



E-ISSN: 2706-9591

P-ISSN: 2706-9583

IJTHM 2022; 4(2): 55-74

Received: 05-08-2022

Accepted: 07-09-2022

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## Revenue managers in hotels: Is revenue focus enough?

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**DOI:** <https://doi.org/10.22271/27069583.2022.v4.i2a.58>

### Abstract

In hotels, there is often a manager figure whose task is focused on the future determination of sales prices and quantities of services sold. This article will focus only on the revenue manager related to room sales. In the following pages, we will point out how advanced quantitative tools that allow the determination of the values mentioned above are not always sufficient to guarantee the hotel structure and optimal performance. The need for forecasting to be replaced by the programming of sales values and the need to interpret such data contextually with the company's costs represent two necessary steps for the values provided by the Revenue Manager to help draw up the company's budget. In the absence of these elements, the data resulting from the Revenue Manager's action may be erroneous, misleading and, therefore, dangerous for hotel management.

**Keywords:** Hotel management, revenue manager, revenue management, yeald, hotel financial situation

### 1. Introduction

#### Introductory remarks on hotel management <sup>[1]</sup>

Hotel management comprises three major macro sectors: the Room Division, the Food and Beverage Division and the MOD, an acronym for Minor Operating Department. The Room Division considers everything related to the sale and management of the rooms; the Food and Beverage Division considers the restaurant, and thus the main meals and breakfast, and the minibars in the rooms. The Minor Operating Departments include all the Minor Departments of the hotels, which differ from hotel to hotel. This Division may consist of the spa, the gym, the golf course, the tennis court and other activities offered to customers to foster loyalty or improve the quality of the service provided by the hotel. There are hotels whose Minor Operating Departments also include everything that can be useful for horse riding or other sports that do not typically characterise traditional hotel management.

In this article, we will deal with the figure of the Revenue Manager, or rather, we will delve into Revenue Management (R.M.) with specific reference to Room Division even though, in reality, the general principles that we will illustrate are also applicable to food and beverage management and MOD Division. Since, however, food and beverage Division and MOD Division may present peculiarities specific to the section and not connected to Room Division, our attention will be focused on Room Division even though we will be careful to highlight when it can apply the general principles hotel management in its entirety.

For the hotel to maximise net profit, management must focus on effectively and efficiently managing revenues and costs. The interrelation between revenues and costs is indispensable since focusing only on revenues or only on costs can lead to unacceptable results from a profit and financial point of view. In this article, we will focus on Revenue Management (R.M. henceforth), i.e. the management of revenues, particularly Room Division revenues. However, we cannot conclude the article without highlighting the interconnection existing with costs. The absence of any reference to costs in this Division could lead to the erroneous idea that revenue management is the only relevant element in the hotel business. This is not the case. We will therefore deal with R.M., considering the main characteristics that must be present for such management to be efficient and effective and, after having identified the

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<sup>1</sup> 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.

main characteristics of Revenue and e Management (R.M.) we will highlight, in an extremely synthetic manner, the necessary correlations that must be identified with the costs of the Room Division and the other company Divisions. Only in this way will hotel management, interpreted as a whole, be able to give optimal results from both a revenue and financial point of view. A circumstance that may not occur if the focus is exclusively on Room Division Revenue Management.

## **2) Management Control in Hotel Enterprises: Introductory Considerations**

This is not the appropriate place to discuss the meaning and relevance of management control in hotel business management.

In these pages, we only wish to set out, very briefly, a few introductory considerations to be able, in the following pages, to deepen and develop the technical-operational tools helpful in maximising the effectiveness and efficiency of a hotel business.

As is well known, the objective of financial statements is to analyse the economic-financial results of the business entity as a whole.

As is evident, this analysis, while, on the one hand, it represents a necessary condition for the company to be managed, on the other hand, identifies a situation that is not sufficient to ensure that entrepreneurial management can take place and be carried out in full awareness of what is happening in the company.

To achieve such a goal, it is essential to interpret the company not as a unitary entity but rather as a sum of 'molecular' elements whose correlations and interdependencies constitute a fundamental element of its success.

To delve into these 'company cells', the balance sheet demonstrates the 'intrinsic' limitations of an information tool whose primary objective is to highlight the entire enterprise's financial, asset and income situation.

Management control overcomes these theoretical and operational limitations and allows the in-depth study of 'fractional' company management. The analysis of the individual products placed on the market of the enterprise, of the respective departments constituting the enterprise, and the different activities developed in the entrepreneurial sphere include some of the primary objectives of management control. With its logic of planning as opposed to calculating values, such a system allows entrepreneurial energy to be channelled on the road to a constant increase in the company's overall profitability and financial and asset balance.

Management control is therefore not an academic or didactic tool but an indispensable element for companies, even small and medium-sized ones, to improve their performance and economic performance. In this context, the concept of economy is to be understood here as the achievement of the enterprise's overall financial and income balance.

Budgeting is also part of the wide-ranging issue of management control. In recent years, given the complexity of the economic environment in which businesses operate and the increased frenetic nature of the markets, the budget has been the subject of doctrinal questioning as to its usefulness at a time in history characterised by the possibility of imprecise planning. Why should the budget

have been the subject of a barrage? To solve certain problems, it can be extremely useful to resort to this tool that also the increase in economic complexity and the transition from the old to the new economy, can develop an ability to identify problems, problem-solving and measure the results that the company aims to achieve can in the awareness of the difficulty of carrying out meaningful planning in the economic environment in which we are living.

A company's management must be based not on improvisation but on cognitive elements that allow managers to develop the decision-making process in full awareness of the income, financial and equity consequences of such decisions.

The information that can deduce from the annual financial statements cannot be considered exhaustive since the conciseness, the precision implemented to the detriment of timeliness, and the inclusion of exclusively actual values, make this document insufficient for the information needs of company managers to be fulfilled.

To supplement the information that can deduce from the balance sheet and profit and loss account, it is, therefore, necessary to prepare a grid of analytical data that allows company managers to monitor management performance within their areas of competence.

This information - about which it must guarantee timeliness even at the expense of a specific (limited!) degree of accuracy - must allow, among other things, the evaluation of the various activities carried out by the company. To achieve this objective, the information support must guarantee the possibility of determining the costs referable to the different company sectors, the results related to the multiple departments, etc. In addition to evaluating the performance of the various company areas, the information support must make it possible to come into possession of cognitive elements useful for the evaluation of managerial performance. Such information data are a fundamental element so that promotions, rewards in the broad sense and sanctions are attributed to the various managers in a manner that ensures fairness and transparency. In this regard, it must emphasise that the responsibility assigned to the multiple managers must always be accompanied by decision-making levers on which the individuals must be able to act freely. The assignment of duties and the associated attribution of management levers implicitly require that the accounting elements on which individual managers can work are perfectly known. Secondly, these values are correctly attributed to the subjects directly responsible. It can only achieve these objectives if the information support can provide promptly, analytical information concerning the individual areas of responsibility.

The monitoring of the activities carried out by the various company departments and the evaluation of managers' performance represent only two of the objectives that a comprehensive information system must enable to be achieved. Inventory evaluation, cost control, making the most profitable choices, etc., are other examples of information needs perceived by company managers. As with the assessment of managerial activities and performance, these latter knowledge needs cannot be satisfied by data derived from general accounting and/or the annual balance sheet.

For managers to possess such information, the information support for managerial activities must provide disaggregated

and/or aggregated data according to a different logic than that on which general accounting is based.

The illustration of such accounting elements and information tools that managers can use to maximise management effectiveness and efficiency requires a prior clarification of the cost categories that can identify within the company. Only a complete understanding of the various types of harmful net profit components characterising hotel enterprises makes it possible to perceive the informative value of the accounting aggregates on which we shall focus our attention in the following pages.

The management control, representing a system whose objective is to provide managers with information so that they can efficiently and effectively manage the company's resources, constitutes the fundamental element based on which managers can obtain information on the various areas of competence and, at the same time, can assess whether their actions are in line with the set objectives or show positive and/or negative variations concerning the goals identified at the beginning of the period considered.

### **The management control system consists of three sub-systems**

- Information sub-system: i.e. the set of accounting and non-accounting information necessary to enable managers to make decisions following the set objectives and to quantify both the goals and the results obtained;
- organisational sub-system: i.e. the set of assignments of responsibilities to the various company managers;
- Finally, process-dynamic sub-system: i.e. the process by which the control system can be activated and implemented.

As far as the organisational sub-system of control is concerned, it must remember that this only indirectly relates to its organisational structure. The company's organisational chart is only the starting point for developing the organisational sub-system of control. This term means the actual assignment of responsibilities within the control system. In this regard, it must remember that, for this assignment to be practical, the duties assigned to each manager must have particular characteristics:

- It must assign the responsibilities clearly; any lack of clarity as to the actual burden of the manager represents a weakness in the control system;
- If possible, the responsibilities assigned must not be subject to duplication and/or overlapping. When the same object is the responsibility of more than one person, it may remain incompletely managed at a practical level because each person considers that the actual management of the variable subject to duty is the responsibility of the other. Co-responsibility must therefore be limited as much as possible. It should note that, in several cases, it cannot eliminate this because some areas require the intervention of several parties. For the management control system to be effective and efficient, it is therefore not required that all co-responsibility be eliminated, but rather that it be limited to necessary cases;
- The responsibilities attributed to managers must be measurable as far as possible. In various fields of management control, qualitative aspects inevitably

become essential elements of the control system. This is positive and, therefore, cannot be eliminated. Quantitative aspects, however, are often the only ones that can be measured and thus can be made the subject of managers' performance evaluations. The measurability of the objectives and the consequent results obtained is the basis for quantifying the action performed by managers. In this case, it can say that responsibility is measurable and can therefore be used without the possibility of subjective elements invalidating the considerations that can be drawn from the comparison between objectives and results achieved and evaluating the activity of business managers.

- The dynamic process sub-system represents the central element of the control system. Suppose the control process is not activated correctly. In that case, the management control system becomes a useless superstructure that produces information that cannot use to manage company resources efficiently.

### **The dynamic dimension of the control system consists of the following phases: indicazione della mission aziendale**

- 1) Explication of the medium-long term macro-objectives with a consequent indication of the corporate strategies;
- 2) indication of short-term objectives
- 3) management action aimed at achieving the set objectives;
- 4) recording of the results obtained in the various company areas;
- 5) comparison between the set objectives and the results obtained;
- 6) possible implementation of corrective actions aimed at ensuring that, in the subsequent period, it can achieve the objectives or modification of the objectives themselves if it is noted that the previously indicated objectives and/or the strategies based on which the corporate actions were defined are no longer valid for the subsequent period due to the occurrence of particular contingencies that have rendered the pre-set objectives and identified strategies obsolete.

Concerning the information sub-system, the privileged object of analysis in this article, it should recall that this, in substantive terms, consists of four elements

- Analytical accounting;
- General accounting;
- Enterprise budget system;
- Variance system.

The information sub-system represents the information support to the control activity. It, therefore, constitutes a total area for the control itself to be implemented as it identifies the reservoir of quantitative data indispensable for the process to be activated.

In synthetic terms, it can say that the parts of the management control accounting information sub-system are four: 1) the general accounting; 2) the analytical accounting; 3) the budget and standards system; 4) and finally the variance system.

Since the subject of this article is revenue and management, our attention will focus on part III of the accounting information system, namely the budget system.

It may be recalled how 'standard' planned revenue values are defined as costs and revenues determined concerning

'normal' operating conditions. In other words, the standards represent the income dimension of the company's various production activities under the assumption that they are carried out under normal conditions of efficiency and effectiveness.

Before tackling the issue of the determination of standards, it should be noted that the decision of standard costs and revenues reveals a particular conception of the relationship between companies and the environment, according to which the company, instead of being passively conditioned by the specific contextual reality in which it is inserted, actively intervenes in it to modify its advantage.

In these terms, we speak not of forecasting but planning in management control. Forecasting implies a passive attitude towards the event under consideration.

On the other hand, planning implies a proactive attitude towards the outside world. In planning, I act to modify reality in my favour. For example, I can predict the weather tomorrow while planning the next day's activity. In forecasting, on the other hand, I merely imagine what the future will be without my being able to act on it in any way. Considering the dual significance of forecast values leads to particularly in-depth care of the methodology of forming the forecast data itself.

### **There are three options available**

- Realistic Planned Data
- Potential Planned Data
- Optimistic Planned Data

In the first case, the planned value is determined by assuming normal efficiency levels and thus considering average efficiency concerning the circumstances that may influence production activity.

Conversely, potential and optimistic planned values are determined concerning efficiency and effectiveness levels that are respectively lower or higher than usual.

Since the planned value has a double goal as a parameter and a target, it is necessary that the setting considers the standard conditions of activity. Otherwise, the target figure becomes useless or even counterproductive in the business environment. Indeed, it must bear in mind that standards are also instruments of motivation, although their effectiveness in this respect depends mainly on their particular design.

Generally speaking, they have a high motivational value when their design and use are in keeping with the personality and values identified in each company operator. Although some authors have correlated the incentive forces of programmed data to the existence of a particular reward system, it can be said that most doctrine recognises standards as having the independent motivational capacity to the method of rewards and penalties linked to them. Naturally, this motivational capacity is connected to the methodology of calculating the values themselves.

Of course, everything depends on the methodology used to calculate the standards. Standard efficiency, considered as the basis for the determination of planned values, must meet two particular requirements: on the one hand, it must correctly reflect the actual operating conditions of the company, while on the other hand, it must be motivating, inducing operators to make a more significant effort. In fact, should the standards imposed be linked to optimal efficiency and thus higher than the average efficiency obtainable in the company, it is possible that the average, from being a motivating element, becomes a demotivating

element as the subject perceives the impossibility of achieving the objective attributed to him. The determination of planned values is, therefore, focal in the management control process.

### **The enterprise budget**

Preparing the general enterprise budget involves constructing a series of budgets relating to the different business sub-units. The general company budget, therefore, identifies the synthesis of a series of operational budgets, which are elaborated by expressing, in quantitative terms, the objectives that each of the units, as mentioned above, aims to achieve.

Once these sectoral budgets have been completed, they are consolidated to obtain a profit and loss budget and a balance sheet budget, which, complemented by a financial budget, form what is generally referred to as a general company budget or master budget.

Operating budgets vary from company to company and, therefore, it is not possible to list, in a thorough manner, the sectoral budgets that lead to the master budget.

By way of example only, we can recall how, in the generality of companies, the master sector budgets identify the following documents:

- Sales budget: identifies the objectives, expressed in terms of total sales, assigned to commercial management;
- Commercial cost budget: identifies the objectives, expressed in terms of commercial costs, generally managed by commercial management;
- Production budget: defines, in a detailed form, the company's production programmes and the cost objectives related to those programmes. It is generally divided into several particular budgets: the production budget, which must be drawn up taking into account both the sales programmes and the product stock policy, the stock budget, the budget of direct industrial costs, such as the budget of raw materials and direct labour, etc., and the budget of direct industrial costs, both drawn up in strict adherence to the production programmes defined in the first budget;
- Overhead cost budget: through this budget, the planning of overhead centres, whether industrial, commercial or administrative, is realised. The absence of a functional relationship between the resources employed and the results obtained makes this activity particularly complex, although experience often allows direct relationships with effectiveness to be identified, i.e. cost-benefit relationships that can be a valid support for planning;
- Financial cost budget: shows the total financial costs that are assumed to be borne in the period considered by the planning;
- Budget of other revenues: shows the amount of revenues, if any, other than those from ordinary operations that the company assumes it will be able to achieve in the period considered. For example, one can think of how companies that own civil buildings withdraw this budget concerning the rents receivable that they plan to be able to collect in the period considered by the planning;
- Investment budget: this document describes and analyses the investments that the company intends to make. These investments can be in fixed capital or working capital.



In the hotel sector, as we will see analytically in the following pages, some budgets are partially modified to account for the peculiarities of tourism enterprises.

In hotel enterprises, in addition to the budgets mentioned above, which, in any case, may be present, one draws up fact:

- Room Division budget
- Food & Beverage budget
- Budget Minor Operating Department (MOD)

These three budgets combine, within them, the sales budget and the particular departmental production cost budget. Drawing up these department-specific documents makes it possible to see, at a glance, what the department's self-supporting capacity is from its revenues. The differential value also represents the amount the department makes available to the entire structure to cover fixed overhead costs.

In addition to these departmental budgets, the company may draw up other analytical documents that characterise the business reality in which it operates. A hotel may, for example, be characterised by the presence of operating budgets for an in-house sports centre, a fitness centre, golf courses, secretarial activities that may be available within the company, etc.. It is evident that such sectoral budgets only characterise the hotel business and are not to be found, for example, in a company producing ferrous components. It is possible, however, that in the latter company, there are sectoral documents that specifically analyse specific areas not covered by the budgets listed above.

The consolidation of the analytical budgets results in the general company budget, which, as has already been pointed out, consists of three documents:

- balance sheet budget;
- economic budget;
- financial budget.

**To conclude, it should emphasise that the budget can perform three essential functions**

- an active planning function
- an organisational integration function;
- and finally, an internal communication function.

A budget is, first and foremost, a planning tool. It specifies in quantitative-monetary terms, both at the level of the entire company and its minor articulations, the objectives to be achieved and the paths to be followed for their attainment to ensure an efficient allocation of production resources. In other words, through the drafting of the budget, one arrives at the explication of the policies to guide the enterprise in achieving the objectives contained in the action plans.

The budgeting process also assumes relevance as a tool for organisational integration. The circumstance that the drafting of the budget implies the harmonisation and balancing of the various sub-objectives to guarantee the general corporate objectives induces the centre managers to carry out forms of communication and negotiation, which favour the adoption of consonant behaviours among them. Of course, such forms of interaction only make sense in the presence of a strong involvement of the centre managers in the planning activity. Only in this hypothesis does the establishment of a large-scale bargaining process confer an interactive character on the budgeting process and make the

formulation of centre objectives sequential, which thus, before being definitively included in the budget, will undergo repeated modifications concerning the pressures exerted by the other centres. This budget feature is particularly relevant as, through these forms of interaction, managers can come into contact with business areas other than those of which they have direct knowledge. A circumstance that allows for the overall improvement of corporate entrepreneurial action.

In light of the above observations, it is pretty understandable to guess the third function of the budgeting process and how it manifests itself: internal communication. The relationships mentioned earlier, in fact, represent as many communication channels, only partly coinciding with the official communication channels, through which operational managers send and receive information concerning both the company as a whole, and therefore its strategies and long-term policies, and individual company portions.

They are generally speaking. Therefore, the budget constitutes a tool for the dissemination and translation of corporate objectives to all levels of the organisational pyramid while at the same time allowing for the acquisition, from the base units, of important information on obstacles, both internal and environmental, that could create problems to their achievement. Budgeting is, therefore, part of the so-called interior company reporting, which identifies the set of quantitative data that constitute the management control information-accounting sub-system, forming the so-called reporting.

Reporting, therefore, represents a reservoir of quantitative data output from the four parts of the management system accounting tool. For reporting to be effective, it must possess several characteristics without which the data form a useless or even harmful superstructure for the enterprise.

To maximise the effectiveness of the documents containing the quantitative data outputs of the general accounting, cost accounting, budget and standard and variance system, the reporting

Must Verify the achievement of the company's economic and financial objectives promptly;

must be based on data provided by general accounting, analytical accounting, the budget and standards system and the system of variations;

Must Be Formed by a set of documents that delve into specific business areas. It must provide each information user with the data or data relevant to the manager's area of responsibility. Oversizing information is not only useless but also a damaging element as the information that is indispensable to the manager is not identified due to the mass of improperly supplied data;

Must Contain actual data and planned values;

It Must Graduate Conciseness According To The User For Whom The Information Is Intended. Indeed, the ratios vary as the users to whom the information is targeted change. The more the information user is hierarchically in a high position, the more synthetic the information must be. Conversely, at lower hierarchical levels, it must provide more analytical information on the development of the various data of interest to the manager;

The Periodicity Must Be Graduated According To The User, For Whom The Information Is Intended. Reporting periodicity must vary as the manager to whom the information is referred changes. The more the user of the information belongs to lower hierarchical levels, the more

the periodicity of the information must be reduced. By way of example, it may recall that a general manager would be provided with a monthly report with summary data on the company's performance. In contrast, it would give a sales manager a daily report, e.g. on the sales performance of individual products.

#### **For reporting to be effective, it must also**

- focus attention on the critical variables of the enterprise;
- focus attention on variables that are irrelevant for decision-making purposes;
- be structured to enable timely corrective action to be taken.

In the following pages, we will focus on the sales budget since the Revenue Manager is tasked with maximising sales indicated in the budget.

### **3) II Revenue Management (R.M.) in the the Room Division**

As we have needed to point out, the privileged object of our analysis is the Room Division and, in particular, the so-called Revenue Management (R.M.).

As can be understood from the term Revenue e and Management (R.M.), this concept implies the identification of the total sales of the Room Division. Since the object of our attention is the Room Division, when we deal with the subject of Revenue and e Management (R.M.) we will refer implicitly to that business section. It should note that this Revenue e and Management (R.M.) can also be adopted in other hotel departments such as Food and Beverage Division or MOD Division.

Regarding the characteristics that the service subject of Revenue Management (R.M.) should have, it is the practice of every scholar to refer to the specifics listed by Kines in his 1900 work (Kines 1989).

This scholar, addressing the subject of management many years ago already, pointed out how it can apply such management if specific characteristics are present at the same time, which he summarised as follows:

- 1) Relatively fixed capacity. Since the focus of yield management is efficient allocation of shared fixed capacity, it is only appropriate for firms which cannot quickly adapt available capacity to available demand. For example, if all Rooms in a hotel are occupied, another Room cannot easily be added, although the customer may be accommodated in a sister hotel in a different part of the city. For airlines, if all seats on a flight are occupied, the plane cannot be enlarged, but it may be possible to put the passenger on a later flight. Essentially, capacity is fixed, although there may be some limited flexibility.
- 2) Ability to segment markets. In order for a yield management program to be effective, the firm must segment its market into different types of customers. For example, the airline industry distinguishes between time-sensitive and price-sensitive customers by requiring a Saturday night stay for most discounted fares. Basically, the business must know which customers are most likely to use variously-priced classes of service, and must develop different marketing strategies for each market segment.
- 3) Perishable inventory. One of the key factors

distinguishing service firms from manufacturing firms is that the inventory is perishable. In the case of capacity-constrained service firms, the problem is even more severe in that additional capacity cannot be obtained. Seats unsold on an airplane, Rooms unsold in a hotel, or cars unrented at a rental car agency all represent spoiled or wasted inventory. If a firm can minimize its inventory spoilage, it will operate much more efficient! y.

- 4) Product sold in advance. One of the capacity management tools that service businesses use is a reservation system in which units of inventory are sold in advance of actual use. Reservations systems provide the firm with some measure of security, in that they know that their capacity will be used in the future, but when the product is sold in advance, the manager is also faced with uncertainty. The manager must decide whether to accept an early reservation of a customer who wants low price, or wait and see if higher paying customers will appear. With a good yield management system, this type of situation can be addressed.
- 5) Fluctuating demand. Many service firms face highly erratic demand patterns, and managers must devise some method of dealing with this uncertainty. Yield management can be used to help temper some of the demand fluctuations by increasing utilization during slow demand times (by decreasing price), and by increasing Revenue e e during times of high demand (by increasing price). If a manager knows when demand peaks and valleys will occur, he/she will be better able to plan for them.
- 6) Low marginal sales costs/high marginal capacity change costs. For a yield management system to be effective, marginal sales costs, the cost of selling an additional unit of inventory, must be low, but marginal capacity change costs should be high. For capacity-constrained firms, providing additional capacity is a very expensive proposition, but selling another unit of available capacity is relatively inexpensive." (Kines, 1989). Van Ryzin G.J e Talluri K.T, (2005) hanno ritenuto indispensabile aggiungere, alle caratteristiche individuate da Kimes, i seguenti elementi:
- 7) Data and information systems infrastructure. To operationalize RM requires data to accurately characterize and model demand. It also requires systems to collect and store the data and to implement and monitor the resulting real-time decisions. In most industries it is usually feasible—in theory, at least—to collect and store demand data and automate demand decisions. However, attempting to apply RM in industries that do not have databases or transactions systems in place can be a time consuming, expensive, and risky proposition. RM, therefore, tends to be more suited to industries where transaction-processing systems are already employed as part of incumbent business processes
- 8) Management culture. RM is a technically complex and demanding practice. There is a risk, therefore, that a firm's management may simply not have sufficient familiarity with—or confidence in—science and technology to make implementing an RM system a realistic prospect. The culture of the firm may not be receptive to innovation or may value more intuitive approaches to problem solving. This is often due to the

culture of the industry and its managers: their educational backgrounds, their professional experiences and responsibilities en route to leadership positions, and the skills required to succeed in the industry.

The hotel business is characterised by all the above-mentioned features. It is therefore possible to hypothesise the use of the so-called Revenue Management (R.M.) although, as we shall see later, with some modifications or additions to what has been proposed by the mathematicians who have dealt with this subject.

Kimes (1989) states that "RM is the process of allocating the right inventory unit to the right customer at the right time and for the right price. It guides the decision of how to allocate undifferentiated units to limited capacity and to available demand in a way to maximize profit or Revenue"

The Revenue Manager's primary objective is to maximise the revenues of the managed Division. If, as in this article, the Managed Division is the Room Division, the Revenue Manager's focus is on the strategy that can implement to make the revenues from room sales as high as possible.

Since total revenue is derived from the product price times quantity sold, it is evident that the Revenue Manager's attention should be focused on the two elements mentioned:

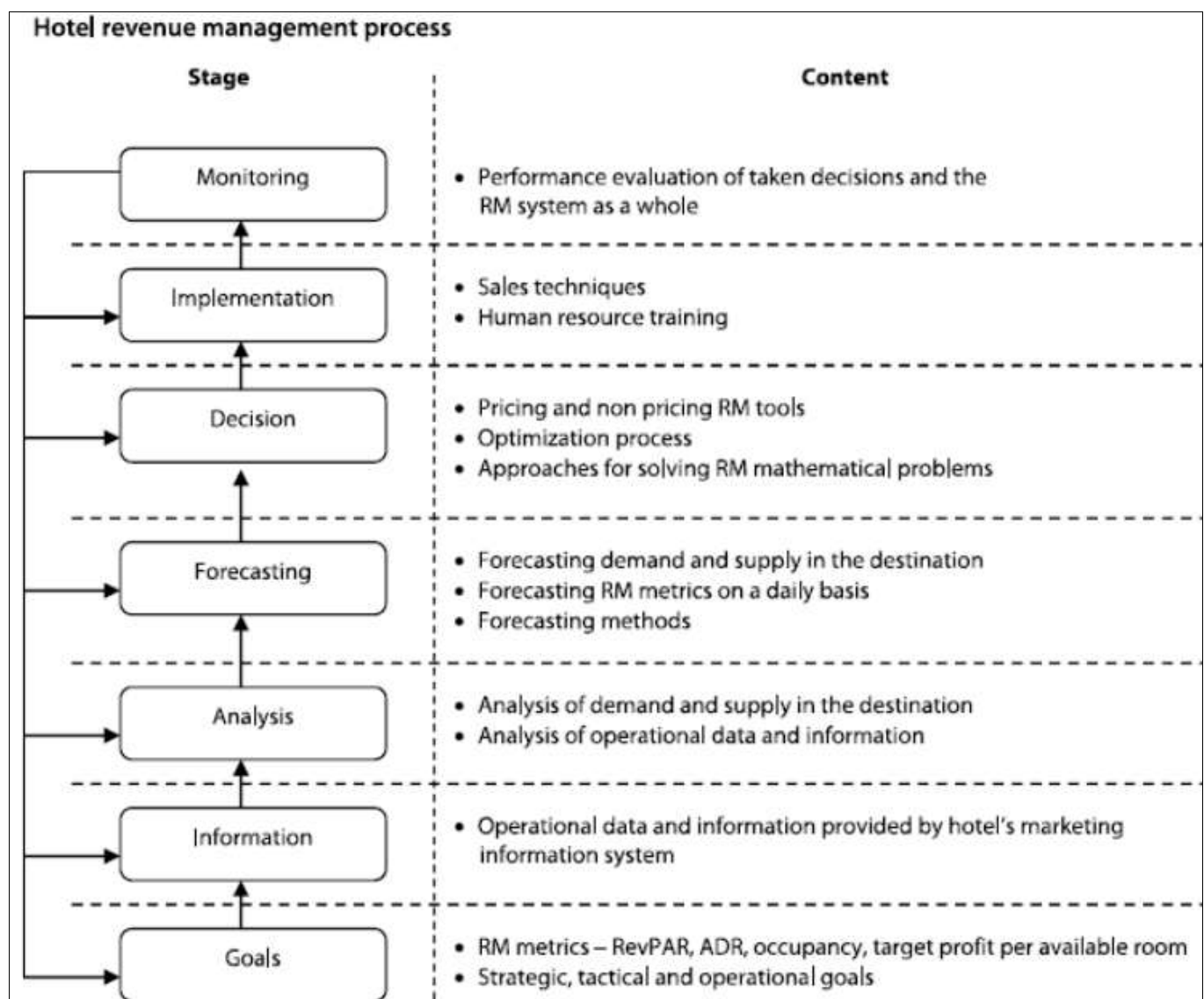
quantity sold and sales price. The questions that the revenue manager should answer are, in essence, what is the right product to market? What is the customer mix needed to fill the hotel by implementing the optimal strategy in terms of hotel performance? Our guests are very price-sensitive, or would they book the room at almost any price? Through which sales channels do I reach guests willing to pay the highest average prices? Is it enough to sell the hotel via the website, or do I need partners, such as online travel agents and tour operators?

As you can see, everything revolves around the number of rooms you have to sell to maximise the hotel's performance and the price you have to sell hotel services.

Stanislav Ivanoe, also considering Kimes' observations, comes to identify the following objectives that revenue and manager should set themselves:

1) identify the right customer; 2) identify the right distribution channel; 3) sell at the right time; 4) implement proper communication.

For an overview of the hotel revenue management process, see the table proposed by Stanislav I., Zhechev V.. (2012). They list the steps of the revenue and management process in the hotel business in a detailed manner.



Ivanov S., Zhechev V., (2012) Hotel Revenue management, Tourism, vol. 60, Issue 2, page 185

Since the object of the Revenue Manager's activity is to maximise sales revenue, in our case, of the Room Division, as already noted, forecasting of sales quantities and prices is

necessary.

Kimes S.E. and Weatherford L.R. (2003) identified the following forecasting methods in the context of R. M.:

**Table 1:** Forecasting methods cited in Kimes S.E. and Weatherford L.R. (2003)

1. Historical	A. Same day, last year
	B. Moving average
	C. Exponential smoothing
	D. Other time series (ARIMA, etc.)
2. Advanced Booking	A. Additive
	1. Classical pickup
	2. Advanced pickup
	B. Multiplicative
	1. Synthetic booking curve
	C. Other time series
3. Combined	A. Weighted average of historical and advanced booking forecasts
	B. Regression
	C. Full information model

The forecasting methodologies described above the lead, of course, to different results. Each manager must identify the technical method most suited to the hotel's characteristics. It is evident, however, that the forecast of the rooms that will be sold, albeit through a mathematical formula, must consider the attributes of overnight stays or arrivals, depending on the object of observation. The application of mathematical formulas can therefore be used if the data it obtains shows different data between tied and untied overnight stays if it manages to deal with and eliminate outliers, and finally manages to incorporate, in the result, the period of overnight stays.

The price variable, which the revenue manager must manage, can be determined according to various technical methodologies that can be summarised as follows:

- 1) cost-based pricing or mark-up pricing: applying this methodology, the price is determined by calculating the cost of the service and applying a mark-up to it. In hotels, it is common, in the first year of the hotel's life, to use the so-called building cost rate, i.e. the cost determined based on the value of the building, which is divided by the number of rooms expected to be sold (this value is further divided by 1000). It cannot accept the latter practice as it is misleading concerning the price charged for the room to be sold. We will see below the reasons for this rejection.
- 2) Market-based pricing: in this case, the price is calculated based on the average price applied by the hotel's competitors. Of course, it must consider the establishment and service provided to customers. In practice, this method involves using the price imposed by the market. This makes this methodology the most consistent with hotel management since determining the price based on one's costs can be dangerous since the market may not accept the price set. However, in particular, cases, as we shall see later, this methodology can be effective if one acts on the psychological leverage of the clientele.
- 3) Value-based pricing: this pricing method is based on the customers' perception of the service offered by the hotel. An attempt is made to determine the sales price based on the perceived value of the service provided by an individual customer or an entire customer segment. It can do this through interviews, marketing surveys or other tools for analysing potential customers, obviously,

at a time before the opening of the hotel tip

- 4) Penetration price: in this case, the price is determined so that the hotel can achieve a particular market share, even sacrificing part of the profits in the short term. The goal of reaching a considerable market share can be extremely positive as long as this does not drive the hotel into bankruptcy, as it is possible that reaching the market share to be achieved requires extremely low prices that do not allow the hotel to continue to be run in an economically profitable and financially balanced manner. It is obvious how short-term this strategy can be as if this leads to the hotel making a loss; business continuity is jeopardised.
- 5) Positioning pricing: This term generally refers to the pricing policy that aims to conquer the high end of the market. Even in this case, the application of high prices to attract customers who demand a high-end product must be carefully evaluated by management because, if the customers do not perceive what the hotel wants them to perceive, the application of high prices will drive the hotel out of the market, failing in the hotel business
- 6) Psychological pricing: this pricing methodology is implemented by trying to leverage psychological elements of the clientele, such as selling a suite at an exceptionally high price by making them perceive the room prices as particularly low or by leveraging the cost of particular services added to the primary service that make the client perceive a very high quality that in reality does not correspond to what they will obtain from the hotel management. On this subject, many marketing scholars have written many works concerning the appearance of the goods sold and the impact on the price accepted by customers. This is not the right place to delve into this subject. Still, it is certain how psychological pricing can be usefully applied by many hotels until, of course, the customers perceive the manipulation that the hotel, in reality, enacts on the people who intend to stay at the hotel.

Regardless of the forecasting modality expressed in terms of quantity of rooms sold and pricing chosen by the hotel, it is necessary to emphasise how this programming must, of necessity, simultaneously take into account a series of elements that, if not considered, lead to the determination of erroneous and misleading programmed values. These



elements are seasonality, historical data of the hotel, day of the week subject to schedule, week in which the day subject to forecasting falls, special events that will take place in the period considered, price sensitivity on the part of the clientele, dominant segments of the clientele in the area in which the hotel operates, expected cancellations also determined based on history, the month of the year subject to forecasting, and finally, consequences of the application of any overbooking policies implemented by the hotel.

First, before making further observations, it is necessary to point out how the determination of price and sales quantity is, in most cases. Interrelated. But in this regard, it must be pointed out that there are cases in which there is an elastic demand in the hotel in the sense that a price reduction corresponds to an increase in demand. This is the typical situation in low to medium category hotels where the price element is unequivocally linked in the opposite direction to the trend in quantities sold. If the demand for hotel rooms were a fixed, rather than a flexible, demand, one would notice the absence of any relationship between price development and sales quantity development. This is the case, for example, for life-saving goods (e.g. medicines in the first place) and for indispensable products whose price does not influence demand (e.g. salt).

In contrast to goods with elastic demand, where a price increase corresponds to a reduction in the quantities sold, there are also goods where the order is flexible in the opposite direction, i.e. a decrease in price may fit a decline in sales. This is especially the case with extra-luxury goods and, therefore, can be seen in 7-star luxury hotels where the cost of the hotel is a distinctive element of what was once called social class and is now, more correctly, identified as a market segment. In such hotels, as with other extra-luxury goods, the price is a status symbol; therefore, a reduction in it drives customers away. One thinks, for example, of very high-end cars or, in the context of hotels, as already noted, extra-luxury hotels. In these cases, demand is linked to the selling price, not in the opposite sense, but, on the contrary, in a proportional sense. That is, a price decrease may correspond to a reduction in sales quantities. It is evident how the implementation of forecasting by the Revenue Manager must take into account all these variables since the lack of consideration of these elements would lead to the determination of an erroneous and misleading schedule.

This article does not intend to delve into the mathematical techniques of determining quantities sold and identifying the sales price. We refer the reader to works focusing on purely mathematical and applied mathematics issues. In this article we wish to highlight, above all, how, regardless of the quantitative choice made by the Revenue e and Manager, there are observations to be made regarding the results obtained.

One element that must be particularly emphasised concerns the use of the results obtained by applying the quantitative methodologies identified above and potentially usable by any Revenue e and e Manager. A circumstance that appears to be misleading is that in many works concerning Revenue e managers, the determination of such forecasting seems to be unrelated to the company's cost structure. This circumstance, if verified, would have two highly negative consequences:

- 1) First, it should note that the sales price is inextricably linked to variable and fixed hotel costs. Increasing the sales price, in fact, implicitly means that it must also

adjust variable room costs and fixed corporate costs. In the area of variable room costs, it is evident how at a high price, customers expect high-quality amenities, changing sheets and towels several times a day, tidying up the room at least twice a day, etc. Fixed costs also inevitably increase as sales prices rise. High sales prices correspond to customer expectations of a service that requires more staff. Thinking of determining the sales price of a room without considering these observations leads to the determination of a price that is not linked to reality and which is therefore destined to fail to attract customers and, probably, to take away the loyalty of customers who have already used the hotel's services.

- 2) The second issue concerns, in general, the link between revenues and business costs. In this regard, it should be noted that a hotel, like all enterprises, has as its ultimate goal the maximisation of net operating profit in the long term, often framed in a sustainable environment if, within the enterprise, management is particularly sensitive to the issue of sustainability. However, the achievement of net profit maximisation remains the primary objective of any company, as maximising turnover has no meaning in terms of profitability, just as minimising costs without the necessary correlation to costs has no meaning. The problem of a business, and therefore also of a hotel, is not maximising turnover or minimising costs for the same turnover. This consideration goes beyond the tasks generally assigned to the Revenue and e Manager, whose objective is focused on revenue maximisation. The absence of a cost consideration in the scope of the Revenue e and e Manager's activity would lead to the potential achievement of negative revenue results even in revenue maximisation. In addition, however, it is necessary to highlight how revenue in itself can identify an extremely relevant strategic element since the profitability of hotel characteristic management is influenced not only by the management of the cost/revenue ratio but also by the ability to fully exploit the capital invested in characteristic management in terms of maximising turnover. From these brief observations, which will explore in more detail in the following pages, it is clear, however, that the Revenue Manager's objective cannot be the mere maximisation of revenue without a contextual consideration of the company's costs and the capital invested in characteristic management. These issues are particularly complex and will only be touched upon in the following pages. Here it is sufficient to point out how the mere maximisation of turnover cannot be the sole objective of the Revenue Manager or, to be more precise, the work of the Revenue Manager must be interrelated with the performance of the management action of the Room Division n manager and the food and beverage manager, as well as the MOD manager if any. The reader is referred to the next section on this issue.

#### **4) Limits of the traditional figure of the Revenue Manager: Analysis of the actions necessary for the Revenue e Manager's role to maximise the company's net profit in the long term**

First of all, when addressing the problem of the limits that distinguish the traditional figure of the Revenue e and

Manager, one cannot fail to refer to the different concepts of forecasting and programming, an element already highlighted in the previous pages. Drawing up the Room Division's budget and the entire hotel structure requires a planning activity and not a mere forecast. We have already had to point out how the difference between the two terms lies in the passive or proactive approach of those who carry out management control. Within a business, merely predicting what will happen is detrimental. It can find the essence of management control and budgeting in business planning, i.e. in that activity in which the Manager places himself in an active and proactive position with the external environment and does not merely passively endure what happens outside the enterprise. Reading many works on Revenue and Manager and focusing our attention above all on articles and books concerning forecasting, we can see how often the mathematical formulas proposed to consider, as a basis, historical data and make forecasts on these. Any mathematical formula, simple or complex as it may be, if it limits itself to creating a forecast for the future based merely on historical data, is bound to find data that cannot use in management control. Budgeting requires strenuous planning activity, i.e. active action on the part of company management to impose the company's objectives on the external environment. If these characteristics characterise the forecasting proposed by mathematicians, the proposed formulas can be accepted and chosen according to the parts of the hotel structure analysed. On the other hand, if the procedure suggests a mere forecast of future data based on historical values, it is not possible to use the result of the application of this quantitative methodology as it is not consonant with the concept of management control and budgeting.

The second observation that needs to be made regarding the traditional figure of the revenue manager concerns the data that this person has to manage. Traditionally, the Revenue e Manager deals with determining the sales price and identifying the number of rooms for future sales. Suppose, in business reality, the Revenue Manager only deals with these two elements and does not have constant contact with other parties in the business. In that case, you run the risk of a potentially loss-making and potentially bankrupt company. Even if you were aware that maximising turnover does not represent the certainty of maximising net profit, very often in businesses, there is a tendency, for psychological reasons, ah to maximise precisely the characteristic revenue, i.e. turnover. This is incorrect from a . management point of view. Every action of managers and individuals operating in an entrepreneurial reality must be focused on maximising the company's net profit in the long term, as part of a broader concept of sustainability, since socio-environmental sustainability has become, in recent decades, an essential managerial, structural element for any enterprise. Taking it for granted that we are acting within the framework of a socio-environmental sustainability concept, maximising the company's net profit in the long term must be the primary objective of all managers. It must naturally combine this objective with achieving a financial balance that allows the company to meet its commitments without going into debt to pay debts. Therefore, the two primary objectives of any business are revenue and financial balance, including hotel accommodation. Suppose the revenue manager acts as a micro-cell with no relationship with other hotel managers but merely identifies sales prices and quantities sold using

complex mathematical formulas and structured quantitative tools. In that case, the enterprise is destined to fail to achieve the primary objectives that it certainly set out to achieve.

Revenues and their maximisation must be interpreted necessarily, in the light of the costs the enterprise has to bear.

This statement might seem banal and superfluous. In reality, this is not so because, in some business realities, even today, the revenue manager focuses exclusively on sales prices and sales quantities. There is no reference to the connection these values must have with costs in complex mathematical structures.

Even the observation that the sales revenue of a room must exceed the costs associated with that room can be misleading if the person making this assertion is not clear about the concept of covering variable and fixed costs.

The determination of the products within the hotels of the various room types to be pushed to the market is one of the most delicate managerial decisions as it directly impacts company profitability.

The question as to which products to favour would seem to have an obvious and automatic answer: obviously, the goods/services to be pushed are those that 'yield' the most. This correct statement can, however be subject to misinterpretation from which unforeseeable economic consequences can arise.

It is well known how the concept of full cost identifies the notion of product cost inclusive of every harmful component of the company's net profit, fixed and variable. From a profitability point of view, the product to be promoted (in our case, the sale of a specific type of room) is the one with the highest return is an obvious statement. The circumstance that needs to be clarified is what is to be understood, in this specific context, by 'product yield'.

It would seem evident that product yield is determined by the contrast between the unit selling price and full cost. The algebraic sum of the two values gives rise to the so-called Net Unit Yield (N.U.Y.).

The Net Unit Yield represents a notion of net profit attributable to the individual product, which, while on the one hand, helps understand the cost-effectiveness of various products, on the other hand, it cannot use to identify the "most profitable" assets that should push onto the market to maximise company profit.

We will return to the reasons for this assertion in the following pages when we have illustrated some essential concepts for the reader to understand the real informative scope of the R.U.N..

To demonstrate what has already been expressed, it is necessary to proceed step by step by illustrating some general theoretical considerations.

First of all, to facilitate the understanding of specific terms that will use subsequently, it is appropriate to highlight how an information requirement of relevant interest concerns the capacity of the activity carried out 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.

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

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 concerning 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, it can deduce this information clearly and clearly without the need to divide costs into fixed and variable from the non-reclassified balance sheet. If a net profit is shown in that document, the company has been able, on the one hand, to cover all fixed costs and, on the other, to produce new wealth to a value equal to the net profit shown. If, on the other hand, the company has made 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 entire amount of these harmful components. Finally, a perfectly balanced balance sheet with zero net profit shows

how the company could perfectly cover its fixed costs while failing to produce new wealth.

This information is undoubtedly beneficial to fully understanding the different impacts of business decisions on the 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. The reclassification of the company's profit and loss account 'at contribution margin' can only serve the purpose of delving into the company's cost structure.

To maximise the usefulness of margin calculation, it must identify this value concerning partial business combinations. The interest of those who determine such margins must therefore be focused not on the company as a whole but the 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. If the focus is on a specific product, the margin is called a unit margin.

If, for example, in Sweet Kangaroo, there was the possibility of placing Alpha or Beta chambers on the market, and the costs/revenues relating to these alternatives were as follows, the unit margin of the two rooms would be determined as follows:

**Table 2:** Determination unit margin of contribution

	<b>Room Alfa</b>	<b>Room Beta</b>
Sell Price	1.000	300.000
Amenities a	(400)	(130.000)
Amenities b	(20)	(7.000)
direct labour cost	(300)	(30.000)
Other variable costs	(30)	(24.000)
Unit margin of contribution	250	109.000

Assuming equal sales volumes of the two products or unlimited market potential, management would prefer to opt for the Beta product. It should note that this decision can be made irrespective of the amount of the company's fixed costs, since both in the hypothesis of fixed costs being lower than the total margin. In the opposite idea, the company would favour alternative B since, in the first case, it would maximise the profit, while 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 the light 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.

The unit contribution margin, therefore, cannot be used for

decision-making purposes precisely because it does not show, on a global level, the product's ability to cover fixed costs. Three 'exceptional' hypotheses allow the contribution margin to be used for decision-making purposes. 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 profitable 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 chooses to sell among several goods

marked by the exact sales quantities, it is evident that in this case, given the exact amounts sold, the discriminating element is, in practice, the unit contribution margin.

Outside of the three hypotheses mentioned above, it can not use the unit contribution margin for decision-making purposes. Therefore, for the decisions made to be economically the most advantageous, one must move to another concept of margin: an overall margin that considers the quantities sold. This margin is referred to as the first level contribution margin.

Assuming equal sales volumes of the two products or From what has been illustrated above regarding the need for the decision regarding the products to be pushed on the market to be dictated by the awareness of the modifiability of fixed costs and the need for management to act in such a way as to ensure that (fixed) costs are covered in the best way possible, it is understood how the Net Unit Yield cannot have decision-making purposes but must be "relegated" to satisfy information needs that are not useful, in a direct way, to the identification of the "most profitable" and therefore "most convenient" products for the company.

As we noted on the previous page, outside of the three specifically identified hypotheses, 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 first level contribution 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, divestments 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 contribution 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 economically advantageous 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 contribution margin, which, we repeat, can decide at the same time as the determination of the margin itself.

**The first level contribution margin serves to take, in particular, four critical decisions**

- a) To accept or not to accept an order: in this case, regardless of strategic decisions that may subvert the

logic of maximising short-term net profit, the acceptance of an order depends on whether the margin is positive or negative. With a positive first-tier contribution margin, it will still be advantageous to accept the order because, even if the amount is small, it will cover fixed costs for that same amount. It should be noted 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 contribution margin. In this case, maximum coverage of the company's fixed costs is guaranteed 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 make a significant decision at the time of 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 must 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, different quantities of the individual goods can be sold at different prices. Remembering the amounts 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 accepted 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 accurate 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 be understood how it must make most business decisions based on the consideration of the first level contribution margin. The maximisation of this value entails, in fact, the consequent maximisation of the characteristic net profit 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 rather depends on its capacity, on the one hand, to highlight the impact of the variation of the volume of activity carried out on the characteristic profitability of the company 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 contribution margin derives from the contrast between

variable revenues and variable costs. If from the first level contribution margin one removes all fixed costs of typical operations, one arrives at the determination of the net operating profit of the characteristic activity. From this simple consideration, one can easily deduce how the variability of the net operating profit of typical operations, in our case, only of Room Division, depends on the structure and proportion existing between total margin and characteristic fixed costs. Due to the variability of the costs included in the margin and the persistence of the other typical costs, it is evident how the operating profit of the typical management changes more than proportionally to the volume of the activity carried out. This leads to calling this multiplicative impact the 'operating leverage effect'.

**To understand what the overall profitability consequence of a change in business activity against various cost structures and compositions (variable and fixed) is, consider this simple example**

Selling price 50

Variable unit cost 40

Fixed costs typical management 10,000

Sales volume 1,000 units.

Given this primary data, assume an increase in sales of 20%.

**Table 3:** The following table verifies the income consequences of the increase in business

	Basic hypotheses	Assumption of 20% sales/production increases	Percentage increases in sales of 20%
Sales/production volume	1.000	1.200	+ 20%
Total sales revenue	50.000	60.000	+ 20%
Total variable costs	40.000	48.000	+ 20%
First level contribution margin	10.000	12.000	+ 20%
Characteristic fixed costs	8.000	8.000	Variazione pari a zero
Gross operating profit (GOP)	2.000	4.000	+ 100%

From the above example, a 20% increase in sales/production corresponds to an equal rise in margin caused by the proportional development of sales revenues and total variable costs.

Due to the principles described above, the gross operating profit (net profit from ordinary operations) GOP varies more than proportionally to the increase in sales and margin due to the lack of change in fixed costs which, due to their immutability, remain constant under both assumptions. And in fact, the percentage increase in the typical operating net

profit is 100%.

This more significant "consolidation" of typical profitability is due to the operating leverage, which essentially expresses the change in GOP caused by a corresponding change in sales/production volume (within the so-called relevant range).

If we denote by  $\Delta \text{GOP}$  the change in the net operating profit of typical operations and by  $\Delta Q$  the increase in quantity sold/produced, the operating leverage effect can be summarised as follows:

$$\text{degree of operational alloying} = \frac{\frac{\Delta \text{GOP}}{\text{GOP}}}{\frac{\Delta Q}{Q}} = \frac{\frac{\Delta \text{GOP}}{\text{GOP}} \cdot Q}{\Delta Q} = \frac{\Delta Q \cdot (p - \text{unit var. cost})}{Q \cdot (p - \text{unit var. cost}) - \text{CF}} \cdot \frac{Q}{\Delta Q}$$

### Legenda

p = unit selling price

c. var. u. = variable unit cost

CF = fixed costs

GOP = net operating profit from operations

It is clear from the above that the higher the degree of operating leverage (i.e. the contribution margin/GOP ratio), the higher the multiplicative effect of operating leverage on the net operating profit of typical operations.

Since the interconnection existing between first level contribution margin and GOP depends on the cost structure

and the variable/fixed cost ratio, it is evident how the effect of operating leverage depends, in a direct way, on the type of cost structure of the analysed company, i.e. on the current ratio of company fixed costs to product variable costs.

To fully understand the effect of the company's cost structure on the net operating profit of typical operations, the above operating leverage formula can also be expressed as a function of variable and fixed costs, respectively.

Leaving aside the mathematical steps leading to the final formulae, it is possible to express the degree of operating leverage in the following ways:

CF

Degree of operating leverage expressed as a function of fixed costs =  $1 + \frac{CF}{\text{GOP (ossia il net profit della alberghiera)}}$   
Gestione tipica

Degree of operating leverage expressed as a function of variable costs =  $1 + \frac{\text{Ricavi totali} \cdot \text{c. var. un.} \cdot Q}{\text{GOP} \cdot \text{GOP}}$

To understand the above arguments on a quantitative level, let us compare the results from two different cost structures: Company A, characterised by the cost values given in the

example above (high variable costs and low fixed costs), and Company B, indicated by an opposite structure (high fixed costs and low variable costs):

**Table 4:** Increase sales and production

Accounting entries	Company A	Assumption of 20% increase in sales/production	Assumption of 20% increase in sales/production crease in sales	Company B	Assumption of 20% increase in sales/production	Assumption of 20% increase in sales/production crease in sales
Price un. sale	50	50		50	50	
Variable cost per unit	40	40		5	5	
Production/sales volume	1.000	1.200	+ 20%	1.000	1.200	+ 20%
Total revenue	50.000	60.000	+ 20%	50.000	60.000	+ 20%
Total variable costs	40.000	48.000	+ 20%	5.000	6.000	+ 20%
Top-level contribution margin	10.000	12.000	+ 20%	45.000	54.000	+ 20%
Fixed costs	8.000	8.000	Invariati	43.000	43.000	Invariati
GOP	2.000	4.000	+ 100%	2.000	11.000	+ 450%

$$\text{degree of operational alloying company A} = \frac{10.000}{2.000} = 5$$

The same result is obtained by determining the operating leverage as a function of variable costs:

$$\text{degree of operational alloying company A} = \frac{50.000}{2.000} - \frac{40 \cdot 1.000}{2.000} = 5$$

or according to fixed costs

$$\text{degree of operational alloying company A} = 1 + \frac{8.000}{2.000} = 5$$

$$\text{degree of operational alloying company B} = \frac{45.000}{2.000} = 22,5$$

The same result is obtained by determining the operating leverage as a function of variable costs:

$$\text{degree of operational alloying company B} = \frac{50.000}{2.000} - \frac{5 \cdot 1.000}{2.000} = 22,5$$

or according to fixed costs

$$\text{degree of operational alloying company B} = 1 + \frac{43.000}{2.000} = 22,5$$

It is evident from the above example that the higher the degree of operating leverage, the more significant the increase in using net profit from typical operations against a given increase in sales. And, given the definition of operating leverage, it can be understood how the intensity of the rise in net profit from typical operations against a given increase in sales/production depends on the identifiable

proportion between variable and fixed costs. Focusing on the operating leverage formulas expressed in terms of fixed and variable costs, respectively, it is easy to understand how, in the presence of an extremely rigid structure (absurdly, characterised by variable costs = 0 and the presence of only fixed costs), the operating leverage would be directly proportional to the ratio between total sales and GOP while, on the contrary, if the structure were completely flexible (presence of only variable costs and the absence of fixed costs), the operating leverage would be equal to 1.

It is clear from the above that the main short-term business decisions must be based not on mere knowledge of turnover but on determining the contribution margin. The revenue manager must, therefore, of necessity, cross-reference his sales figures with the cost values of the services he deals with (Room Division, food % beverage Division, MOD Division). Only this correlation between revenues and costs will enable the management of the accommodation facility to make the most profitable decisions. From these brief considerations, it can be deduced how the revenue manager must, obligatorily, link the values determined in terms of turnover with the cost data to determine the various options of first level contribution margin from which the accommodation facility must choose. Only in this way will the data provided by the R. M. benefit business management. If, on the other hand, the data provided by the R. M. are interpreted without inter-connection with the respective costs, the values provided by the R. M. could be misleading and, therefore, could lead to uneconomic decisions.

If the information needed concerning, for example, two products, such as room sales and Food & Beverage sales, was aimed not so much at "pushing" 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 specifically referable to a specific business

sector or product offered on the market - it is necessary to move from the determination of the gross contribution margin (or Level I) to the semi-gross contribution margin (or Level II), 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 second-level contribution margin represents an accounting tool for making medium- to long-term decisions, unlike the first-level contribution margin, which is characterised by the fact that the conclusions can cause are exclusively short-term.

**The term medium to long term, concerning the second level contribution margin, takes on two specific meanings**

1. the use of the term medium-long term presupposes that the decision to be taken has or can have a structural impact on the company. Unlike the first level contribution margin, about which the conclusions do not affect the company structure, if the decision-making aspect involves the second level margins, it is possible to witness, for example, the closure of departments, the 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-level margins are concerned, identifying the most practical choice is contextual to the information concerning the first-level contribution margin. It is for this reason that, concerning this margin, the knowledge of the data can be considered contextual to the time of the decision (if, for example, I receive three orders at the same time and I can only fulfil one of them, the choice will fall on the order with the highest first level contribution margin. It is clear 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 the most strategically correct decisions are made). 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 medium to long term in this context also means 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 those products or departments that, on the contrary, present 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 reality of the company, it may occur, for example, 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 evident 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 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 suggest a conservative 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 uneconomic of which does not depend on the limitations of the accounting tool used but instead derives from a failure to consider all the economic and strategic implications 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 particular product, even if its profitability is unsatisfactory. Such a decision could 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 findings that are the subject of our discussion are inevitably indispensable for any decision to be made in full awareness of the profitability and financial impact of such choices.

A typical example in the hospitality industry is the relationship between restaurant and room sales. An analysis of many hotels' data shows that the hotel restaurant is constantly making a loss. Faced with this negative figure, one has to ask why the company management keeps opening an activity that, over time, does not make a profit and often even causes losses. The answer lies in the identifiable link between the restaurant and the sale of rooms. In most hotels, the proof is that the customer only

buys a room if he is sure there is a restaurant in the hotel. This also happens when the customer, theoretically, has no intention of using the restaurant itself but, psychologically, wants to be certain that the restaurant is open and accessible to customers in case of need. This attitude often causes losses in restaurants, as keeping open a business that, in practical terms, is little used by customers causes widespread losses. But the company management knows perfectly well that if it did not have a restaurant within the hotel, it could not sell the rooms either. According to this view, the loss expressed by the restaurant's second-tier margin is an element that indirectly produces the high second-tier margin of the Room Division. When this situation occurs, it is evident how management accepts the presence of a loss because it understands that it is a factor that causes the high margin of Room Division. It is evident how such a situation can persist over time only if the Room Division's yield abundantly covers the restaurant's losses since, should it happen that the restaurant's losses added to the Room Division's level II margin, lead to the determination of a global company level II margin that is not sufficient to cover the common costs of the accommodation facility, the observations on the positivity of the restaurant's opening should be revised. Therefore, all reasoning must always be implemented with the overall company situation in mind and never forget that the company is a system in which every part is connected with every other company cell. This also applies to accounting values. Accounting is a system in which every matter is directly or indirectly connected to every other company accounting value. Every decision must therefore be made concerning the connection between the company's revenues and Hey costs and between each revenue, and each individual company cost the company costs and between each individual revenue and each individual company cost.

### 5) Conclusions

From what has been said in the preceding pages, it is clear how the Revenue Manager cannot act as a solitary cell within the hotel structure. The Revenue Manager's activity can be very useful only if it is inserted in a context of planning and not of mere forecasting and only if all the data are, before being inserted in the budget, compared with the cost data that the Room Division manager can supply to Revenue and the manager. To avoid misunderstandings, we would like to point out that, by choice, we have focused our attention on the room division sector of the hotel. It is evident that if the Revenue Manager deals not only with rooms but also with food and beverage or with activities falling within the Minor Operating Department (MOD), it will be necessary to prepare an Inter-relationship between data obtained from the action of the Revenue and e Manager and values obtained by the managers of the other two business sections (food and beverage Division and MOD Division). This does not mean that the food and beverage manager and the MOD manager are less relevant than the room Division manager.

Only if the Revenue Manager will act in a planning environment and not a mere forecasting one, and only if his data are interconnected and interpreted simultaneously with the cost values of the sections subject to that manager's activity, will the data obtained by the Revenue e Manager be useful in the budgeting phase. If even one of these characteristics is missing, the values obtained by the

revenue e manager could be uneconomic, misleading, and potentially dangerous for the company.

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