOICES: PROFITABILITY CONSIDERATIONS

After pointing out that make-or-buy choices are determined, to a very considerable extent, by aspects of a strategic nature, it emphasised that the data of the two options of purchase from outside or internal production must be verified at profitability and financial level. Regarding the income situation, it is necessary to focus on the costs and purchase prices of the service or item to decide whether to continue producing in-house or purchase from third economies. However, the knowledge of the financial and equity impact of the two choices on the company's situation is indispensable so that the company is not drowned by ill-considered choices that have not been calculated in terms of their impact on costs and revenues, incoming and outgoing cash flows and the equity situation.

With specific regard to profitability considerations, we have already highlighted how, when speaking of make or buy choices, we refer to a situation in which a production process has already been activated and, therefore, the decision concerns the continuation of production within the enterprise or the outsourcing of the purchase of the service or good subject to the make or buy choice. It was pointed out that, for these reasons, absolutely nothing concerning the valuation of investments should be applied. Instead, in some companies, the decision is not taken by the top manager and thus not given a relevant strategic value. Decisions are made based on investment appraisal methodologies.

The most frequent errors in this field are the use of investment valuation methodologies that have nothing to do with make-or-buy choices. In particular, it can identify the use of quantitative methods typical of investment valuation in some companies. It is not unlikely, for example, to see cases of companies preparing to decide on make or buy choices and using the VAN and TIR criteria typical of investment valuation.

This has nothing to do with make-or-buy choices. To assess the two options in terms of income, it is necessary to take the following steps.

First, to assess the profitability of the make-and-buy choices, it is necessary to identify the costs associated with each option. However, not all costs need to be included in the cost-effectiveness calculation. In particular, the relevant negative income components in the context of this choice are:

MAKE	BUY
CESSANTS' COSTS	SOURCE COSTS

Therefore, the decision presupposes a comparison between the costs that would arise, should the choice fall on the buy, and the business costs that could eliminate if this were to happen.

The most cost-effective choice is the one with the largest 'savings'. Therefore, if, for example, the discontinued costs amounted to 1,000,000, while the source costs would be 1,200,000, the decision would have to fall on internal make production since the buy option would give rise to a new cost of 1,200,000, which would allow a saving of only 1,000,000 lire. The convenience of continuing the internal production of that service is evident.

From a purely mathematical point of view, the juxtaposition between discontinuing and source costs leads to the result that can obtain by comparing all costs (ceasing and non-ceasing) connected with the make and the source costs plus the non-ceasing costs associated with the buy option. If, for example, in the previous hypothesis, the costs that, regardless of the make or buy choice, the company would have to continue to incur amounted to 2,000,000, the make option would continue to be the most cost-effective since the buy would give rise to a total cost of 3,200,000 against the 3,000,000 associated with the make.

This determination can be the subject of a particular observation concerning the appropriateness of identifying a series of costs (i.e., costs that cannot be eliminated under both hypotheses) whose value - unique by definition - must be added to other relevant costs under both assumptions. From a mathematical point of view, this causes no change in the final decision. On the other hand, from an economic point of view, the determination of non-eliminable costs entails the expenditure of labour energy, to which, inevitably, a charge is incurred. A cost which, erroneously, could be considered a 'waste' since - for the 'mathematical' reasons outlined above - the most profitable choice could be made even without knowledge of the amount of non-eliminable costs.

While this is true, it is equally valid that highlighting non-eliminable costs can have a positive 'awareness' effect on the problem concerning such negative income components.

From this perspective, the recognition of such costs can therefore create the prerequisites for a reflection on the strategic choices to be made in the future.

If carried out with such a purpose, highlighting costs that cannot eliminate must be considered a valuable accounting operation for decision-making purposes as it implicitly has a logic of a strategic-management nature.

For the option to fall back on the most economically advantageous choice, it is necessary to fully understand the real meaning of the terms 'discontinued costs' and 'source costs'.

Regarding the exact scope of the term 'source cost', it can usually identify no particular problems of interpretation. Anyone who approaches this issue understands that source costs are to be understood as the costs the company has to bear ex-novo if it opts for the buy alternative.

On the other hand, Ceasing costs are not always determined correctly, as there is sometimes confusion between the notions of discontinuing and variable costs and the concepts of fixed and noncontinuing costs.

In this regard, it is particularly relevant to emphasise that whether a negative income component is discontinued or not has no correlation with its variability. Indeed, a cost may be discontinued and at the same time belong to the category of fixed costs, just as an income item may be variable and represent a typical example of a noncontinuing cost. Consider, for example, the case in which a company has managerial staff that identifies a fixed cost that it intends to dismiss. In this hypothesis, the cost in question, although representing a fixed cost, under the logic of make-or-buy choices, the cost becomes a discontinuing cost.

However, eliminating an input is not the only instance of a discontinued cost. A cost is also deemed to be discontinued when it can economically utilise the factor within the company. An example is a case where personnel cannot be dismissed but can be utilised in other departments, which, in the absence of such persons, would have had to make new hires. In that case, too, the cost is deemed to be discontinued.

A further element frequently distortions in the values considered so that it can conveniently decide make-or-buy concerns the depreciation of real estate involved in such decisions.

This accounting data derives from the cost recognition method defined as 'at historical values' in that the asset component appears in the financial statements at the value at which it was acquired on the market, a value duly deducted from the total depreciation up to that moment determined.

The application of this accounting method, in the absence of extraordinary evaluations, inevitably results in values appearing on the balance sheet that do not correspond to the economic reality in which the company operates. The over- and under-valuation of assets leads to the determination of depreciation that does not represent

the asset's real financial contribution to the company's annual production.

For this reason, if fixed assets related to make-or-buy choices are incorrectly valued, it is first necessary to identify the correct depreciation value (the determination of which presupposes the identification of the valid net book value and the remaining useful life of the asset). Only if the choices are made based on these values will the managers' decisions respect the cost-effectiveness criterion. If, on the other hand, the calculations are based on historical values that are meaningless because they are not connected with the economic reality in which the company operates, the choices resulting from such incorrect measurements could certainly not ensure the effectiveness and efficiency of the company management.

To calculate the ceasing costs of the make choice, it is possible to act according to the traditional methodology that provides for determining costs by centres or a more evolved methodology. However, it has been applied for decades and provides for determining costs by activity.

According to the centre-based costing methodology, costs are the result of allocating business costs to centres. In turn, it can be included in companies where work is done by order or process.

The two types of processing present substantial differences but, albeit with some relevant distinctions, it is possible to summarise the considerations regarding determining product cost in a cross-cutting manner for the two production realities. For this reason, while being fully aware of their respective specificities, we will summarise, in a compact way, the critical points that can be identified in the calculation of production cost in the so-called traditional methods without making further theoretical subdivisions between observations concerning processes per job order and considerations inherent to processes per process.

It is evident that the determination of the unit product cost is more straightforward in the context of production by process since the calculation of the individual costs inherent in the various and multiple orders complicates the work of those charged with determining the negative income components referable to the individual goods/orders/services produced by the company.

An element that differentiates, in reality only partially, the two calculation methods also concerns the concept of "accumulation" of costs. Whereas in-process production by order, costs must be 'stratified' on the product, in-process production, negative income components are accumulated in various departments/centres from which they are subsequently 'passed on' to the different output products of the centre itself. From this assertion, it could deduce that the two methods of calculating unit product costs are characterised by such specificities that no cross-cutting consideration is possible. However, this does not correspond to reality. Despite the apparent differences, it can discern several problems in the two methods, which, similarly, concern both production per order and production per process.

In the panorama of the many problems that an analyst/controller must solve to obtain meaningful accounting data, the issue concerning the allocation of fixed costs (special and/or common) to the individual objects of quantitative determination is of particular importance.

In process production, this calculation appears simplified concerning the technique of production by order in that all fixed costs are densified in a few selected centres. In reality, perhaps to overcome irresolvable problems and to determine the cost per centre, such "agglomeration" is also often implemented in production by order. The issue, therefore, cuts across the two product types.

Simplifying reality for the sake of expository clarity (and, consequently, leaving the analyst/controller the task of transposing the following concepts into the various company realities), it is possible to state that, in general terms and, leaving aside the consideration of whether the individual cost is specific to job order or common to the entire process, the cost charged to the centres derives from the summation of three essential elements:

- 1) variable costs
- 2) special fixed costs
- 3) share of common costs.

Variable costs can be defined as those costs whose amount varies in proportion to changes in production volume. Variable costs also vary with the variation of a single production unit. Fixed costs, on the other hand, do not change with changes in production.

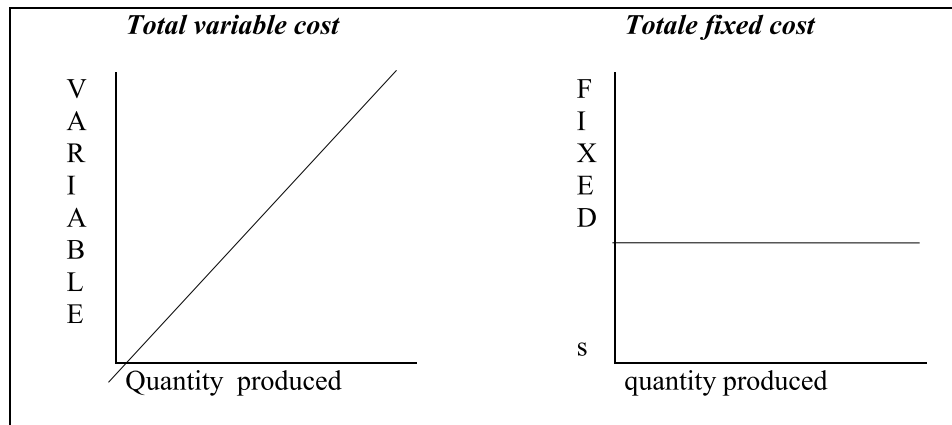
This dichotomy is only and exclusively valid from a short-term point of view, i.e. in a context characterised by a pre-established production capacity and, therefore, not adjustable. For this reason, we speak of fixed and variable costs within the so-called 'relevant range'. The relevant range represents, in essence, the consideration of a short-term time horizon with a given production capacity.

Only in this case can one speak of 'fixedness' and/or 'variability' of costs.

On the other hand, focusing on the medium to long term inevitably implies the variability of all company costs. In the long run, every managerial choice (including, for example, decisions concerning the size of the company, the production capacity to be activated, etc.) presupposes that it can decide the costs about that without any constraints whatsoever (with the exception, of course, of financial constraints). In this context, production capacity does not represent a constraint and even constitutes one of the primary decision-making choices.

Consequently, for example, the depreciation of a building and/or furniture and/or equipment and/or other fixed assets, from a typical fixed cost in the short term, becomes a perfectly variable cost in a long time since this value depends on the size and characteristics of the fixed assets to be used. In the long-term view, elements are the subject of managers' decision-making choices and, therefore, must be considered elastic, i.e. variable.

This, however, distorts the perspective in which the dichotomy 'variable costs' vs 'fixed costs' is framed since the vision within which one operates is long-term and no longer short-term.



From the above definition, it can understand that variable cost is overall variable but unitarily fixed, while fixed cost is overall fixed and unitarily variable.

This makes it possible to state that a negative income component is variable when it can calculate the unit cost by applying the following function:

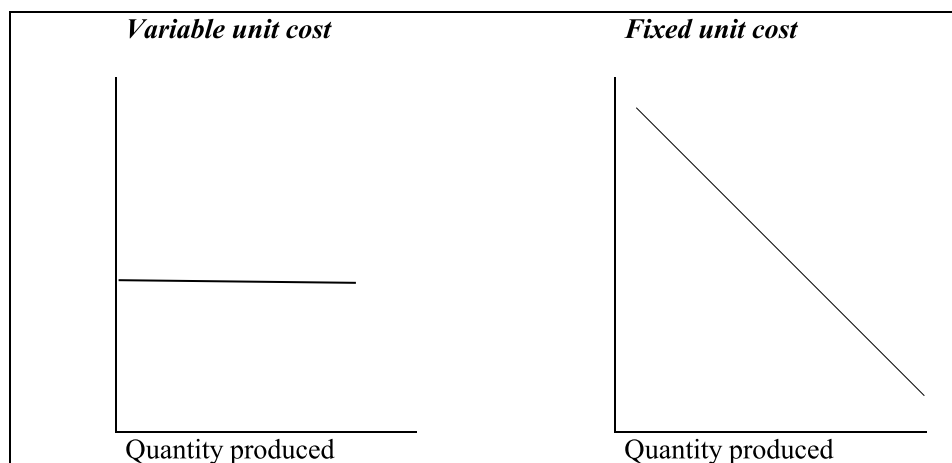
$$\text{variable unit cost} = q - Pu$$

Where:

q = quantity of variable input per unit of output

Pu = unit price of the production factor

On the other hand, the unit cost share derives by dividing the total value by the production quantity (or different quantity).



In the corporate environment, variable and fixed costs are often incorrectly identified, especially concerning the negative income component about employees.

The variability of this cost is, in fact, incorrectly identified with the duration of the employment contract stipulated with the employee (fixed-term or open-ended) and/or the possibility of dismissing redundant staff if necessary. According to this distorted view, employees give rise to fixed costs whenever they are employed indefinitely in the company, and the possibility of unilateral termination of the employment relationship by the company is practically non-existent. Instead, they give rise to the incurrence of variable costs whenever their contract is a fixed-term one.

All this stems from an incorrect and distorted notion of the variability of costs. Variable is not the cost that is sustained two months a year or that can be eliminated if one intends to expel a person from the company organisation but is the cost that varies proportionally to the variation in production and for which therefore, it can identify a clear and quantifiable connection between the input of resources employed in production and the output of the activity performed.

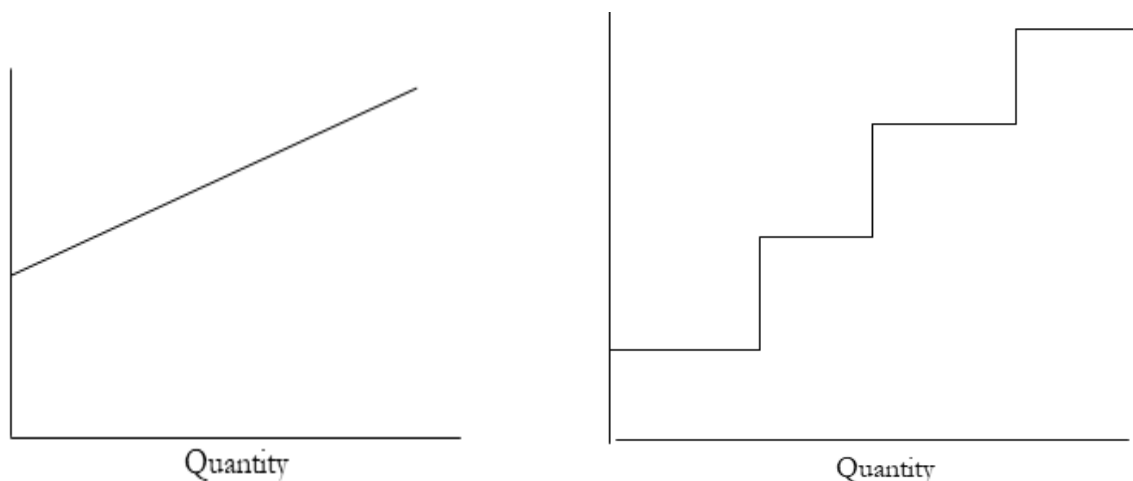
The distinction between variable and fixed costs is fundamental in carrying out severe and prudent planning. Carrying out this activity presupposes the ability to reliably determine the amount of costs linked to the various levels of activity the company can theoretically carry out. Since, in addition to fixed costs, there are also variable and semi-variable costs, it is inevitable that different levels of business activity correspond to varying amounts of negative income components. Planning also means choosing the most cost-effective level of activity for the enterprise. This decision cannot disregard, as we shall see in the following pages, the consideration of the costs interrelated to each production option.

Identifying the negative income components associated with each hypothetical production level gives rise to what is commonly referred to as a flexible budget. This statement shows the production/sales quantities against which the costs associated with each production hypothesis are explicit. Correctly identifying fixed and variable costs is a fundamental step for the values identified in the planning phase to be meaningful. Since the determination of the costs referable to each level of production that, hypothetically, the company could realise would represent an extremely high expenditure of energy, it is frequent to opt for the construction of a document in which only one level of production is made explicit - that is, the one that is intended to be implemented - to which the various costs connected to it correspond. It can construct a document with a clear understanding of the mathematical function linking variable costs to the different production levels. To the values thus determined (concerning variable and semi-variable costs) must naturally be added the amount of fixed costs which, by definition, is independent of the volume of activity developed. This simple calculation allows the determination of the total costs whose incurrence is implicitly linked to producing a given quantity of goods and/or services.

It appears clear how it can quickly identify the determination of costs connected to production levels differing from that stated in the budget through the mathematical function that determines the existing link between production and variable costs. As shown in the following pages, determining these values (total costs connected to production volumes that differ from those indicated in the budget) is an indispensable step for management control to be carried out effectively. For this reason, correctly identifying variable/semi-variable costs and determining the function linking these costs to the various production volumes must be interpreted as two fundamental elements in the complex business planning activity.

Alongside the contrast between fixed and variable costs, there is a third category of costs in the business environment, which, quantitatively speaking, probably represent the most significant set of costs. These costs are defined as semi-variable in that they are characterised by the presence of a variable and a fixed portion. The division of the fixed amount from the variable part is a technical operation that is indispensable for correctly determining the product's yield.

Semi-variable costs can belong to two categories, the first having a fixed cost quota clearly and visibly separated from the variable cost quota, the second being characterised by the presence of a so-called 'stepped' cost. In the latter case, the cost, instead of presenting a different fixed and variable share, is characterised by a trend that for small quantities identifies a fixed cost which, whenever a specific quantitative limit is exceeded, undergoes a sudden increase to a higher cost level. Graphically, the two semi-variable cost categories can be represented as follows:



It is clear from the two examples above that, in the first hypothesis, the division of the total cost into fixed and variable parts is elementary. The cost function allows the immediate determination of the two parts making up the full value.

On the other hand, the difficulty is considerable when the focus shifts to costs with a "stepped" trend. Even from a purely visual point of view, it can be understood how any division of the total cost into variable and fixed parts represents a mere "accounting fiction" in that, precisely because of the particular progression of the cost, an objective division, with the associated identification of a variable unit cost, is impossible to determine. Any separation between fixed and variable share is, therefore, the result of a subjective subdivision that inevitably reflects, only in part, the actual cost progression.

It can affect the apportionment of the fixed portion of the variable part of semi-variable costs by means of operational-practical systems. In the case of gas, water and electricity utilities, for example, the allocation of costs could, purely hypothetically, be carried out in a precise manner, e.g. employing the installation of meters that allow the analytical identification of the cost attributable to the occupation of, e.g. individual rooms and the cost relating to the operation of the common parts of the enterprise.

In allocating these values, however, it must bear in mind that balancing costs and benefits must be an indispensable objective for those who manage an enterprise. Implementing such a cost allocation method requires a cost that exceeds the benefits obtained by separating the variable portion from the fixed amount. For this reason, it is believed that the distinction between the two parts of the overall cost must be made by applying mathematical-statistical methodologies that allow, with reasonable approximation, to identify the part proportional to the level of activity carried out by the company and that which is not related to the volume of production implemented.

There are mainly two mathematical methodologies that can use for this purpose:

- 1) minimum-maximum method
- 2) statistical regression method

Concerning the minimum-maximum method, it should note that its simplicity of application necessarily entails obtaining a less precise result than that obtainable with the statistical regression method. Despite this, the results obtained are not tainted by an approximation that could cause them to be considered unreliable. Therefore, it must choose between the two methods in the knowledge that the minimum-maximum method is more straightforward but less refined than the one using statistical regression, even though the results obtained are perfectly usable for allocating the fixed and variable share of the semi-variable costs.

To illustrate the calculation methodology of the two variants of the method, the following example is proposed:

Assume that, in the company Alfa, there is a semi-variable cost with the following trend:

Quantity produced	Total Cost
100	2.000
110	2.200
130	2.700
150	2.900
180	3.300
190	3.400
210	3.800
220	4.000

Il metodo dei minimi-massimi richiede i seguenti calcoli:

	Quantity produced	Total cost
Minimum value	100	2.000
Maximum value	220	4.000
Difference	120	2.000

$2.000/120 = 16,666$ this value represents the variable unit cost
the cost function is as follows-

$$\text{total cost} = \text{fixed costs} + \text{total variable costs}$$

with reference to the minimum quantity (but the result would not change if, for example, the maximum quantity were considered), the function takes on the following values:

$$2.000 = \text{fixes cost} + 16,666 \times 100$$

$$2.000 - 1666.66 = \text{costi fissi}$$

therefore fixed costs amount to €333.4
the general cost function takes the following form-

$$\text{total cost} = 333.4 + 16.666 \times \text{quantity}$$

Summarising therefore by means of the minimum-maximum method, the following values were found:

Fixed cost = 333.4 euro

Variable unit cost = 16.666 euro

The application of the statistical regression line requires the application of a more complex method, which consequently guarantees more correct results.

The equation of the interpolating straight line is as follows:

$$y = ax + b$$

y = total cost
a = variable unit cost
x = quantity
b = total fixed cost

To solve the equation with two unknowns, the following system must be used:

$$\begin{cases} \sum y = bn + a\sum x \\ \sum xy = b\sum x + a\sum x^2 \end{cases}$$

n = number of observations made

Number of observations made	Quantity produced X	Total cost y	X ²	XY
1	100	2.000	10.000	200.000
2	110	2.200	12.100	242.000
3	130	2.700	16.900	351.000
4	150	2.900	22.500	435.000
5	180	3.300	32.400	594.000
6	190	3.400	36.100	646.000
7	210	3.800	44.100	798.000
8	220	4.000	48.400	880.000
Totale 8	Total 1.290	Total 24.300	Total 222.500	Total 4.146.000

$$24.300 = 8b + 1.290a$$

$$b = (24.300 - 1.290a) / 8$$

a = 15.7118 variable unit cost

to find b, we replace the letter a in the first equation with the value found above.

b = 503.98 total fixed costs

the cost function is therefore as follows

$$\text{total cost} = 503.98 + 15.7118 \times x$$

Comparing the results obtained from the two methods, it can be seen that:

Method used	Variable cost per unit	Total fixed costs
Minimum-maximum method	16,66666	333,4
Statistical regression method	15,7118	503,98

As can be seen, the results are not equal even though there is some consistency between the data obtained. Therefore, although the minimum-maximum method does not guarantee the best obtainable results associated with statistical regression, it allows approximate values to be identified for the interpolating line data. Therefore, the simplicity of the method does not invalidate the results obtainable by simply comparing the minimum value to the maximum value.

To compare the results obtainable through the application of the method of minimum-maximums and statistical regression, the following example is given: the variable unit costs and fixed costs available through the application of the two methods are indicated.

The classification regarding costs does not end with considering the variability of negative income components concerning the production carried out. For the accounting decision-making tools to be entirely understandable, it is, in fact, also necessary to illustrate the difference between common costs and special costs.

Company costs are defined as special (or specific) if they can be allocated objectively and thus without the need for questionable attributions to a particular company department/product.

It is evident how, since the elements are used in a particular department/centre, the cost of the factor must be allocated to that particular user centre. Such costs are special to that centre. An example would be the labour costs of a department head or the depreciation of a machine used in a specific responsibility centre. For such factors of production, the theoretical problem of allocation does not arise.

While there are many costs specifically referable to a particular department/product of the company, there are numerous negative income components that, on the other hand, relate to several departments/products. These costs are termed common costs in that they affect, at the same time, an assortment of objects. Common costs are subdivided, in turn, into specialisable and non-specialisable costs. The first mentioned category consists of costs which, although lacking a direct connection to departments/products, are attributable to the various objects of interest through sufficiently objective parameters. Consider, for example, the case of energy. Suppose, by hypothesis; counters were installed in the enterprise, allowing the amount of input consumed by the various departments to be determined. In that case, the cost associated with energy consumption could be included in the specialised costs. However, numerous examples of negative income components are attributable to the various departments only due to the use of subjective and thus questionable parameters. The depreciation of a building, the general manager's salary, advertising, voluntary insurance, the cost of a plant manager, etc., are typical examples of such costs. The allocation of these income items to specific departments and/or products could only occur by resorting to subjective criteria. These costs are therefore part of the so-called non-specialisable common costs, i.e. in the category of costs which, regardless of more or less discretionary 'rebates', cannot be apportioned precisely between the various company areas as they concern the company considered in its entirety and wholeness. For a practical and theoretical exemplification of the allocation of common costs, the reader is referred to the following paragraphs.

To conclude these brief considerations, it should point out that the division between special and common costs is relative in that it strictly depends on the object taken into consideration. It is evident that as the size of the object increases, the quantity of special costs also increases proportionally against a corresponding reduction in common costs. This implies that a cost that identifies an object's negative income component may become common if the analysis perspective is changed. If, for example, the reference object were the entire company, each cost would become special, and consequently, the category of common costs would be nullified.

All of the above applies to both process and job processing.

A particular problem arises concerning allocating fixed costs to the various centres. It must implement this allocation through allocation parameters that reflect, as realistically as possible, how much of the fixed cost is "absorbed" by the individual centres. The various parameters are subjective values determined by the analyst who manages the accounting information system's database and is, of course, assisted by the centre manager. The use of parameters that reflect the production reality to be taken into account for allocating common costs is one of the most delicate points in determining centre costs. If the parameter used does not reflect the reality it is supposed to reflect, the cost identified is, of course, incorrect, and, in this situation, the decision-making process based on that incorrect value can only be inaccurate and misleading.

The costing of a part of the company's management activity, implemented according to the traditional methodology focused mainly on centres, has evolved to the identification of an innovative method based not on centres but on so-called activities.

In the context of a flexible production system, such as the one we have today, the great difficulty in calculating product costs is allocating indirect costs, primarily due to the lack of equipment dedicated to individual products or individual production lines. It should also note that in evolved production realities, labour is almost always indirect, with the consequent difficulty of allocating it to the various products with which the worker comes into contact. Often in advanced production realities, the only cost directly given is the cost of raw materials, which, for obvious reasons, can always be directly assigned to the product itself.

The costing technique called Activity Based Costing (ABC) has been proposed as a solution to the problems induced by using the traditional accounting system in the modern, highly flexible production environment.

ABC should therefore be one of the most critical responses to the need to renew management accounting systems.

ABC represents a full cost system in that it aims to allocate all costs to the various products using an allocation mechanism which, instead of being based on centres, is based on another concept, namely that of activities, which we will discuss in the following pages. Since one of the most widespread criticisms of traditional

accounting is that it fails to reflect the actual use of resources in the production process and to use the volume of production as the basis of attribution for the determination of product costs, the ABC, by overcoming these problems, focuses its attention not on the centres. Still, the activities carried out by the enterprises minimised the importance of the volume of production implemented, since the imputation parameters, as we shall see later, can be different from the volume produced.

Therefore, the application of ABC leads to the determination of a cost of an activity intended to direct many more cost items than is the case in traditional systems. The cost of activity thus identified should, therefore, be characterised by greater objectivity since the parameters applied, if well identified, identify the resources used to produce each good less subjectively than is the case with allocation to business centres.

It is an innovative tool through which indirect costs are controlled, overcoming, in part, the product perspective to attribute different significance to the various activities employed and developed for the realisation of the company's production.

The ABC system is based on the following considerations:

- 1) All company activities are created to support the production and distribution of products and services. Consequently, the resources used by these activities must be related to that production process, and their cost must be included in the cost of the product;
- 2) All costs are considered variable and not fixed. As will be seen, variability is not a function of production volume but other parameters;
- 3) All costs are allocated to the activities performed by the enterprise. In this context, therefore, an attempt is made to pass on to the activities, all indirect costs, be they production, sales, administration

As can be seen, this approach is based on the identification of the so-called activity, which identifies an aggregation of elementary operations in the performance of which people, materials, technologies, structures and methodologies are combined to obtain output, products or services.

Regarding the identification of so-called 'activities', it must be emphasised that most scholars who delve into this accounting technique identify five activity levels. In synthetic terms, we report what is summarised by Garrison-Noreen-Brewer :

- 1) Unit level activities are performed whenever a unit is produced. The costs of unit-level activities should be proportional to the number of units produced. For example, providing electricity to run machinery would be a unit-level activity because electricity tends to be consumed in proportion to the number of activities made.
- 2) Batch-level activities are performed every time a batch is handled or processed, regardless of how many units are in the batch. For example, batch-level activities include placing purchase orders, setting up machinery, and organising customer deliveries. They are carried out once per batch (or customer order). Batch-level costs depend on the number of sets processed rather than the number of units sold, the number of units sold or other volume measures. For example, the set-up cost of a batch processing machine is the same regardless of whether the batch contains one unit or thousands of units.
- 3) Product-level activities refer to specific products and, in general, must be performed regardless of how many batches are handled or how many units of product are produced or sold. For example, activities such as designing a product, advertising, and maintaining a product manager and his staff are all product-level activities.
- 4) Customer-level activities (customer-level activities) are related to specific customers and include visits to vendors, catalogue mailings and general technical support, which are not associated with any particular product.
- 5) Organisation-sustaining activities are carried out regardless of which customer is being served, which products are being manufactured, how many batches are being handled or how many units are being produced. This category includes heating the plant, cleaning management offices, providing computer networks, organising loans, preparing operating budgets, etc.

It should note, however, that the above breakdown of activities is not unanimously agreed upon. Since each company identifies the various activities on the basis of its own technical and organisational characteristics, it is not deemed appropriate to dwell further on the type of activities theoretically identifiable in the various companies. The relevant circumstance is that, as far as possible, the smooth functioning of ABC would require a homogeneous grouping of activities. A combination of heterogeneous activities could lead to incorrect cost overruns on products. Therefore, it is said that different activities should be combined with similar activities and characterised by elements of homogeneity (including grouping). Batch activities should, therefore, be combined with batch

activities, product activities with product activities, etc.. In this way, it would favour cost reversal on activities and, subsequently, on products. This, at least theoretically, should lead to more correct results than those obtainable by combining various categories of activities.

Even this statement, however, should be taken with caution. In fact, in many businesses, combinations of heterogeneous activities can be seen as more in keeping with the aims achieved through the application of ABC. Further consideration must be made concerning so-called organisational support activities. Many scholars claim that it should not allocate these costs to the company's goods/services because they identify period costs and not product costs. This observation, too, is frequently not applied by companies. In many realities, this latter cost is also allocated to products.

This is not surprising, as each company must identify the system that best represents the accounting reality it wishes to transpose into its calculations and quantitative output determinations. This specific issue will be the subject of some considerations in the next section, to which, therefore, the reader is referred for any further study of the subject at hand.

For the product cost to be determined, it is necessary to identify the factor that determines the consumption of resources in the performance of the activity considered. Therefore, the reversal of direct costs is functional/causal and is implemented based on a factor that identifies the absorption of the cost by the product. This factor is called a cost driver. The cost driver, therefore, recognises the set of indicators expressing the factors that are the fundamental determinants of the costs incurred to perform the various company activities. To be meaningful, these indicators must have a strong causal relationship with the cost of the activity. They must be able to be related to the activity and the final product.

Consequently, the cost driver can be considered a helpful parameter to allocate cost to the product or service of interest. It should note that the cost driver is not always linked to the production volume but is often connected to other information elements. Therefore, production volume is no longer the only variable in the resource consumption function in this context. Different cost levels are possible for the same output depending on how other variables are managed.

The steps according to which costs are allocated according to the ABC methodology can be summarised as follows:

Identification of the activities carried out in the enterprise

Identifying and analysing activities carried out within business processes is at the heart of the ABC system. An activity, as emphasised in the previous pages, represents how resources are utilised within the organisation. By way of example, consider the following activities of the logistics department in an industrial company:

- incoming material acceptance;
- acceptance of quantities;
- management of materials returned by suppliers;
- outgoing material management;
- storage of incoming materials.

Each activity is characterised by the fact that it consumes inputs and generates specific outputs. After having identified the activities carried out in the enterprise, it is, of course, necessary to identify

- inputs consumed;
- outputs produced;
- resources employed;
- constraints that cannot change.

The main objective of activity analysis is to identify the relevant activities within the business since the appropriate activities constitute a synthetic basis for describing the various business operations, determining their costs, and identifying their performance.

The activity analysis, if performed correctly, should also make it possible to identify activities that do not add value to the company. From this point of view, identifying and analysing activities could highlight opportunities to intervene in these activities to simplify or eliminate the processes themselves.

As has been pointed out by doctrine, activity research is developed through the following logical stages:

- a. determination of the purpose of the activity analysis,
- b. determination of units of analysis;
- c. definition of the activity;
- d. rationalisation of activity;
- e. reclassification of activity.

This last step distinguishes activities into primary and secondary activities, depending on whether the results produced are used outside the activities themselves or support the primary activities. The starting point for defining activity units is the organisation chart and cost centre plan. These documents ensure that the organisational structure is fully understood and that the analysis in question has covered the entire organisation.

It is essential that the activity units are functionally homogenous as, otherwise, the achievable results would not guarantee correctness and accuracy.

The next step is to define the activities performed by an activity unit. To define the activity in a meaningful manner, it is necessary to structure the activities in a list that provides sufficient but not excessive detail. Too detailed an analysis risks invalidating the benefits of an activity-based accounting system. Moreover, very complex systems do not focus on crucial decision-making variables and are often costly and ineffective.

Conversely, an overly synthetic analysis eliminates the benefits of applying the ABC methodology. Particularly relevant at this stage is the consideration that, for ABC to provide valuable data for information purposes, it must avoid the aggregation of different activities. Suppose the activity does not reflect the cost trend correctly. In that case, the cost of the product, based on the use of the activity's products, is incorrect and, inevitably, provides erroneous information. An excessively simplified system, therefore, does not provide the level of detail required to correctly account for the cost trend of the business.

The greater the number of activities identified, the higher will be, at least in theory, the accuracy with which the product cost is determined. However, it is necessary to bear in mind how an extremely complex system is costly and, in some cases, may be the harbinger of inaccuracy resulting precisely from an excessive fractioning of activities. Identifying activities that are too limited can, consequently, not only increase the cost of implementing/using the system but also lay the foundations for determining costs characterised by a high degree of subjectivity since, as we shall see in the following pages, the ABC does not eliminate this element but limits itself to identifying cost-reversal parameters that are more adherent to the reality that one intends to analyse.

The over-analytical nature of the activities can therefore turn, as a result of highly subjective imputations, into a lack of precision, exactly as happens when the scope of each activity is too broad.

1) Identification of Cost Drivers

The cost driver represents the element based on which a cost can be attributed to the activities and, subsequently, to the various products. The cost driver essentially identifies the variable that causes and influences the costs of given business activity.

Take, for example, the activity 'invoice management'. It is evident that, in this specific case, the cost driver is represented by the invoices issued. In some hypotheses, identifying the cost driver does not pose particular problems as its determination is immediate. In many other cases, on the other hand, this represents one of the crucial stages in the application of the ABC methodology since the cost driver is not always immediately perceived.

2) Determining the "quantification" of cost drivers

Since the cost attributed to the activity is "passed on" to the product through the cost driver, it is necessary not only to identify a reference parameter (cost driver) theoretically but also to be able to quantify the absorption, of each product, of the various cost drivers identified. It is, therefore, essential to determine the individual physical parameters that measure the absorption of the cost by the activity.

3) Allocation of cost elements to assets

The cost of the activity is the total of all factors absorbed by the performance of the activity. Costs are adequately considered allocable when the result of an activity can be used directly by another activity or cost objective. A cost is allocated when it is charged to a cost objective activity on a basis other than direct attributability. In operational terms, it can say that the costs of activity include all the inputs used to perform the activity: people, equipment, travel, ancillary products, computers, utilities, consultancy, external intervention, miscellaneous stationery costs, miscellaneous costs of production materials, etc.

It is possible that, within the business, costs are identified that cannot be directly allocated to specific activities. In this case, allocation bases parameterised to time percentages, production units, or historical data are used to solve the operational problem. Of course, these allocations are subjective. For the latter not to invalidate the product cost determination, the parameters used must be documented by verifying their reasonableness and correctness. To be useful for information purposes, the activity-based accounting system must be able to support the assumptions made by clarifying precisely the cost allocation methodologies used.

Activity costing is expressed in the measure of activity through which the cost of a given process is most directly changed. Activity costs are allocated to cost targets (which may be products or processes) based on the utilisation of the activity itself by the products/processes being quantitatively determined.

In operational terms, therefore, it can say that activity costing is determined by examining each organisational unit to identify its objectives, individual work processes and the resources allocated to achieve these objectives. Naturally, the focal point of activity costing lies in the process of allocating resources to the various

activities identified. The costs summarised in the accounts must be associated with the activities through a causal relationship by which a common activity measure is established for both inputs and activities. However, not all costs are correctly attributable to individual activities. If non-attributable costs are identified, an ideal centre is usually identified where all non-attributed overhead costs are allocated. Charging 100 per cent of the business costs to activities is practically impossible and often inappropriate. If there are unallocated costs, the product cost will not be a 'full' cost in the technical sense of the term but will discount the absence of a certain percentage of costs not allocated to activities.

After this phase of allocating costs to activities, there is the determination of the product cost, which, however, in the context of our analysis of the make-or-buy problem, is not relevant and, therefore, will not be examined in depth.

The doctrine has always emphasised that any accounting approach is meaningful if it can use for management and decision-making purposes. This is why it is crucial to identify ABC's decision-making scope. Before moving on to the illustration of the use of centre or activity costs in make or buy's choices, we consider it appropriate to make a few observations on the ABC methodology.

According to the traditional approach of this methodology, ABC is not intended to provide information for operational control but to allocate overhead costs within the value chain to calculate the profitability of individual products, product lines, distribution channels and customers.

The information is intended to constitute what Kaplan calls the product measurement system, i.e. the system of information designed to support decisions such as pricing decisions, mixer decisions, marketing decisions, decisions to discontinue unprofitable products, etc. Other authors, e.g. Cooper, extend the scope of the system to investment decisions and, in general, to all budget decisions concerning the level of operating costs in the production of different products.

Some authors, e.g. Shank in Govindarajan (1991), emphasise that the ABC methodology can also produce information for decision-making in developing new product designs. The costs determined according to the ABC methodology, since they are also linked to the size of production batches, set-up activity and material handling, should induce the designer to take an interest not only in the intrinsic characteristics of the product, but also in its production process, thus stimulating the integration of product and process design. In this case, the ABC system produces cost information that can also use in medium to long-term product decisions. Only in the medium to long term can the costs ABC considers variable be considered genuinely variable. That is to say, in the medium to long time, it is possible to make decisions which modify the resources owned or acquired or change the consumption pattern of the resources already available to the company.

In this context, it can say that ABC can use as an accounting method characterised by a strategic orientation, i.e. as a methodology that can provide information that can use not only in the short term but also in the medium and long term. According to Kaplan, the strategic nature of costs within the ABC system would derive from the notion of long-term variability, which is one of the fundamental prerequisites of the methodology under interest, and from its ability to provide helpful information for the construction of the value chain within the company.

However, Collini points out how the suitability of the information system to support, in a defined and specific context, strategic decisions does not seem to be a sufficient element to describe it as a 'strategic orientation system'. A strategic accounting system should, first and foremost, support the strategy formulation and implementation process. According to the cited author, this process can be divided into four elements:

- strategy formulation
- communication of the strategy;
- identification of political tactics to implement the strategy;
- monitoring the achievement of the set strategic objectives.

On the one hand, ABC indeed produces useful cost information in the strategy process. But it should not forget that a strategically oriented accounting system must, of necessity, be based on calculation principles explicitly derived from a strategic decision-making perspective, a circumstance that does not seem to characterise ABC.

Moreover, the suitability of the ABC in supporting certain product decisions cannot be considered a sufficient element to define the system as strategic since it must be capable of addressing itself to implement all possible options and not only those of a given category. In other words, a costing system from a strategic perspective should base on the variability of costs concerning the different possible strategic options for the company. However, the cost drivers used by ABC do not relate to strategic aspects but are exclusively connected to purely short-term operational elements.

Other authors also point out how attributing a presumed strategic orientation to the ABC can lead to reducing the importance of the products considered strategically more important by companies, i.e. those with a high innovation content and, consequently, lead to the reconsideration of product range expansion strategies because they are too costly.

On the other hand, to have relevant costs in the decision-making processes, it is not correct to claim that changes in the activity are, without a doubt, reflected in the determination of product costs. From this typically managerial point of view, it is necessary to determine differential costs caused by the different types of decisions under consideration. In other words, the emphasis placed on the role of the activity for costing must be placed in a reference context proper to the budget and not to management control. According to this logic, costs, therefore, reflect the nature of the decisions under consideration, not the activity. Suppose enterprises using traditionally determined full costs are induced to misjudge product profitability. In that case, using full costs based on a more reasonable allocation of general production, administration and marketing costs offers no guarantee of having the most helpful information. In other words, the full cost determined by ABC logic is better than the full cost determined by traditional sense when pure knowledge inspires the calculation. On the other hand, the aim is to calculate costs relevant to a given decision; it is indispensable to identify a cost figure in the dimension deemed appropriate from a differential point of view.

There is no doubt, however, that the ABC system is a system aimed at determining, more accurately than the traditional methodology, product costs in order to support medium and long-term strategic decisions. There is also no doubt that not all product decisions can be considered strategic. Therefore, it is not always correct to consider varying fixed or general costs in the calculation. This is only the case in the medium to long term. This means that the use of traditional marginalistic analysis techniques is definitely still valid for short-term decisions.

The fact that the traditionally employed accounting system and the ABC produce different types of information and are therefore not alternatives finds an authoritative consensus in doctrine. The ABC is thus interpreted as a complementary system, not a substitute for the traditional costing methodology.

In conclusion, it must recognise that the strategic scope of ABC tends to be limited and, above all, that this system is not suitable for supporting the strategic process within the production activity. It must recognise, however, that an accounting system can hardly have such elements of flexibility within it to permit its use in evaluating strategic alternatives, which are very diverse. In this sense, an ABC-type approach, which is based on the analysis of the management of the activity and its cost drivers, can be of help concerning an accounting system that is rigid and tied in structure to clear strategic choices made in the past but which may no longer have any use in the company's future.

It can also use the various costing methodologies according to the traditional method by centres or the ABC methodology in the context of make-or-buy choices. Suppose the company uses the conventional way by centres. In that case, the costs of the centre related to the choice of Giorgio will have to be made according to the rules of the methodology used by the company. If, on the other hand, the company uses the ABC, the activity involved in the make or buy choices will be marked by the determination of the costs of that activity carried out according to the ABC methodology applied by the company.

By way of example, consider the following business case:

Il direttore amministrativo dell'albergo Raggio di Sole deve prendere la seguente decisione: continuare a svolgere all'interno dell'albergo l'attività di lavanderia oppure acquisire dall'esterno tale servizio. Il funzionamento mensile del reparto lavanderia richiede il sostenimento dei seguenti costi:

Cost	Amount
Detergent consumption	4.000
Water consumption	1.000
Local depreciation	3.000
Managerial staff	2.000
Ironing machine	1.000
Operating staff	2.000
Washing machine maintenance	500
Washing machine depreciation	1.000

If the service is outsourced, the room is not put to any other use and cannot be disposed of as part of the hotel.

If the in-house laundry is discontinued, it can economically use the management staff in the room department.

The ironer can be dismissed, while the remaining operating staff cannot be redundant and is not economically usable in other departments.

On the other hand, it can sell washing machines to a third party.

Identify the most cost-effective solution between continuing the activity in-house and outsourcing it, knowing that 10,000 garments are washed in a month and that the outsourcing company charges a fee of one euro per piece.

Make	Buy
Relevant costs for the make: ceased costs Detergents 4,000 Water 1,000 Managerial staff 2,000 Ironing machine 1,000 Maintenance Washing machines 500 Depreciation	Relevant costs for choice buy: source costs Costs for outsourcing of laundry services 10,000 Total source costs 10,000

It is clear from the above data that the most cost-effective choice is made. In the Raggio di Luna hotel, it is more cost-effective to continue the laundry activity in-house than to outsource this activity.

As can be seen, when considering the Make choice, one does not have to list all the costs of the centre or activity that is the subject of the George make a choice, only the costs that would cease to exist if the chosen option was to purchase from a third party. Much more intuitive, however, and the data to be considered in the choice of purchase from third parties economies of the good or service subject to the make or buy option as the value to be assessed is the total purchase price of the service or good needed to run the business. We have illustrated a simple make or buy choice in that the problem arises simply in the option between continuing to produce a particular good or service in-house or acquiring the good or service outside the business from third economies. In this case, the option is called simple. There may, however, be a case where the option is not put in these terms but is complicated by an additional management issue. It is, in fact, possible that, should one opt to purchase the good or service from third parties and thus close down the activity carried out within the enterprise, some or all of the production factors linked to the internal production choices will no longer be made may be used to develop other activities ap. in this case the option is defined as complex because there is no longer a comparison between the choice to continue production within the company and the choice to acquire outside the company the good the service but the option changes in these terms I can continue to develop the activity within the company or I can receive outside the company the good and the service from third economies and at the same time I can carry out a new activity incompatible with the one previously carried out within the company that however becomes compatible with the option of the external acquisition of the service.

Should such a situation, defined as "complex", occur, the methodology illustrated so far, if applied, would be incomplete and lead to totally misleading results.

If, in fact, the decision to buy a service externally and/or good results, in addition to the inevitable cessation of the internal production of the service chosen, in the production ex Novo of a product that, before this option, the company did not place on the market or placed on the market to a lesser extent, the introduction of this additional element would no longer allow the application of what has been illustrated above because, in the occurrence of such a hypothesis, a relevant variable would be excluded from the calculation, which is identified in the "new" activity carried out following the buy option.

If the decision to buy is followed by the decision to implement such 'new' activities, it must assess the income impact of the make-or-buy options by contrasting:

MAKE	BUY
CEASED COSTS	NET OF INCOME CREATED EX NOVO AND ORIGINATING FROM THE PERFORMANCE OF THE NEW ACTIVITY

The problem that must solve at this is identifying the concept of income created ex Novo by the new activity. Since it must be a concept of income connected exclusively to the performance of the new activity which, it must be emphasised again, must be incompatible with the performance of the internal activity connected with the choice of Make, it appears evident that this concept cannot contain shares of common business costs.

The income that must take into account is, therefore, the Level II contribution margin.

To explain this concept, it should remember that income and economic performance are characterised by various facets and differentiations, which base their being on the different types of revenues and costs that, hypothetically, can be added together algebraically.

Centre or activity yield can also take on various connotations depending on the information that needs to be met.

One of the main income concepts found in the business environment and serves in the context of complex make-or-buy choices is the contribution margin.

To facilitate the understanding of some of the terms that will use later, it is appropriate to point out that an information need of relevant interest concerns the ability of the activity performed to contribute to covering the company's fixed costs.

Let us imagine, for example, that a given enterprise has fixed, special and common costs of EUR 100 million. The primary objective of this enterprise is to cover its fixed costs. The enterprise can, of course, cover these costs with the amount remaining after removing all variable costs from revenue. For this reason, it can say that the difference between revenues and variable costs represents the amount that helps to cover fixed costs.

Since the difference between total revenues and total variable costs contributes to covering the company's fixed costs, whether special or common, it is called the contribution margin.

Several contribution margins can be determined, depending on the issue to be addressed. To explain the correct definition of Level II contribution margin, which is helpful in the context of complex make-or-buy choices, it is necessary to briefly explain the concepts of unitary and Level I contribution margin.

Before explaining these concepts, it should make a brief general remark.

The contribution margin understood as the difference between variable revenues and variable costs represents a useful, or rather indispensable, cognitive element so that it can make multiple business decisions in full awareness of the profitability implications of the alternatives subject to the option.

The locution used to identify the "sum-value" which is the subject of our interest, containing within it the term "contribution", makes explicit, also from a terminological point of view, the informative function assigned to this cognitive vector which, therefore, can be unequivocally identified in the deepening of the capacity of the activity being analysed, to contribute to the coverage of fixed costs. From these brief observations, it is easy to understand how the effectiveness of the determination of the margin is drastically reduced if this differential value is determined about the entire company. The juxtaposition of all company revenues and all variable company costs leads to an in-depth examination of the ability of the whole company to cover all fixed costs. However, this information can be deduced clearly and unmistakably without the need to divide costs into fixed and variable, from the non-reclassified balance sheet. If a profit for the year is shown in that document, the company has been able, on the one hand, to cover all fixed costs and, on the other hand, to produce new wealth to a value equal to the income shown. If, on the other hand, the company has incurred a loss, the mere consideration of this value leads to the assertion that the activity carried out contributed to covering fixed costs but could not absorb the total amount of these negative components. Finally, a balanced balance sheet with zero income shows how the company could cover its fixed costs perfectly while failing to produce new wealth.

The reclassification of the company's profit and loss account at the contribution margin' can, therefore, only have the purpose of delving into the company's cost structure. Such information, as we shall see in the following pages, is undoubtedly beneficial to fully understanding the different impacts of business decisions on a company's overall profitability. In such a context, however, determining the company's overall contribution margin loses much of its effectiveness as an accounting tool for economic decisions.

For the usefulness of margin calculation to be maximised, this value must be identified by reference to partial business combinations. The interest of those who determine such margins must therefore be focused not on the company as a whole but the individual products offered on the market, product ranges, individual company departments, etc. This means that the company - on an accounting level - is divided into decision-making and management-relevant areas, concerning which the differential values resulting from the contrast between variable revenues and costs about these 'sections' of activity are determined. This makes it possible to understand the capacity of the various company products and/or sectors to contribute to covering the company's fixed costs. Of the multiple alternatives analysed, the managers' choice will naturally fall on the options that contribute most to protecting the company's fixed costs.

As will be better understood in the following pages, various contribution margins depend on the object of reference. The margin is defined as unitary if the focus is on a specific product.

Assuming equal sales volumes of the two products or unlimited market potential, management would clearly opt for the Beta product. It should note that it can make this decision irrespective of the knowledge of the amount of the company's fixed costs since both in the hypothesis of fixed costs being lower than the total margin and in the opposite theory, the company would be in favour of alternative B since, in the first case, it would maximise the profit. In contrast, in the second it would minimise the loss.

As can easily be understood, the basic assumptions indicated above (infinite market or perfect coincidence of A and B sales volumes) are, however, unrealistic at the operational level. For this reason, it must take the managerial decisions we are interested in, not of the unit margin, but the total contribution margin, i.e. the value resulting from the product of the unit margin by the sales volume.

Three 'exceptional' hypotheses allow the contribution margin to be used for decision-making purposes. The unit contribution margin cannot, therefore, be used for decision-making purposes precisely because it does not show, on a global level, the product's ability to cover fixed costs. The unitary margin can, in fact, be used for decision-making purposes in the following three cases:

- 1) in the hypothesis of a negative unit contribution margin: in this case, unless requirements of a strategic nature demand it, the sale of the product is not economically viable because it creates a loss. In the presence of negative unit contribution margins, the more one sells, the greater the loss that the company makes;
- 2) if the enterprise is a single-product enterprise: in this case, the unit contribution margin of the only product placed on the market is significant for the economic viability of the product itself;
- 3) if the enterprise found itself deciding to choose to sell among several goods marked by the exact sales quantities, it is evident that in this case, given the exact quantities sold, the discriminating element is represented, in practice, by the unit contribution margin.

Outside of the three assumptions mentioned above, it cannot use the unit contribution margin for decision-making purposes. Therefore, for the decisions made to be economically the most advantageous, one must necessarily switch to another concept of margin: a global margin that considers the quantities sold. This margin is referred to as the top-level contribution margin.

As we noted on the previous page, outside of the three specifically identified assumptions, it cannot use the unit contribution margin for decision-making purposes. For managerial decisions to maximise the company's overall profitability, it is necessary to introduce the concept of the top-level margin, i.e. the total margin in relation to sales quantities.

The first-level total contribution margin represents the product of unit contribution margin and sales quantity. It should note that the quantities to be calculated must, of course, be sales quantities and not production quantities, as fixed costs are covered not if the company produces goods but if it sells its products/services.

The first-level contribution margin is used to make short-term decisions. In this context, the word short-term has two meanings:

- 1) short-term refers to decisions that do not impact the company structure. Production capacity is taken as given, and by these decisions, we do not mean structural changes to the company, such as the closure of departments, the sale of business units, etc.;
- 2) the word short also has another meaning: in this context, it becomes synonymous with immediate. We intend here to refer to the period between the time one becomes aware of the information and when one has to make the decision. Regarding the decision-making aspect of the first-level margin, it can say that this period practically cancels itself out. In other words, the moment the manager becomes aware of the information; he can, automatically and immediately, make the most cost-effective decision. We will see later how there is also a second-level contribution margin in which the decision is not immediate but takes time. This is not the case with the first-level margin where we repeat; it can decide at the same time as the determination of the margin itself.

The first-level margin is used to take, in particular, four very important decisions:

A) to accept or not to accept an order: in this case, regardless of strategic decisions that may subvert the logic of short-term income maximisation, the acceptance of an order depends on whether the margin is positive or negative. It is evident that with a positive first-tier contribution margin, accepting the order will still be advantageous since, even if the amount is small, it will cover fixed costs for that same amount. It should note that the margin doesn't need to cover the fixed costs because, in any case, should the margin be positive, the choice of accepting the order entails either maximising the profit or minimising the loss, both options guaranteeing that the most advantageous decision is taken;

B) choice between several orders: naturally, in this case, the choice between several orders will fall on the order with the highest first-level margin. In this case, maximum coverage of the company's fixed costs is ensured with consequent maximisation of profit;

C) choice between the decisions to sell high quantities at low prices or limited quantities at high prices: every company generally has to take a significant decision when doing its annual planning. Here we refer to the hypothesis of goods with elastic demand, predominant in economics. That is, goods that have the characteristic of seeing demand increase when prices fall and, conversely, of seeing demand decrease when selling prices rise in the presence of such goods, each company has to ask itself whether it is appropriate to sell high quantities while keeping selling prices relatively low or whether it is more profitable to limit the quantities sold by raising the price at which the good is to be sold. In general terms, there is no 'best' solution. It all depends on the top-level margins that the two alternatives allow the company to achieve. Therefore, it is necessary to make the various sales quantity/price assumptions and then determine the first-tier contribution margins corresponding to each option. The most cost-effective alternative will be the one that naturally allows the firm to achieve the highest first-tier margins

D) Identification of the optimal sales mix: this decision is taken at the planning stage when deciding on the quantities and sales prices of the various products the company chooses to place on the market. If, as is the case in most cases, the company is a multi-product enterprise, it will inevitably have to identify the optimal sales mix at the planning stage since, hypothetically, it can sell different quantities of individual goods at different prices. Identifying the quantities of the particular goods and the most favourable prices is done by determining the total top-level contribution margin for each hypothesis. The optimal mix is the one that guarantees the highest first-tier contribution margin when planning. Sales planning cannot, therefore, disregard identifying the values we are interested in since selling more significant quantities of the product does not always mean obtaining better economic performance. If the higher sales of a given product are obtained by sacrificing the placement on the market of other products with higher margins, the policy implemented leads to a reduction in the company's overall result. The identification, at the planning stage, of the most economically advantageous mix and the clear perception of the differentiation of the capacity of the various products to contribute to covering the company's fixed costs, represent two elements of information, knowledge of which can play a fundamental role in avoiding the taking of apparently profitable decisions from a profitability point of view which, on the contrary, undermine the stability and economic equilibrium of the company.

From what has been stated above, it can understand how it must make most business decisions based on considering the first level contribution margin. The maximisation of this value entails the consequent maximisation of the characteristic income since, in the face of the total modifiability of variable costs, there is a 'crystallisation' of fixed costs (always within the so-called relevant range, i.e. under given production conditions).

This consideration can be usefully demonstrated with a simple equation whose relevance is not connected to a particular demonstrative efficacy but depends on its capacity, on the one hand, to highlight the impact of the variation in the volume of activity carried out on the company's characteristic profitability and, on the other, to highlight the profitability consequences of the various cost structures (variable and fixed) potentially present in the various entrepreneurial entities.

As pointed out in the preceding pages, the first-level margin derives from the contrast between variable revenues and costs. If from the first-level margin, one removes all fixed costs of typical operations, one arrives at the determination of the operating income of the characteristic activity. From this simple consideration, one can easily deduce how the variability of the operating income of typical operations depends on the type of structure and proportion existing between total margin and characteristic fixed costs. Due to the variability of the costs included in the margin and the fixity of the other typical costs, it is evident how the operating income from typical operations changes more than proportionally to the volume of business conducted. This leads to calling this multiplicative impact the 'operating leverage effect'.

In the hypothesis in which the need for information concerning, for example, two products was aimed not so much at the choice of "pushing" either one or the other alternative but had as its primary objective the determination of helpful information to understand the contribution capacity of individual products or significant aggregations of products to the coverage of common fixed costs - i.e. not referring specifically to the "fixed costs" of the business - as to the "operating leverage" of the business. i.e. not specifically referable to a given business sector or product offered on the market - it is necessary to move from the determination of the gross (or Level I) contribution margin to the semi-gross (or Level II) contribution margin, the determination of which presupposes the algebraic sum of revenues variable costs and specific fixed costs attributable to that particular product or business sector.

The Level II contribution margin represents an accounting tool for making medium-long term decisions, unlike the Level I margin, which is characterised by the fact that the decisions can cause are exclusively short-term. The expression medium-long term, concerning the second-tier contribution margin, takes on two specific meanings:

1) The use of the medium to long term presupposes that the decision to be taken has or may have a structural impact on the company. Unlike the first level margin, concerning which decisions do not affect the company structure, in the hypothesis that the decision-making aspect involves second level margins, it is possible to witness, for example, closures of departments, elimination of products, etc. It is evident that such decisions cannot be qualified as short-term but, instead, refer to decisions that, necessarily, must be taken in the medium to long term;

2) talking about the medium to long term also takes on a temporal meaning concerning the period within which the decision must be taken. It has been emphasised in the preceding pages that, as far as decisions involving first-tier margins are concerned, the identification of the most convenient choice is contextual to the information concerning the first-tier margin. It is for this reason that, as far as this margin is concerned, knowledge of the information can be considered contextual at the moment the decision is taken (if, for example, I receive three orders at the same time and I can only satisfy one of them, the choice will fall on the order with the highest first level margin. It is evident that the decision is immediate and does not require a long period to be made unless, of course, there are elements of a strategic nature to be taken into account, which, on the contrary, may take a long time before taking the most strategically correct decision). On the other hand, regarding second-level margins, it is evident how the

decision cannot be immediate. Suppose, for example, a product appears to have a negative second-level margin in a financial year, either at the planned level or at the final level. In that case, it is unthinkable that, immediately, top management will eliminate that product. It will take time to see whether that negative value also characterises subsequent years or whether a change in company policy can transform that second-tier margin, marked by a negative sign, into a positive margin that contributes to covering the company's common fixed costs. One can therefore understand how the terms medium to long term in this context also mean that the decision is not immediate and contextual to obtaining information on the amount of the second-tier margin.

The observations made so far could lead to the conclusion that if a product or department of a company provides a relatively low margin, it is economically reasonable to eliminate or at least drastically reduce the production of that service in favour of products or departments that, on the contrary, have a high margin. For business decisions to maximise effectiveness and efficiency, however, it must always bear in mind that the company, as a system, is characterised internally by strongly interrelated elements: any decision must therefore be taken only after the impact of that decision on all the various sub-systems making up the company has been carefully assessed. In the company's reality, for example, it may be the case that the presence of a department or product characterised by a shallow margin represents a polarising element of customers that allows another product to contribute very highly to covering fixed costs.

In such cases, it is essential to understand whether the product with a negative second-tier contribution margin is a leading product or not. If so, it is evident that eliminating the unprofitable product would lead to highly negative economic consequences regarding company profitability. In this sense, it is therefore apparent how it is possible to accept, over time, the presence of negative second-tier contribution margins precisely because these margins, in reality, allow the achievement, in other departments, of positive first- and second-tier contribution margins that allow, overall, the maximisation of company profit.

In such a case, the elimination or drastic reduction of an apparently unprofitable activity would entail a significant decrease in the volume of activity carried out by the company, with consequences that can easily guess in terms of the company's income and financial situation.

These considerations, therefore, suggest a prudent attitude when economic choices are made based on the values illustrated above. At the time of the decision, it is essential to consider the possible influences one aggregate has on the other aggregates. Underestimating this element may lead to incorrect conclusions, the uneconomicity of which does not depend on the limitations of the accounting tool used, but rather derives from a failure to consider all the implications - economic and strategic - connected with the decision in question.

In the context of this issue, it must also be borne in mind how, in companies, there are numerous joint products about which it is impossible to assume a separation of the production/sale of an asset separately from the production/sale of other products. Such correlations preclude the hypothesis, for example, of the elimination of a specific product, even if its profitability is unsatisfactory. Such a decision could, in fact have negative consequences on other products. All this suggests that the elimination of assets and/or the remixing of assets is not a decision directly related to the determination of unsatisfactory margins. However, the quantitative conclusions that are the subject of our discussion are inevitably indispensable for any decision to be made in full awareness of such choices' income and financial impact.

Having briefly illustrated the concept of Level II contribution margin, and bearing in mind that, in the preceding pages, we anticipated that it must remove the income emanating from the new activity connected to the Buy choice from the total source costs to obtain a value with which to compare the Make's total discontinued costs and, therefore, to be able to choose the most profitably advantageous option, the table previously proposed can be structured as follows:

MAKE	BUY
CEASED COST	SOURCE COSTS
	LESS
	SECOND- CONTRIBUTION MARGIN
	RESULTING FROM THE NEW ACTIVITY

As an example, consider the following case:

The manager of the Raggio di Luna hotel assumes that assuming the closure of the in-house laundry, it can develop an additional activity incompatible with the make activity.

In fact, the manager considers that keeping 70% of the special fixed costs connected with the laundry could create a fitness centre c from scratch. The director foresees the enrolment of approximately 150 members. The membership fee is set at EUR 320 per year. Each member would incur variable costs in the amount of EUR 100 per year. The director wonders whether it would be more cost-effective to continue with the hotel's in-house laundry service or whether it would be more appropriate to close this department and open the fitness centre.

To answer this question, it is first necessary to determine the second-tier contribution margin of the new fitness business.

Determination of the second-tier margin of the fitness activity:

Unit revenue 320
 (variable cost per unit) (100)
 Unit contribution margin 220
 Sales quantity 150 cards

Level 1 margin $150 \times 220 = 33,000$

Special fixed costs fitness activities
 70% special fixed costs laundry
 special fixed costs laundry (in euro) :
 room depreciation 3,000
 operating personnel 2,000
 ironer 1,000
 management personnel 2,000
 washing machine maintenance 500
 washing machine depreciation 1,000
 Total fixed laundry costs 9,500

70% OF 9,500 = 6,650 euro

therefore the special fixed costs of the new fitness activity amount to € 6,650

Second level margin fitness activity
 first level margin 33,000
 (special fixed costs) (6,650)
 second level margin 26,350 euro

Therefore, the choice between make or buy with new business must be based on the following economic data:

Make		Buy With The New Fitness Activity	
<i>Relevant costs for the make: ceased costs</i>		<i>Relevant costs for choice of buy: source costs - second- level margin of new business</i>	
Detergents	4,000	Costs of buying outside laundry service 10,000	
Water	1,000		
Managerial staff	2,000		
Ironing machine	1,000	- second-tier margin	
Maintenance		Fitness activity (26,350)	
Washing machines	500		
Depreciation			
Washing machines	1,000		

As can be seen from the data shown in the table above, the value associated with the buy option, which involves abandoning the in-house activity and simultaneously carrying out a new activity incompatible with the make, is a negative amount. This should not be misleading. In this case, the negative value identifies a net gain resulting from the abandonment of the make activity and the choice of Este realising the service, with the simultaneous development of new fitness activity. In the above hypothesis, therefore, the new activity does not merely reduce source costs but eliminates them and, in addition, causes the company to be left with a positive net margin of €13,350. The value - therefore, identifies the net margin resulting from choosing the buy + run new fitness business option.

4. MAKE-OR-BUY CHOICES: FINANCIAL CONSIDERATIONS

Make-or-buy choices, in addition to having a strategic and profitability impact on company management, also affect the company's financial situation. This circumstance is generally underestimated by those who deal with the make or buy the issue at a doctrinal, study or operational level. In most cases, the make-or-buy choice is examined in depth from a strategic and profitability perspective, and nothing is said about the financial impact of the two options. This is a very serious shortcoming because without a study of even the monetary impact of the two options, the make-or-buy choice can lead to adopting the option that is less convenient for the company, not for strategic reasons, but simply because all the variables, including the financial ones, have not been considered. It

must break financial considerations regarding the make or buy choices into two issues: the impact on financial ratios and the impact on monetary flows. That is, one must consider the effect of the two options of producing a given service or good in-house or acquiring such products or services from third economies from a static viewpoint, through ratios, and from a dynamic view through flows.

To understand the impact on ratios of make or buy choices, it is necessary to check the financial ratios of particular interest to the enterprise before and after the possible make and buy option. Consider, for example, ratios that monitor the short-term, long-term or overall financial situation by comparing total debt and equity. To understand the impact of the choices to continue to operate within the company or to purchase from outside economies the service or product under analysis, it is necessary to calculate all the indices that the company considers strategic before the choice of make and after this choice. Subsequently, the ratios before and after the potential choice to acquire the service or good from outside must be calculated. Given the notion of financial situation concept and financial ratios, it is evident that the comparison before and after the make choice and the choice of the acquisition from outside of the good or service under analysis do not consider the ceasing costs or the source costs possibly net of the second level contribution margin, but rather the payables and possibly receivables associated with these costs and this yield that identifies the second-tier contribution margin of the new business compatible with the option of the acquisition from outside of the good or service under analysis is incompatible with the continuation within the production of the good or service under analysis. The financial ratios are calculated by considering values extrapolated from the balance sheet and thus values of a financial nature and not of an income nature. The financial impact of the make or buy option, therefore, also depends, for example, on the payment extensions obtained from suppliers and the extensions granted to customers if a new activity is undertaken and the second-tier contribution margin to be deducted from the source costs of the buy option is calculated. From the ante and post comparisons of the financial ratios of the two choices between which, management must identify the financially most advantageous option. It is evident that these static financial considerations, concerning the impact on the ratios of the make or buy choices, will have to be considered together with the earnings and strategic regards of the two options.

To complete the impact of the two make-or-buy choices from a static point of view on financial ratios, it is also necessary to study the consequences of the two options at the level of monetary flows. The dynamic financial analysis through the study of monetary flows is required so that the simple static analysis through ratios does not lead to partially incomplete and misleading considerations. Each of the two make or buy choices must therefore be considered the change that would produce in the money flows in the hypothesis of suspending internal production they opted for the acquisition from third parties. In the theory of the complex make or buy choices, these considerations would have to be supplemented by the monetary flows arising from the new activity compatible with the selection of the external acquisition of the product of the service is incompatible with the continuation of the internal production of that good. Since the discontinuing costs and source costs, together with the second-tier contribution margin associated with the potential and possible new business compatible with the buy option, do not always have a monetary impact, it is first necessary to identify among the discontinuing costs the source costs and the second-tier margin associated with the potential and possible new business compatible with the buy option. These values have a monetary impact. This context will not consider costs or revenues that do not have a monetary effect. For example, think of depreciation.

Concerning the costs and revenues that potentially give no cash flow Pooh, it is necessary to de-identify the cash flow linked to the period considered to highlight the impact on the cash flow that the two options of continuing production within the company or the acquisition from outside of the good or service being chosen may have. These calculations will lead to the determination of cash flow values. They will make it possible to evaluate the impact on the financial situation of the make or buy choices from a dynamic point of view. As stated above, concerning ratios and the effect on monetary flows, the management's attention must be placed on these values considering them together with the income impact and the strategic impact, as well as the effect on the financial ratios of the two make or buy choices no. No value considered alone can lead to the best option; the strategic aspect, the income impact, the financial impact on financial ratios, and the financial impact on monetary flows must all be considered simultaneously. Only in this way will the make or buy choice falls on the most convenient option for the company, or the concept of convenience is a concept that, at its core, includes strategic, income and financial variables.

5. CONCLUSION

To conclude these remarks on make-or-buy choices, it was worth noting how, often, both at the doctrinal level and the corporate level, make-or-buy choices are mistakenly delegated to the department managers and are not instead taken by the company's top management. This usually leads to the underestimation of the strategic aspects of make-or-buy choices, which, on the contrary, are of essential importance. Furthermore, it should note that make-or-buy choices are not only choices that have an income impact on the company's situation but also represent options that directly or indirectly impact the company's financial situation. Since a company's financial situation is

interconnected with its income situation, it is evident that if the decision falls on the wrong choice, even if it is the most profitable one, there could be unexpected financial consequences. Thus it could be assumed that all of a sudden, management would be faced with unplanned financial situations.

For this reason, it is exceptionally relevant to emphasise that make-up choices should not only be considered as income choices with relevant strategic aspects but should also be analysed as decisions that impact both the static and dynamic financial situation. That is decisions that impact both financial ratios and monetary flows.

For this reason, only the simultaneous analysis of all these elements can lead to the most practical choice for the company. We have already pointed out how the convenience of choice need not necessarily be determined by considering only income aspects or only financial aspects since, in some cases, strategic elements lead to the choice of income being more convenient or financially less attractive. As we have already had to point out, however, even if the strategic aspect appears, in certain circumstances, to be the main element in make-or-buy choices, it is unthinkable that similar situations should be approached without a full understanding of the income and financial impact of the two options being compared. Calculations of the profitability and financial impact of make-or-buy choices will therefore have to be made. However, it will consider such data in light of strategic considerations, which may lead to the company's decision falling on the financially less good choice.

It should note, however, that this situation can only be accepted in the short term since if the company continually makes profitably and financially unprofitable decisions for strategic reasons, in the short term, it will find itself in an unmanageable financial situation and will therefore be led to a bankruptcy situation due to the underestimation of economic and financial aspects and the overestimation of strategic aspects. Thus, it must continually assess the strategy considering that strategic elements are relevant in a financially healthy enterprise. If the enterprise embarks on an economically and financially unsound path, strategic decisions that do not consider income choices as financially better will lead to closure.

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