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# “The evolution of management and control systems: a SME in the real estate industry, Case Study”

MASTER'S THESIS IN

MANAGEMENT ENGINEERING – FINANCE

Author: **Parenti Matteo**

Student ID: 222004

Personal Code: 10666541

Advisor: Agostino Deborah

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## **Abstract**

This thesis takes a closer look at the MCS implementation within a SME in the real estate industry, focusing on the budgeting and cost accounting processes. Being a general contractor in the energy efficiency and photovoltaic sectors, the company operates in an environment where business conditions are very volatiles and sometimes unforeseeable, which makes the evolution of its control systems crucial.

The research is aimed at outlining internal managerial control processes, such as financial and liquidity planning and cost accounting; these control mechanisms are essential to realizing strategic goals while reducing the insolvency risks involved in the business management.

The dissertation merges the main theoretical insights from literature on management control, more precisely on cost accounting and budgeting practices, with practical applications observed during an internship experience within the Finance and Budgeting Team in the company.

An analysis of the management control systems of the company is conducted with special emphasis on the processes of cost accounting and budgeting, also comparing them with the existing literature. In addition to that, the key findings will reveal specific differences and common traits between the actual management control system and the established theories, indicating the areas where improvements could be introduced.

This paper concludes with explanations related to current company's best practices and some important recommendations for improving the efficiency and adaptability of the company in managing financial planning and control by implementing new and more advanced management control practices, and by introducing new technological infrastructure to support the processes already in place.

The findings and recommendations can be of great use to all SMEs, intent on expanding their activities and expanding their business, as well as expanding literature aimed not at large multinational companies, but at small, private-owned businesses.

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# **1.Introduction**

## **Contextualization**

The intent of this paper is to analyze the main management control practices used to date. More specifically, the paper will pay emphasis on the procedures used in small or medium-sized enterprises. Indeed, although more and more comprehensive and complex frameworks have been developed over the years, it can be said that these are used only by large multinationals that possess the organizational structure and resources necessary to implement these practices. In contrast, small or medium-sized companies, as well as start-ups, have neither the resources nor the necessary administrative/organizational culture. For this reason, they rely on simpler and more rudimentary management control systems (MCSs), which had already been theorized by academics in the second half of the 20th century; starting when Anthony, in 1965, provided the first definition of what he thought management control should represent, as will be detailed later. These MCSs are structured starting from two main pillars:

- Financial or accounting metrics are primarily used to assess the profitability or performance of the company, individual business functions, or single projects.
- Practices designed to steer the behavior of each employee, with the aim of aligning individual goals with the company's vision.

Crucial in this context is the budgeting function, the purpose of which is to understand the company's performance, looking primarily at financial metrics, identify any deviation from the targets defined in the initial planning phase, and determine corrective actions, if necessary, aimed at achieving what was previously set.

## **Objectives and research methodology**

The objective of the paper is to clearly and comprehensively contextualize what is meant when we speak of a management control system, and more specifically when we speak of cost accounting and budgeting, which, as already introduced, represents a fundamental phase of management control, since it allows the alignment of planning with the day-to-day management of activities, starting with deviations, which are quantified as the difference between planned targets and the performances actually achieved.

More specifically, the article will analyze the evolution of management control systems, starting with the first industrialized companies, up to the most recent innovations in this regard; focusing, not only on models developed in academia, mainly by economists, but also on more practical frameworks that have been developed by managers and adopted directly by companies. Next, drawing on the internship experience in V&P (V&P is not the real name of the company in question, but only an abbreviation that will be used within the entire paper for privacy issues), the paper will describe a practical example of how management control is applied in an SME. After that, an analysis of the main benefits and deepest criticisms of the previously introduced system will be presented, linking also to the state-of-the-art literature review done beforehand. Finally, the paper concludes with an assessment of the key results obtained from the internship experience, in which the main implications for the company itself, as well as for its employees, will be detailed; and potential implementations will be proposed with the aim of solving, in whole or in part, the critical issues found or to enhance key aspects of the MCS.

In conclusion, the main objective of the paper is to compare the management control system, and in particular the cost accounting and budgeting processes, in place at an SME with what has been stated in the relevant academic literature. This has the ultimate goal of understanding how far the theories developed by academics over the years are actually spread and understood by managers of developing companies and startups.

In addition to this, the paper aims to highlight the main strengths and weaknesses that result from the use or non-adoption of the frameworks described within the literature review, as well as the main reasons why SMEs set aside certain models or prefer others. In this regard, the internship experience carried out at V&P proved to be of crucial importance, allowing us to witness firsthand the main shortcomings of management control systems, as well as to fully understand the motivations that drive these companies to shift their focus to other internal activities.

Again, thanks to this experience, it was possible to propose possible improvements, through the integration of theoretical models or entirely new tools, ad hoc for the company, but which can be valid and of great use to many SMEs interested in expanding their business.

## **2. Literature Review**

### **History of planning and control systems**

In order to analyze the evolution of management control systems, this article will start from the themes proposed by Kaplan in his 1984 article ' (Kaplan, 1984). More precisely, the article will analyze the progress, at the turn of the 19th and 20th centuries, in cost accounting systems, which at the time were the only control system used.

It will then address the innovations introduced by the Dupont corporation (1903) and General Motors (1920), in the management control of decentralized operations, among which we find the ROI criterion for evaluating performance, formal budgeting and incentive plans.

Next, innovations introduced in the second half of the 20th century will be explored as a result of the definition provided by Anthony (Anthony, 1965), who intended management control as a tool to provide the necessary resources to managers, as will be detailed below. These include methodologies such as the analysis of discounted cash flows, the application of management science and the use of multi-person decision models.

Finally, all recent frameworks that, for the first time, shift the focus of management control away from financial metrics will be analyzed in depth. In more detail, the paper will focus on two main innovations; the first refers to balance scorecards, which for the first time introduced non-financial metrics into management control, including indicators on internal operations, customer perception, and learning dynamics; and the second refers to the behavioral aspect of management control, which emphasizes the influence that certain control system practices, such as performance measurement or incentive system design, can have in directing employees' actions.

### **Evolution of cost accounting practices in the first industrial companies**

The history of cost accounting and management control has been well traced by Johnson (1972 to 1983) (Johnson, 1972) and Chandler (1962 and 1977) (Chandler, 1962) (Chandler A. , 1977).

Indeed, Johnson (Johnson, 1972) describes the cost accounting system of a New England textile company in the second half of the 19th century, which allowed managers to assess the efficiency of converting raw materials into a variety of finished products; this system, based on the company's double-entry book, provided information on the cost of finished products, the productivity of the work and the impact that the layout of the factory had on these.

In contrast, Chandler (Chandler A. , 1977) provides evidence of how railway companies, already between 1860 and 1870, had developed accounting procedures to help them plan and control. In fact, these companies handled a vast number of transactions, so they had to devise procedures that could record and summarize all these transactions. The outputs of

these procedures were summary financial reports of the performance of the geographically dispersed sub-units of which the railway companies were composed. In addition to these summary financial reports, these companies developed a series of operational statistics that they used to evaluate and control the performance of the sub-units (cost per tons per mile, operating ratio).

Again, Johnson and Chandler testify how from 1880 onwards, mass production/distribution companies adapted the railway companies' internal accounting reporting system to their own organizations. Indeed, wholesale or retail sales across the nation generated detailed data on sales turnover, by department or geographic area, which were used in performance reports, remarkably similar to those that would be used by companies 100 years later to monitor the performance of revenue centers.

The later development of cost accounting can be attributed to the scientific management movement, which, thanks to some engineers who studied the work required to obtain a given output, were able to determine the standard amount of labor and material needed to produce a unit of output. These standards were then used to pay piece-rate workers or to determine the bonuses of the most productive workers (Frederick Taylor, Harrington Emerson, A. Hamilton Church, Henry Towne).

More precisely, Chandler, in his 1977 article, argues that it was thanks to scientific management that companies started to allocate overheads to products. Specifically, in 1901, Church defined several ways to allocate the idle time of a machine to various products. Instead, Gantt developed an approach that calculated the standard unit cost from a standard volume of throughput, which was calculated assuming a utilization coefficient of 80 per cent, as a result an increase in unit cost due to under-utilization was called an 'unabsorbed burden' while a lower unit cost due to over-utilization was called an 'over-absorbed burden'. However, Church disagreed with the idea that all fixed costs should be allocated proportionally based on direct labor costs. Indeed, within the same department one could find machinery that resulted in overheads of significantly different magnitudes, and operators with greatly varying wages. This makes proportional allocation unreliable and inaccurate. This view turns out to be very sophisticated and advanced for the time; indeed, for many years after Church's article was written, companies continued to allocate indirect costs proportionally; and it was not until the 1980s, with the widespread adoption of Activity Based Costing, that companies began to allocate overheads more precisely.

Clark, in 1923, also delved into the issue of overheads, analyzing their nature. It is from his work that concepts still used to this day arise: unavoidable or avoidable overhead, sunk cost, incremental or differential cost, and the time period for defining whether a cost is fixed or variable. Also, Clark introduces the concept of opportunity cost.

In conclusion, Johnson and Chandler point out that, as early as 1925, sophisticated cost accounting practices and theories had been developed, many of which were used in mass production companies of standard products, with the aim of increasing efficiency. In fact, production departments used it to assess operational efficiency, direct pricing decisions, and to motivate and control operators. But the focus was on labor and factory efficiency, not on the overall business success of the company.

It was in this context that the need for a management accounting system became widespread, because of the widespread of multi-sector, vertically integrated companies that needed to control and coordinate their various activities.

### **Development of management control in vertical integrated multinational companies**

The emergence of vertically integrated, multi-activity companies for mass production/distribution provided a turning point in terms of efficiency; however, these companies needed better planning and coordination of different activities. Therefore, companies with a divisional structure developed, in which the manager of each department was a specialist in that business function and was responsible for maximizing the efficiency and productivity of his or her department. In contrast, top management was free from managing operations daily and could devote himself to coordinating the distinct functions and planning aimed at implementing strategy. This organizational structure made it necessary to implement a performance measurement system that could motivate departments and monitor their performance.

Both Chandler (Chandler A. , 1977) and Johnson (1975) viewed Dupont as an innovator in developing management control systems; it was Dupont who first started using ROI rather than EBIT margin or the NP margin, to measure the efficiency of each department and the financial performance of the company. The choice of ROI allows us to assess the profitability of the invested capital and then decide how to allocate new investments between distinct functions. The ROI approach became more comprehensive in 1912 when Dupont's manager Brown divided it into the sales turnover ratio (SALES/INVESTMENTS) and operations ratio (EBIT/SALES). In turn, the two components were divided into sub-components for each department, so that each function knew how their performance impacted the overall profitability of the company. Furthermore, this enabled us to examine the discrepancies between the actual and budget ROI.

However, using ROI as a management control tool presented a major problem. Indeed, department managers were overly focused on day-to-day operations, which lost sight of the long-term strategy. As a result, Dupont, Brown and Sloan introduced a new accounting system that allows managers to have centralized control, with decentralized responsibilities. The system was based on three pillars:

- An annual operating forecast that was used to compare the ex-ante operating objectives of each division with the financial objectives of the top management, in this way it was possible to coordinate the expected performance of each division with the strategy.
- The management accounting system provided flexible sales reports and budgets that indicated whether the actual results were in line with what was planned, and the adjustments that each division had to make to achieve its objectives. So, the sales reports and budgets were also used as a control tool.
- The management control system allowed top management to allocate investments and bonus remuneration to the various divisions based on actual performance, also working as an incentive system.

### **The evolution of management control systems in the second half of the 20th century**

The first definition of management control dates back to 1965, when Anthony (Anthony, 1965) defined it as "the process by which managers ensure that resources are obtained and used, efficiently and effectively, so that the organization's intended objectives can be achieved", this was a strongly accounting-oriented view that relied primarily on the use of financial and accounting information systems (budgeting and cost accounting). Indeed, all the tools and practices that had been theorized or directly put into practice up to that time consisted of costing or accounting models.

For example, as early as 1950 Dean (Dean, 1951) sensed the advantages of discounting procedures, first advocating the discounted earnings approach and then the DCF approach (in 1954), instead of the methods already used at that time for project/investment evaluation, such as payback time and ROI. However, Myers in 1984 pointed out that these methodologies were still not properly applied in many companies in the U.S. states.

Residual Income (RI) was also first theorized at this time, by the General Electric Corporation. This approach had the advantage of solving a major flaw in ROI; in fact, using only the latter a manager might have an incentive to reject a profitable investment for the company (whose IRR is greater than WACC), simply because the ROI of such a project is less than the average ROI of the department. Again, despite the benefits of the innovative approach, especially when integrated with the methods already in use, it did not spread in practice, so that even the GEC soon dismissed it.

In addition, starting from 1960 all the literature that supported the benefit of applying analytical quantitative models (e.g., linear regressions, linear and nonlinear planning, probability theory, and decision theory) to support the planning and control process became widespread. Thus, in this case, the innovation was in using more accurate and sophisticated

tools and not in implementing a different approach. Consequently, these innovations can be interpreted as descending/following from scientific management.

A further improvement of management control models was introduced by Feltham, in 1968; he, in fact, first theorized the information economics approach applied to management control. According to this approach, the manager had to choose an information system that could provide signals of changes in the environment that could influence optimal decisions for the company. The information system then had the task of supporting the decision-making process by exploiting utility functions that allow the preferences of the company to be established. Later this approach was overtaken by agency theory, which, in contrast, decomposed the firm into different actors, whose preferences and behaviors it analyzed. These actors include principals (owners and shareholders) and agents (managers); therefore, the task of management control is to provide certain signals to the agents and inform the principals about the likelihood of certain scenarios. Thus, it is only since 1968 that management control systems begin to consider the external environment as a relevant variable in determining the right behaviors to be applied to achieve the best performances.

However, Kaplan (Kaplan, 1984) states that a clear difference can be seen between the models developed in the early 20th century by managers and entrepreneurs and those developed later by academics. Indeed, the former, although simpler and more superficial, quickly spread among the leading companies of the time, precisely because they stemmed from the practical experience of managers. On the other hand, all those models devised by academics did not spread over time, not because they were invalid, but because it was difficult for companies to apply these procedures.

### **Moving management control away from financial and accounting measures**

For the first time since 1965, Kaplan, in 1991 (Kaplan R. , 1991), provided a new definition of the management control as that which allows the company to adapt to changes in the system, provide feedback on performance, assess profits from specific products/customers, and evaluate various capital investment decisions. Thanks to this view, frameworks such as activity based costing (ABC) (Cooper & Kaplan, 1992) were introduced, which made it possible to measure margins per product/line more accurately, value based measurement (EVA)(Stewart, 1990)and balance scorecards (Kaplan & Norton, 1992), thanks to which attention is beginning for the first time to be paid to non-financial indicators (KPIs). These new tools made it possible to shift the focus of managers from accounting measures alone, which until then had been the focus of management control, to non-financial, and more operational measures, thanks to which a more comprehensive view and a greater long-term orientation could be taken.

Indeed, because of the new vision of management control introduced by Kaplan, new definitions were introduced that complemented what had already been said by Anthony and Kaplan himself. For example, Fisher (Fisher, 1995) states that "control creates the

conditions that motivate the organization to achieve predetermined results"; thus introducing, for the first time, the motivational function that management control can have in directing behavior within the firm. This perspective will be later, deepened by Otley, as we shall see later. Another example that is crucial to address is that of Kloot (Kloot, 1997), who just two years after Fisher, in 1997, stated that "control is about ensuring that organizations achieve their goals." This new definition of control systems emphasized the need to have alignment between the procedures in place to direct and control everyday activities and the long-term strategy of the company. Indeed, Kloot was a leading proponent of the cybernetic view on management control, which models control as "a set of cybernetic, cyclical and closed templates that predict goals, measure results and apply corrective actions" (Kloot, 1997). It is clear from Fisher and Kloot's new definitions that, starting in the 1990s, academics began to identify management control as a tool for aligning with the company's long-term strategy; it is also from this perspective that another function of control systems takes on greater importance, the motivational function, which is often implemented through reward and incentive systems.

Two key studies emerged in this context to describe these two "new" functions. The first was by Simons (Simons, 1995), who analyzed numerous U.S. and Canadian firms of the time to understand the effectiveness of different control levers in relation to the firm's strategy. More specifically, Simons defined four levers on which management can act to control the direction of company development, and thus four components of the control system:

- The belief system allows communicating enterprise values and thus transferring a purpose to employees.
- The boundary system that makes explicit the "rules of the game" and thus identifies undesirable behaviors and actions to be avoided.
- The diagnostic system that identifies and supports key actors, with the purpose of making sure that certain activities are carried out correctly.
- The interactive system that promotes learning and initiative to allow new and better procedures to emerge.

Simons himself asserted that most of the companies he analyzed applied a diagnostic system and non-interactive control. According to him, the main difference was not in the instruments of which the control system was composed, but in the use that was made of them. Indeed, the control was still mainly structured on financial indicators (KPI, BSC, and ROI). However, there was also an 'undefined area', as defined by the author himself, used to analyze and describe the vision, mission, and decision-making process. Subsequently Ponssard and Saulpic (Ponssard & Saulpic, 2005) (Berland, Ponssard, & Saulpic, 2006) integrated the model developed by Simons. Integration took place in two different directions. Initially, the two academics verified that the strategic vision of the company influences the tools employed by the control system. They also analyzed the relationship between the remuneration system

and the control system, focusing on the objective or subjective relationship between remuneration and the indicators used as control tools. So, according to Ponssard and Saulpic, a diagnostic system differed from an interactive one in the tools used; indeed, they argued that an interactive process relies on more customized tools, while a diagnostic on more generic tools.

The second study, which emerged following the visions introduced by Fisher and Kloot, was that of Otley (Otley, 2003), who analyzed the motivational aspect of management control, sensing the importance that this has in determining the behaviors, first, of directors, and employees. In his article, Otley started from what Rosanas had previously stated, indeed already in 1994, he observed that the simple fact of measuring the performance of top management influences its behavior; surely, once a certain goal was set, based on the long-term strategy, if they realized that they had not achieved it, they would be forced to change their way of acting, in order to accomplish the set target. Otley, who argued that management control should also leverage non-financial indicators to motivate people and report business results, focused on 5 key aspects of the management control system:

1. Key objectives: represent the starting point in building the management control system.
2. Strategy and Planning: They define how the company sets out to fulfil key goals.
3. Performance level: Establishes which are the key performances that must be measured and how.
4. Rewards: Appoint a reward/incentive system to motivate employees to move in line with the above.
5. Feedback and feed-forward: are the two processes that allow to correct the discrepancies between what has actually been obtained and what has been planned.

### **Current companies' problems in allocating costs**

Although Activity-Based Costing (ABC) may appear to be an accurate method for managers to allocate costs to various products or projects, real-world data today indicates that many companies are struggling to apply this procedure due to the complexity of their operations. For this reason, Robert S. Kaplan and Steven R. Anderson, in their 2005 article "Rethinking Activity-Based Costing" (Kaplan & Anderson, 2005) propose a simplified approach called time-driven ABC. In this new mechanism, managers directly estimate the demand imposed by each product or project on the resources, instead of first assigning resource costs to activities and then allocating them to different products. Consequently, for each resource group, only two parameters need to be estimated: "the cost per time unit of supplying resource capacity" and "the unit times of consumption of resource capacity by products."

The estimation of the cost per time unit of capacity begins by calculating the effective capacity of a resource, which is often estimated as a percentage of the theoretical capacity (usually

between 80-85%). While the capacity of many resources is based on their time availability, this new approach also allows for the calculation of some resources' capacity based on other units of measure (for example, square meters for warehouse space or gigabytes for memory storage). Knowing the total periodic cost of such a resource, it is then possible to calculate the "cost per time unit of supplying resource capacity" by dividing the total cost by the effective capacity.

The second step involves estimating the "unit times of activities," or the average time each activity requires from the resource to be completed. This parameter can be estimated through confrontation with employees, surveys, or directly by managers.

The third step in time-driven ABC is calculating the cost driver, which is the product of the two previously mentioned input variables (cost per time unit of supplying resource capacity x unit times of activities). Once the cost driver is calculated, indirect costs can be allocated to each product or project.

This new approach proposed by Kaplan and Anderson brings several important advantages for companies in cost allocation, including:

- **Simplification:** Time-driven ABC requires only two parameters to be estimated for each resource group: the cost per time unit of supplying resource capacity and the unit time of resource capacity consumption. This makes the method simpler to implement and maintain compared to traditional ABC.
- **Accuracy:** Time-driven ABC can provide more accurate cost estimates than traditional ABC, as it takes into account the actual time spent performing activities.
- **Flexibility:** Time-driven ABC can be used to assign costs to a variety of products, services, and customers, even in complex or evolving contexts.

However, this approach also presents some challenges during implementation, such as:

- **Data relevance:** The accuracy of time-driven ABC depends on the quality of the data used to estimate the unit times of activities. If the data is inaccurate, the results of the method may be misleading.
- **Implementation:** Implementing time-driven ABC may require time and resources, particularly in large or complex organizations.

Deloitte, leveraging its extensive consulting experience in the field, highlights in its article "Why do so many organizations struggle with cost allocation?" (Lock & Dimond, 2021) that many organizations today face difficulties in allocating the costs of their corporate functions to different business units. This is because these units often seek to protect their profitability by rejecting corporate charges.

More specifically, the consulting firm identifies five key reasons that lead to the failure of the cost allocation process:

- Wasting effort trying to find a more perfect allocation method: The cost accounting team invests excessive time and resources in developing allocation methods that are intended to better reflect cost drivers. However, these new methods are not necessarily more effective than the previous ones. According to Deloitte, this is a waste of resources because business units prefer a less precise but more consistent approach over time, which reduces volatility. Consequently, this search for new methods often results in more disputes between the various units.
- Too many services: Companies frequently attempt to allocate costs across too many services, even though 20% of the services provided typically account for 80% of total costs. Therefore, it would be more efficient to allocate indirect costs only to the most relevant services.
- Categorizing costs into fixed and variable is pointless: When a company classifies costs as either fixed or variable to simplify the allocation process, this approach often fails. This is because costs do not strictly fall into fixed or variable categories but rather exist along a continuum between the two.
- Trying to manage too many exceptions: Although cost allocation methods aim for standardization, they often allow for exceptions, which make the cost division less transparent. An effective system should be well-designed to eliminate the need for exceptions in the cost allocation process.
- Trying to operate management reporting and allocations to legal entities separately: Some organizations run two parallel cost allocation systems—one to measure business performance (for management purposes) and the other for fiscal/legal or reporting reasons. This creates two versions of the truth, which are not always easily reconcilable. Deloitte observes that although different stakeholders (even internal ones) may have slightly different requirements, it is always more efficient to manage the process uniformly. The issue of "duplication" typically arises due to unsynchronized reporting systems.

In addition to that, Ian D. Gow and Stefan Reichelstein, in their article "Capital Budgeting: The Role of Cost Allocations" (Gow & Reichelstein, 2006), emphasize the importance of the cost allocation process in capital budgeting. The article argues that an accurate and precise allocation of indirect costs, particularly depreciation and capital charges, across time periods and various business units is essential for creating a performance measurement system that remains consistent over time. This system should compare initial reports with the actual results realized subsequently. However, the authors note that despite significant advances in financial literature regarding the understanding of intertemporal cost charges, there are still

challenges that need to be addressed to make current models more complete in several areas, including:

- A richer setting for capacity investments and subsequent capacity utilization.
- Models suitable for projects with sequential decision stages.
- Systems for managing the coordination of risk exposures across the divisions of a firm.

### **Key Management Control Frameworks**

Within this section, the paper will analyze the main frameworks to today used for management control in most companies. First, earlier frameworks will be described, focusing primarily on accounting measures (e.g., activity-based costing, ROI, economic value added and balance scorecards), which constitute the foundations of management control. Finally, frameworks that describe the motivational aspect of management control, and its importance in determining employee behavior (including incentive theory and management by objectives) will be discussed.

#### **Accounting based Frameworks**

The first step to flatly analyze and understand management control systems is to fully understand the accounting frameworks on which they are based. These models were introduced by the first large industrial companies for the purpose of controlling the costs faced by those companies; more precisely, the goal was to make sure that costs were such that the company made a desired profit. Indeed, at that time, the focus of management was on reducing costs rather than on increasing revenues, as all the theory about marketing practices had not yet been developed. In this context, the ROI method was introduced, which consists of measuring the return on of an investment, in proportion to the capital invested. This framework was introduced by the Dupont Company, as seen in the previous section, but is still used today as a starting point for assessing the profitability of different company functions/departments or for evaluating and comparing different projects. Although the ROI method is useful for a first assessment, this one has some flaws. For this reason, other frameworks have been developed, which stem from ROI. An example is Residual Income, introduced for the first time by General Electric, which measures, as we can see from the formula below, the remaining net profit after subtracting the opportunity cost of equity, that is the cost that the company bears for the fact that the capital employed in this project cannot be used for others. Another improvement, besides considering the opportunity cost, that RI brings to ROI is that the first is an absolute measure of profitability, this should ensure that there are no misalignments between the principal and the agent (Agency theory). Indeed, looking only at the ROI one could exclude certain projects, just because their ROI is lower than the average, this cannot happen with the RI, as each profitable investment will have an incremental contribution to the overall measure.

$$RI = \text{Net Income} - (\text{Equity Capital} * \text{Cost of Equity})$$

A further evolution of the RI is represented by the Economic Value Added (EVA) framework, whose basic idea is the same, that is to calculate the absolute profitability of a project/investment, also considering the cost of capital invested. Unlike RI, however, the EVA considers the total cost of capital (WACC) and not only the cost of equity. So, this model also considers the impact that the financial structure of the firm has on the profitability of the investment.

$$EVA = \text{NOPAT (Net Operating Profit After Taxes)} - (\text{Capital Invested} * \text{Cost of Capital})$$

Another tool, used by management control systems, based on accounting logic is activity-based costing (ABC). This framework is used to allocate all indirect costs among different business divisions/products, based on their resource utilization, allowing a more precise understanding of the costs of products and services. More specifically, it consists of 4 steps:

1. Identification of activities: In this step, all daily operations are divided into core activities.
2. Assignment of costs to activities: Activities are themselves associated with one or more departments/products, so it is possible to allocate the costs of a given activity among the assorted products involved.
3. Determination of cost drivers: the cost driver is the foundation on which activity costs will be allocated. Thus, each activity will have a characteristic cost driver, consisting of the factor that allows the cost to be allocated, as consistently as possible to the nature of the cost. For example, the maintenance cost of a machine can be allocated based on the hours of use that each product requires of the machine in issue; on the other hand, the cost of sales force will be allocated based on the turnover that each product generates overall.
4. Allocation of indirect costs: finally, the allocation of different indirect costs to various products.

Activity-based costing, as mentioned in the previous section, was introduced in the 1990s by Kaplan and Cooper (Cooper & Kaplan, 1992), and is still used in major companies today, as it provides a more accurate understanding of the actual cost of a specific product. This is of significant use in management control as it allows the assessment of both the actual profitability of a product line and the improvement/worsening trend in operations management. Finally, if the framework is used with a departmental logic, it is possible to assess the impact, in terms of indirect costs, that each department has on the company budget; so, it is possible to verify that each cost related to a division is in line with the activities carried out by this.

Finally, another framework that uses accounting metrics is the Balance Scorecards, which although not traditionally an accounting framework, integrates financial and non-financial measures to assess organizational performance. This model was introduced, for the first time, by Kaplan and Norton in 1992, and was further deepened by them in 1996, with the goal of creating a tool to accomplish business goals by evaluating the company across all 360 degrees. More specifically, 4 perspectives are identified with which to evaluate the company and its performance:

1. Financial perspective: the key point is to understand how the company wants to appear in the eyes of investors, focusing on financial economic objectives, measured by traditional performance and profitability indicators.
2. Customer perspective: the key point is to understand how the company wants to appear to the client, focusing on improving customer offerings and services. Thus, in this section, it is crucial to adopt an external perspective to identify customer needs and preferences; consequently, the business function that is most concerned with this is marketing.
3. Business process perspective: the key point is to understand which are the core processes within the company, i.e., those that most impact competitive advantage and value creation. So, the goal is to identify how these processes can be improved; consequently, the business function that is most affected is Operations.
4. Learning and growth perspective: the key point is to understand how the company can maintain its learning and improvement capabilities. Thus, the goal is to ensure a positive trend to the company's performance in the future.

Subsequently, for each perspective, it must be defined:

1. Objectives: Looking at the strategy, what the company needs to achieve, and that is critical to its success.
2. Measures: these are the tools that will be used to quantify the achievement of the objectives; these include both financial indicators, including those previously examined in depth (ROI, EVA, etc..), and non-financial indicators.
3. Target: the values that the measures mentioned in the previous point must reach, to ensure the achievement of the objectives (point 1) and therefore to ensure the successful implementation of the strategy.
4. Initiatives: the programs and key actions to be implemented to achieve the objectives set.

### **Management control framework for the behavioral aspect**

The first framework that it is necessary to mention, if one wants to analyze how individuals behave in response to the system of control to which they are subjected, is, surely, Agency

Theory. This theory was developed through the significant contributions of Michael C. Jensen and William H. Meckling (Jensen & Meckling, 1976) and even nowadays it is used as a starting point for identifying potential conflicts of interest that may arise between principals and agents; it is also of fundamental importance for understanding how organizations define contracts, structure incentive programs and design control systems, with the aim of reducing so-called Agency Cost.

More specifically, this framework identifies two different types of actors within the organization. The firsts are the owners or shareholders of the company, in other words, the principals, whose goal is to maximize their own economic profit, and thus that of the company; however, they do not have direct control of the company, and its resources, as these are administered by managers and used by employees, in other words, the agents. Consequently, because these different actors have goals that are not always aligned, a conflict-of-interest problem arises, where the principal must be concerned about being able to control the behavior of the agents. Moreover, the so-called Agency Problem is intensified in case there is also asymmetry of information between the two actors.

This theory highlights the need to develop tools that align the objectives of the agents with those of the principals, and thus the company; these tools include Key Performance Indicators (KPI), Simons' Levers, Management by Objectives, and corporate culture and vision, which will be detailed later.

The first tool used to align individuals' behavior with long-term business goals, as well as the most widely used, is an economic incentive system based on financial and non-financial KPIs. Crucial to this topic is Merchant & Van der Stede's 2017 book, "Management Control Systems: Performance Measurement, Evaluation and Incentives" (Merchant & Van der Stede, 2017) within which the authors describe how an organization should measure performance and distribute rewards or bonuses, with the aim of minimizing opportunistic behavior and promoting decisions that maximize long-term value for the organization.

More in detail, the authors argue that incentives distributed by the company should be based on certain Key Performance Indicators, measured by the control system, which must necessarily be:

- Relevant, meaning they must reflect the long-term goals of the company.
- Measurable and quantifiable accurately and using dependable data.
- Controllable, meaning they must be under the direct control of workers.
- Communicable, easily understandable and transparent to those who use them.

They also emphasize the need to have a balance between financial and non-financial KPIs in order to get a complete view of company performance.

Also along the same lines is the framework developed by Peter Druker, in his book *“The Practice of Management”* (Druker, 1954) the Management by Objectives (MBO). The goal of this tool is to provide guidance on how an organization should define and achieve its goals, ensuring alignment among staff, transparency within the work environment and employee motivation. Thus, the idea behind the MBO is to develop a process for identifying goals and targets that is not only unidirectional and top-down, but also bidirectional, and therefore also bottom-up; always keeping the company's mission and strategic vision as a guideline. Consequently, the involvement of employees, regarding the definition of their own objectives, is crucial, as it performs a dual function for the control system; first, it allows “checking” that each employee is aligned with the company's vision, second it ensures greater motivation and determination in the work that each of them does. Indeed, because the employee has taken part in the goal-setting process, the targets will be more widely perceived as his or her responsibility. In addition, to ensure the best possible alignment and transparency, the targets identified must be SMART:

- Specific, i.e., related to a well-defined performance or process.
- Measurable, easily and using reliable data.
- Achievable.
- Realistic.
- Timed.

This helps to make goals clear and facilitate performance evaluation. Once goals are set, it is critical to continuously monitor progress; therefore, the framework provides for periodic meetings between managers and employees to assess progress and find solutions to any problems encountered along the way. Finally, periodically, at the end of the evaluation period, employees' performance is assessed according to the degree to which targets have been met; economic incentives, such as bonuses or promotions, or other rewards are linked to this review.

However, this framework has some limitations that need to be explored further. First and foremost, the most serious risk arising from the adoption of the MBO is surely that of generating excessive “myopia” among workers, which could lead them to focus excessively on short-term targets, in order to obtain bonuses or promotions, while ignoring the long-term

implications of their decisions. In addition, a workload management problem arises; indeed, the process of target setting, progress monitoring, and confrontation between managers and employees requires a considerable amount of time on the part of both. Finally, if used too rigidly and bureaucratically, MBO reduces the creativity and flexibility of the company; features that are essential nowadays, given the quickness with which the environment in which companies operate, consumer preferences and legislation change.

We can therefore say that the two frameworks seen so far, that of Merchant & Van der Stede and the MBO, have, in principle, the same objective, to provide the management control system with a tool to ensure that employees are aligned and motivated in the workplace. However, we find a substantial difference; indeed, in the former framework it is the managers who determine which metrics, financial and otherwise, are crucial and what performances are to be achieved in those areas, while in the latter case the goals are jointly defined by managers and employees. The “myopic” attitude, which, as seen above, is a significant risk from adopting these two frameworks, leads the organization to make short-term decisions that are not always aligned with the organization's long-term goals. This, not only results in a worsening of long-term performance, but also in the loss of numerous opportunities, which are ignored, so as to avoid the risk of worsening current performance or even worse, failing to meet established targets; similar to what could happen by adopting only ROI as a financial management control tool, as analyzed above.

To deal with this problem, the management control system can rely on two fundamental pillars to ensure alignment in the work environment, the company vision and mission, which are the starting point for all the frameworks already analyzed, but more generally for management control and even earlier for the company's strategic planning. In more detail, the mission articulates the fundamental purpose of the company and why it exists, describing the operations, target customers, stakeholders and core principles that guide daily activities. In contrast, the vision describes the long-term goal and future direction of the company, that is, what the organization aspires to become or achieve in the future, providing an ideal framework that guides business strategies and decisions. It is therefore clear that in order for workers to be coordinated and aligned on goals, it is necessary for the corporate vision and mission to be well disseminated and understood among them. Particularly useful for this purpose is the ADKAR (Awareness, Desire, Knowledge, Ability, Reinforcement) framework, developed by Jeff Hiatt, which describes how management can successfully spread the corporate vision and mission as a tool for controlling employee behavior. More specifically, the framework stipulates that management must implement the following five conditions for there to be full understanding and adoption of the corporate vision and mission:

- Awareness among employees about the importance of the vision and mission.

- Desire to support and adopt the vision and mission by explaining the corporate and personal benefits, such as obtaining bonuses or promotions.
- Knowledge necessary for each employee to contribute to the realization of the vision and mission.
- Ability of each worker, in terms of competencies and available resources, needed to support the vision and mission in their daily work.
- Continuous Reinforcement of the vision and mission through recognition, feedback and integration into performance assessment systems.

In conclusion, the task of the control system is to make sure that these conditions are verified constantly and for all employees, through direct confrontation (formal, e.g. interviews, or informal) or indirect (e.g. anonymous questionnaires), with the aim of facilitating the understanding and dissemination of the corporate vision and mission, and thus the alignment between individual and corporate goals, and consequently between daily activities and what is planned.

### **Theoretical methodologies for budgeting**

In addition to the various frameworks, detailed above, that constitute, at least in part, the management control system, there is a business function, budgeting, whose main purpose is to forecast the flow of resources, financial and otherwise, of the enterprise. This represents a tool of great relevance to management control, since it allows for a constant comparison of actual flows with planned ones, so that conclusions can be drawn about the effectiveness or efficiency with which the company, or each business function, is administered. Formally, budgeting is defined as the process by which an organization plans and controls financial resources, establishing economic and financial objectives for a given period of time, through the drafting of a document, called a budget, which is a detailed representation of the company's expected revenues, expenditures, investments and other financial operations. So, this function is of significant use for several critical activities within the company, including:

- Planning, in that it defines the organization's financial and operational goals for a future period, aligning them with the overall business strategy; and therefore, estimating the resources needed, such as capital, labor, and materials, to achieve the established goals.

- Coordination, as it ensures that each department's goals are aligned with the company's overall organizational strategy; in doing so, it coordinates the activities of different departments, ensuring that all are working cohesively toward common goals.
- Motivation, since it can be used to motivate managers and employees by setting clear performance goals and, in some cases, tying achievements to incentive or reward systems.
- Evaluation and Control, as it provides benchmarks against which actual performance can be measured and evaluated.

Consequently, it is evident that budgeting is a key component of the management control system, as it contributes to the latter in several respects. Primarily, from the point of view of performance measurement, budgeting provides a benchmark for evaluating actual performance by comparing actual results with expected results, through which managers can identify areas of success and improvement. This is also the starting point for a KPI-based incentive system, for example as described by Merchant & Van der Stede, which can be used to motivate both managers and their employees. In addition, identifying deviations between budgetary and actual results helps managers understand where things are going differently than expected therefore taking prompt corrective action. On the other hand, from a planning and coordination perspective, budgeting ensures that all parts of the organization are aligned toward the same goals, coordinating activities and resources in a way that maximizes efficiency and effectiveness. Finally, a good budgeting system also allows flexibility to respond to unforeseen changes in market conditions or business circumstances. In conclusion, as a management control tool, budgeting helps keep the organization on track by identifying potential problems before they become critical and ensuring that all resources are used effectively and efficiently.

Given the importance of budgeting within the management control system, the main methodologies by which this process is implemented within companies around the world will be detailed below, specifying for each one the main advantages and limitations.

### **Incremental budgeting**

Incremental budgeting is a methodology in which the previous year's budget is taken as a baseline and is modified based on specific increases or decreases for the new budgeting period. Changes can result from factors such as inflation, changes in production or sales volumes, new business initiatives, or cost reduction needs. In other words, incremental

budgeting assumes that most activities and costs will remain stable, so it focuses only on incremental changes, rather than reviewing and justifying the entire budget from scratch.

Thus, it is clear that the main advantage of this methodology lies in its simplicity and easiness of implementation, indeed incremental budgeting is relatively simple to implement, as it only requires adding or subtracting increments to the existing budget. As a result, there is an additional pro, which is a savings in time and administrative resources due to the fact that this methodology does not require a complete review of all business activities. Finally, this provides stability and continuity in business operations, since these are consistently funded on a similar basis to the previous period; this can be helpful in maintaining a consistent and predictable level of operations.

However, this approach, while simple and inexpensive, has some limitations. First, it leads the company to excessive inertia and lack of innovation. Indeed, because incremental budgeting is based on the previous period's budget, it tends to perpetuate existing practices, thus reducing encouragement for innovation and change and reducing the company's ability to respond to new opportunities or changing market conditions. Moreover, incremental budgeting does not incentivize a critical review of the company's strategic goals. Therefore, resources may not be optimally allocated to support the organization's strategic priorities. Finally, without detailed review, incremental budgeting may perpetuate the funding of activities or projects that are no longer relevant or inefficient, leading to wasted resources.

In conclusion, incremental budgeting is a simple and straightforward approach to financial planning, particularly useful in environments where year-on-year changes are minimal, and the company wishes to maintain some operational stability. However, its use can lead to inefficiencies, lack of innovation, and suboptimal strategic alignment if control and review mechanisms are not introduced. It is particularly suitable for organizations operating in stable environments but may be inappropriate in dynamic contexts or when radical revision of business priorities is required.

### **Zero-Based budgeting (ZBB)**

The complete opposite approach to incremental budgeting is the zero-based budgeting (ZBB), which requires that each expenditure item must be justified and approved from scratch for every new period, regardless of the previous budget. Thus, instead of starting from an existing budget and applying incremental adjustments (as is done in incremental budgeting), ZBB requires managers to build the budget as if each activity were new, starting from a zero level of spending. So, the process requires each function, project or department to submit a detailed budget request, explaining why each cost item is needed and how it contributes to the organization's strategic goals. The proposals are then evaluated, prioritized, and approved based on their relevance and the value they bring to the company.

The main benefit from this type of approach is a periodic realignment with strategic objectives; indeed, since each expenditure item must be justified in terms of its strategic value, the ZBB ensures better alignment between allocated resources and corporate goals. This helps focus the organization on projects and initiatives that support long-term strategy. In addition, this methodology ensures greater optimization in the use of resources, since all spending must be justified, unnecessary costs can be eliminated, and the use of corporate resources can be optimized. This allows resources to be allocated more efficiently, focusing on activities that bring greater value and cutting unnecessary expenditure. Finally, zero-based budgeting gives the company more flexibility and adaptability, as it allows the budget to be quickly adapted to new market conditions or emerging business priorities, as it is drawn up from scratch each year.

Although this mechanism is more accurate and efficient in managing resources, this requires an extraordinarily complex and onerous budgeting process. Indeed, the need to justify every expenditure from the ground up requires advanced analytical skills and can become complicated to manage, particularly without adequate support systems, and especially for large organizations with multiple departments and complex operational processes. Finally, implementation of this approach may face resistance to change from managers and workers, who may perceive the requirement to justify every expense as too much pressure, thus risking generating demotivation and workplace discontent.

In conclusion, zero-based budgeting is a powerful and rigorous approach that offers a unique opportunity to completely rethink an organization's cost structure and reallocate resources more strategically. However, its use requires a significant commitment of time and resources, and it can be complex to manage. For organizations that operate in particularly dynamic environments or need a radical overhaul of their expenses, ZBB can offer substantial benefits. However, it is important to consider its drawbacks and prepare to manage the complexity of the process.

### **Rolling budgeting**

The rolling budgeting is a dynamic and continuous methodology that involves regularly updating the budget throughout the year, always maintaining a fixed time horizon, e.g., 12 months or 18 months. Concretely, the budget is not set once throughout the year, but is reviewed and updated periodically (monthly, quarterly, etc.), adding a new period (e.g., a month or quarter) to the forecast. This allows the company to adapt quickly to changes in operational, market or financial conditions.

The main advantage of this approach is certainly the greatest degree of flexibility and adaptability possible, compared to the other types of budgeting discussed above. Indeed, rolling budgeting allows the organization to respond quickly to market changes or variations

in business performance, thanks to periodic and regular updates that allow forecasts and resource allocations to be adjusted in a timely manner. Furthermore, because the budget is continuously updated, financial and operational decisions can be based on more recent and accurate data and information, reducing the risk of relying on outdated forecasts. In addition, this method offers greater contribution to the planning and control system, and thus to management control in general, since it provides a more up-to-date view of business performances and resources requirement, thus reducing deviations between target and actual values. Finally, an additional benefit lies in continuous realignment with strategic goals, as already seen for zero-based budgeting; indeed, rolling budgeting allows for continuous realignment of resources to strategic goals based on changing circumstances, ensuring that the company remains focused on its long-term goals, even when facing unforeseen changes.

However, similar to zero-based budgeting, this approach requires more operational complexity, since regular budget updating requires continuous efforts by finance and operations teams, which generates an increased workload that requires sophisticated reporting systems and constant data monitoring. Consequently, rolling budgeting involves additional costs for the company due to the continuous updating of forecasts, especially for those companies that do not have automated systems for data collection and analysis. Finally, the continuous process of reviewing and updating requires an elevated level of coordination among different departments and business functions to ensure that the data used are accurate and that revisions are consistent with the company's overall strategy.

In conclusion, rolling budgeting is a methodology that offers greater flexibility and adaptability than traditional budgeting, which is particularly useful in dynamic or uncertain business environments. However, this greater responsiveness comes with higher operational and management complexity, requiring additional resources and a corporate culture that supports continuous monitoring and constant adjustment. Despite its drawbacks, rolling budgeting can provide significant value for organizations that need tighter financial control and the ability to respond quickly to changes.

### **Activity-Based Budgeting (ABB)**

Activity-based budgeting (ABB) is a methodology that focuses on the activities performed within an organization as the starting point for building the budget. Unlike traditional budgeting, especially incremental one, which relies on historical increments and organizational functions, ABB identifies and analyzes all key cost-generating activities and then determines the budget based on the expenditures associated with each one of them. The main objective is to understand the actual cost related to the activities needed to support business operations and allocate resources as accurately as possible. So, it represents an extension of the activity-based costing (ABC).

Thus, a significant benefit derived from this approach is the increased accuracy of cost assessment, thanks in part to a deeper compression of the expenses incurred by the business and the activities that make them necessary. In addition, because activity-based budgeting is based on tasks, there is better alignment between the resources allocated and the actual operational requirements of the company; indeed, resources are allocated based on the actual need to support activities that add value, rather than based on simple historical increments. This makes it possible to identify all the activities that do not contribute significantly to business objectives, which can then be reduced or eliminated, reducing inefficiencies and waste, and thus also unnecessary costs. Finally, ABB provides detailed information on task costs, which helps managers make more informed decisions about where to allocate resources, which operations to expand or reduce, and how to improve profitability.

Although activity-based budgeting allows management to have a deeper understanding of the costs the company incurs and/or will incur; this approach relies on a complex process of detailed data collection and analysis, the implementation of which is costly and time-consuming, especially for companies with large and complex operating structures. In addition, this process requires sophisticated accounting and management systems, as well as advanced analytical skills to identify, track, and analyze business activities; therefore, continuous investments in staff training and technological resources (e.g., accounting software, ERP, etc.) are required. Finally, this methodology runs the risk of excessively focusing management attention on costs, neglecting the importance of also considering strategic and qualitative aspects in business management.

In conclusion, activity-based budgeting offers a more detailed and precise approach to budget management than traditional methods, allowing better alignment of resources with value-adding activities. However, its implementation requires a significant commitment of time, resources, and expertise, and can be complex to manage, especially in large organizations or those with complex operations. Despite these drawbacks, ABB can provide substantial benefits in terms of operational efficiency and decision-making capacity, making it a powerful tool for companies seeking to optimize their budgeting processes.

### **Project-Based Budgeting (PBB)**

Project-based budgeting (PBB) is an approach to budgeting that focuses on planning and managing financial resources based on specific projects within an organization. Instead of creating an overall budget for the entire company or for individual functions, PBB breaks down the total budget according to individual projects that the company intends to complete. Thus, each project has its own budget, which includes all the resources needed for its completion, such as personnel, materials, equipment and other related expenses.

This approach, which is clearly used mainly by firms whose core business is broken down on a project basis, provides a project-oriented perspective to the management of the company. Indeed, it provides a clear and specific view of the resources needed to complete each project, allowing managers to plan in detail and accurately. In addition, because the budget is built around these projects, there is more direct alignment between the resources allocated and the specific objectives of each one, which ensures that resources are focused on activities that directly impact the successful implementation. In addition, the breakdown of resources by projects allows close monitoring of the specific costs of each individual one, making it easier to quickly identify any deviations from the planned target value and allowing corrective action to be taken in a prompt manner. Finally, this approach creates greater accountability for project teams, as each must stick to its own budget, improving overall efficiency in administering the resources at its disposal.

However, project-based budgeting has some limitations. First among them is that it creates difficulties in coordination between different projects; indeed, if several ones use the same resources, PBB can make coordination and prioritization between them difficult, especially if the resources are limited or if they have overlapping timelines. In addition, this type of budgeting requires more complex management than traditional methods, especially compared to the incremental approach, because each project requires detailed planning and continuous monitoring; this increases the workload for finance and project management teams. Finally, project-based budgeting risks creating an excessive focus on the individual project, leading management to make financial decisions with a limited vision, without considering the overall impact on the organization or on long-term projects.

In conclusion, project-based budgeting is an effective approach for organizations operating in highly project-driven environments, providing clarity and detailed control over the costs associated with each specific job. However, it requires complex management and can entail significant challenges in terms of coordination and resource allocation. If implemented correctly, PBB can lead to more accountable financial management and better achievement of goals, but it requires commitment in terms of skills and resources to be effective.

### **Different Types of Budgets**

More specifically, there are various types of budgets, distinguished by their purpose or scope of application. Among these is the operational budget, which covers all forecasts related to a company's operations and is further divided into four components:

- The sales budget, which provides an estimate of revenues for the period.
- The production budget, which estimates the quantity of units to be produced in order to meet the demand forecasted in the sales budget.
- The budget of direct and indirect costs, which calculates the production costs based on the previous budget's quantified output.

- The budget for administrative and commercial costs, which estimates the administrative, marketing, and other non-production-related corporate expenses.

These documents provide a preliminary estimate of the operational results (Budgeted EBITDA) of the company or a specific project.

The second type is the financial budget, which forecasts future cash flows (inflows and outflows) as well as the financing required to meet any financial shortfalls or to support investments. This too can be divided into two components:

- The cash flow budget, which forecasts cash movements to avoid liquidity or insolvency issues.
- The investment budget, which plans the company's long-term investments.

Lastly, there is the balance sheet budget, which estimates the evolution of the company's assets and liabilities with the goal of monitoring its financial solidity and solvency.

These documents are crucial for estimating the company's future performance (EBIT, EBT, and NP). Moreover, breaking down the budgeting process into several documents allows for the identification of critical corporate functions or activities that are expected to have the greatest impact on overall economic results. Naturally, these budgets can also serve as reference points for variance analysis, which helps to identify weaknesses or strengths in the management of each activity. The operational budget, for instance, can be used to assess the efficiency of the marketing and sales functions (thanks to the sales budget), the production process (thanks to the production and cost budgets), and other functions (through the administrative and commercial costs budget). Conversely, the financial budget can be used to assess the finance department, both in terms of financial planning and the costs associated with financing.

### **Different Approaches to Budgeting**

In parallel, there are various approaches to the budgeting process, which differ based on the degree of involvement of different organizational levels in defining targets and the decision-making model.

The first approach is the authoritarian (Top-down) one, in which the budget is imposed by top management and then cascades throughout the company. Consequently, employees have little opportunity to contribute to the process, thus developing a limited sense of ownership. This mechanism is characterized by centralized decision-making, where goals are directly established by top management, speed of execution, as the decision-making process is quick, but low employee engagement, resulting in low motivation.

A completely opposite approach is the participatory (Bottom-up) model, where the budget is developed from the lower levels of the organizational hierarchy and then approved by higher levels. Each level integrates the documents provided by their subordinates. In this case, employees contribute significantly to the budgeting process, fostering higher motivation due to the strong sense of ownership that permeates the organization. This approach also results in greater accuracy of forecasts, as they reflect the needs of all operational levels. However, it is slower and more complex, as it involves numerous consultations.

An intermediate approach between the two previously described models is the mixed or iterative approach, which combines elements of both top-down and bottom-up approaches. In this method, top management provides guidelines and strategic objectives for the drafting of the budget, and then different organizational levels develop budget proposals that are reviewed and approved by superiors. This iterative mechanism allows top management to maintain strategic control while also involving operational levels to obtain more realistic estimates and to foster a greater sense of participation among employees. Naturally, this type of budgeting requires a coordination mechanism among the different organizational levels.

A similar approach is the negotiated one, in which the budget is defined through a true negotiation process between the various levels of the organization. In this model, different organizational units propose their own budgets, which are then discussed and adjusted with the top management. This type of budgeting allows consideration of both the needs of different functions and the corporate objectives, finding a compromise between the two. This is particularly useful when the organization has limited resources to be distributed among different teams.

Finally, the last possible approach is the democratic one, which involves full and equal participation of all employees, giving them the opportunity to contribute fully to the budgeting process. This approach is similar to the bottom-up method, but it is even more extreme as the weight given to each employee's contribution is not influenced by their role within the organization; for example, often goals are defined through a voting process. As a result, this type of budgeting ensures the highest level of employee engagement and maximizes motivation. However, it requires much longer timeframes for the approval of the final budget, as the involvement of all company members is necessary. For this reason, this approach is often applied in small businesses or non-profit organizations.

### **Analysis of deviations, the ACWP-BCWP-BCWS framework**

All methodologies, previously described, differ from each other in terms of the budget drafting process (starting from scratch or modifying the previous budget), periodicity of updates (once a year, quarterly or monthly) or in terms of the logic used to break down costs (by activity or by project). However, they all involve the calculation of deviations between

what was planned and what was actually achieved in reality, as a key step in being able to derive information on the effectiveness and efficiency of business administration. Of significant use in this context is the framework of project metrics (ACWP-BCWP-BCWS), which are used in management control and budgeting to measure the performance of projects or activities. This framework is critical for monitoring cost and time trends, comparing actual costs incurred with planned ones, and assessing actual progress against planned. More specifically, the framework is based on three main metrics:

- Actual Cost of Work Performed (ACWP), which represents the actual cost incurred for the work performed up to the date the metrics are calculated.
- Budgeted Cost of Work Performed (BCWP) which represents the planned cost of activities that have actually been completed up to the date of metrics calculation.
- Budgeted Cost of Work Scheduled (BCWS) which represents the planned cost of work that was scheduled to be completed up to the metrics calculation date.

Once these indicators are calculated, time and monetary deviations between actual progress and budget forecasts can be derived. Indeed, the difference between BCWP and ACWP, also known as cost variance ( $CV = BCWP - ACWP$ ) quantifies the difference between planned and actual expenditures; consequently, a positive value of this indicator signals efficiency and high level of productivity. In addition, the difference between BCWP and BCWS, known as schedule variance ( $SV = BCWP - BCWS$ ), quantifies whether the advancement is ahead or behind schedule; consequently, a positive value of the indicator signifies greater rapidity in the conduct of operations. Finally, the difference between BCWS and ACWP, known as budget variance ( $BV = BCWS - ACWP$ ) quantifies whether more or less than planned has been spent as of the current date; however, this indicator has only accounting value and does not provide information on the effectiveness or efficiency of management, as it does not indicate actual savings/losses, but only cash outflows that occurred earlier/later than planned.

In addition to the calculation of variances, this framework allows for periodic adjustment of cost forecasts thanks to the additional information provided by actual expenditures. Indeed, by starting from the ACWP and adding the estimate to complete (ETC), which is the estimated remaining costs to be incurred as per the budget, it is possible to calculate the estimated at completion (EAC), which is the new total cost estimation.

So, using such metrics allows the company to create more accurate budgets based on a detailed analysis of what was actually spent (ACWP), compared to what was planned for

completed (BCWP) and planned (BCWS) activities, which helps improve the accuracy of estimates and prevent budget overruns. In addition, the framework allows for continuous monitoring of financial performance, providing a clear view of how resources were spent compared to what was planned; this is essential for keeping operations aligned with financial and time targets. Finally, with this tool, managers can assess the efficiency of management in terms of value generated versus cost, so that any inefficiencies that need to be addressed can be identified.

In conclusion, the ACWP, BCWP, and BCWS framework is a powerful tool for budgeting and management control, as it provides a detailed view of financial performance, allowing managers to constantly monitor progress against budget targets and intervene promptly in case of deviations. Its utility lies in its ability to provide concrete, comparable data that supports informed decisions and proactive resource management.

### **Key success factors and critical issues during the implementation**

Summarizing what has been discussed previously, an effective management control system is crucial for a company to monitor, measure, and improve its performance and management of its resources. For this to happen there are some critical aspects that must occur, the key success factors, in order for the organization to effectively benefit from management control. As a first aspect, the control system must be aligned with the company's long-term strategy to ensure that measurements and controls are relevant and contribute to the achievement of strategic goals. For this, short- and long-term planning and goal-setting processes play a crucial role. Indeed, it is necessary that all the different business functions are involved during these activities to ensure that the goals set are realistic, in the sense that they are achievable by the company with the resources currently available and understood and shared within all departments. In this context, the involvement of leadership is of paramount importance since the various managers are responsible for promoting and supporting the use of the management control system, ensuring that it is perceived as a useful tool and not as a burden. The second key success factor lies in the clearness and relevance of the tools and indicators used by the system, which must reflect the key drivers of business success and provide useful information for quick and informed decisions. Indeed, more specifically, these metrics are the starting point on which management's decision-making process is based; therefore, for management's decisions to be aligned with long-term business objectives, it is essential that the indicators used by management control are easily understood and encompass all aspects relevant to corporate strategy. The third key success factor is the ability of the management control system to be integrated with all other systems in the company, for example, the information system, the accounting system, and the human resources system. This is critical to facilitate the flow of information between all workers, promote coordination and

alignment between distinct functions, and to avoid errors in data valuation. Finally, given the constantly and rapidly changing business environment due to the constant emergence of new competitors, rapidly changing consumer preferences, and increasingly frequent legislative reform, it is necessary for the management control system to be flexible and easily adaptable to changes. Indeed, given the varying market conditions, it is very likely that the company will find itself having to shift its strategy or organizational structure in response to sudden and unforeseeable changes, so management control will also need to be able to adapt in order to best perform its function, which is to ensure that managers have the information and resources they need to achieve their new objectives.

In addition to the success factors, there are several critical issues that can hinder the effectiveness of a management control system, and therefore need to be promptly addressed and monitored to ensure that the company is administered as effectively and efficiently as possible. First of all, while it is true that management control must be comprehensive, in the sense that it must enable management to oversee all performances relevant to the achievement of corporate goals, the system must not be overly complex. Indeed, an overly complicated system is difficult to manage and understand, for both managers and employees, and consequently is of little use as it does not fully fulfill its function of aligning corporate components and monitoring operations. In addition, excessive complexity corresponds to a higher cost of implementation, especially for large organizations, which reduces the gain from using the management control system; there is even a risk that the costs outweigh the benefits and thus the system actually has a negative impact on the performance, at least financially, of the company. In addition, a system that is overly complex, and therefore not easily understood, especially by workers, creates an excessive focus on short-term metrics creating alienation and demotivation among them and distancing them from the company culture and long-term corporate goals. Finally, another critical issue is the quality and reliability of the data used as input to management control. Indeed, if there is no precise and reliable process of data collection, selection and analysis within the company, the target values obtained from budgeting activities will be unrealistic and of little informational value; consequently, the analysis of variances is also ineffective since the basis on which they are calculated is not reliable. One possible solution to remedy this problem is provided by technological development, and in particular by new ERP and management software, which enables the collection, analysis and transfer of data in greater accuracy and quantity. This promotes alignment and information flow between different business functions, contributing greatly to the success of management control implementation.

In conclusion, the success of a management control system depends on the ability to align it with business strategy, the clarity of the indicators, and the flexibility and adaptability of the system. However, to maximize effectiveness, it is crucial to address and overcome critical challenges regarding data quality and system complexity. A balance between these success

factors and the management of critical issues is essential to create a management control system that truly supports continuous improvement and business growth.

### **3. Company and industry overview**

This chapter of the paper will present the company in which the author conducted an internship experience, with the aim of understanding how the academic knowledge, analyzed in the previous chapter, is actually used in the practical field. Before, however, analyzing the planning and control system within the firm in question, it is necessary to describe its core activities, corporate structure, and analyze the industry in which it competes, in order to better understand the dynamics, internal and external, that led to the adoption of the current management control system, and to be able to better assess what the main strengths or weaknesses of the current system are. More specifically, Porter's 5 forces framework will be used to assess the dynamics acting overall on the whole sector, and to evaluate the attractiveness of the industry; and the SWOT (Strengths, Weaknesses, Opportunities, Threats) framework to individually assess the company in more detail.

#### **Company overview and presentation of the real estate sector**

##### **Company introduction**

V&P is a construction, renovation, and building services company founded in 2021 thanks to the entrepreneurial opportunities provided by Article 119 of the 2020 Relaunch Decree (Bonus 110), which introduced the possibility of deducting a rate of 110 percent of expenses related to works related to energy efficiency or earthquake-proofing. So, the company started out as a contractor with predominant activity in energy upgrading and facade restoration, but thanks to the team's experience in the real estate sector, it immediately approached the Real Estate industry with the goal of collectively inspiring the kind of property development that reflects them. It is by taking this approach that the company evolves from operator to investor as well as developer, manager, and service creator.

As of today, V&P is no longer a start-up, but a truly established company with more than 50 employees and more than 100 projects in the pipeline, which qualifies it as a full-fledged SME. The company's core business is general contracting, which consists of the complete and integrated management of complex construction projects, from start to finish, as a single point of reference for the client. Accordingly, the general contractor is responsible for coordinating all phases of the project, including planning, design, procurement of materials, management of subcontractors, supervision of site work, and final handover of the work. Thus, it is of paramount importance for V&P to manage the overall project budget, including forecasting and monitoring costs, to ensure that the project is completed within the agreed

financial limits; therefore, general contracting requires advanced skills in budgeting, project management, cost control, resource coordination, and effective communication with all stakeholders involved.

### **V&P's core businesses**

The company's core business is divided into four macro areas of focus, on which the internal structure is also organized, in order to optimize individual processes in the light of specific requirements and peculiarities of different clients.

The first of these macro areas is the architectural and energetic requalification of residential buildings, the objective of which is to improve their aesthetics and environmental sustainability. This makes it possible to enhance the value of existing housing stock for residential use through visual and environmental improvement of buildings and their interior units. In this context, V&P initially offered integral management of the Superbonus 110% process, which involved clients signing a contract to transfer the tax credit resulting from the execution of the work as their sole source of payment. As of today, given the change in legislation that only allows for the accrual of a credit equal to 70 percent of the expenses incurred, and no longer 110 percent, the contract with the client structures the company's remuneration through two different forms of payment, 70 percent of which is in the form of the transfer of tax credits and the remaining 30 percent to be paid by the client.

However, this formula remains advantageous for the client, as for a cost of only 30%, he has the opportunity to carry out works to improve the appearance of the building and reduce the consumption of utilities, resulting in savings on future expenses. However, although it has great attractiveness for the client, this business model carries significant risk for the company, as it is on the latter that the financial risk of managing tax credits falls; indeed, the ability to manage them internally or to assign them to third parties is critical in determining V&P's financial performance.

In addition, the company also performs renovation work on industrial and commercial buildings, with the goal of bringing clients closer to achieving energy self-sufficiency. Moreover, the work performed allows the client to reduce costs related to electrical and thermal consumption and to improve the workspace and with it the productivity of employees. Also, for this macro area the payment methods stipulated are similar to what was detailed above, thus being very convenient for the client, but equally risky for the company.

More precisely, the energy efficiency works mentioned so far for existing properties, whether residential or commercial/industrial, consist of the overall management (technical, financial, executive) of contracts for the installation of high-efficiency systems, thermal insulation of walls, installation of photovoltaic panels and charging stations for electric or hybrid vehicles.

The third macro area involves the management and development of real estate projects, for institutional and non-institutional clients, while complying with the most stringent environmental regulations to date. More precisely, V&P offers its customers complete turnkey projects, following them from design (also in collaboration with leading architectural firms) to construction and site delivery. In this case, the company's return is pre-established contractually with the client; consequently, this type of core business is less risky than the previous two, as it does not expose the company to the credit risk arising from the sell-off of fiscal receivables. Alternatively, the company follows the development of real estate projects for its own account, or for subsidiaries, with the objective of redeveloping abandoned or decaying properties, obtaining energy-efficient housing units, on the sale of which the return on the entire project will depend.

Finally, V&P carries out design and technical direction activities, such as the study and development of the project itself, safety management, and technical direction of construction sites, also for external clients. Thus, these activities are carried out not only in support of the other business functions, but also as a single service for its customers. In particular, the company offers the experience of its professionals in the environmental field regarding:

- The study and design phase
- The bureaucratic and documentary process of projects
- The technical direction of works and safety management
- The assistance on construction sites

In addition to its core business, V&P is expanding its activities in the photovoltaic sector, in which it also operates as a general contractor. Indeed, the company offers complete project management for the installation from scratch of state-of-the-art photovoltaic systems, or the repowering or revamping of existing systems, mainly for institutional clients. In this case, the return on each project is contractually defined with the client, so the margin for the company depends on its ability to manage subcontracts, while also leveraging the considerable number of construction sites under management, to increase bargaining power towards suppliers at the cost setting stage.

Consequently, it is of critical importance for the company to develop numerous projects, of significant amounts, in order to increase the margin in this business area. However, this industry requires excellent planning of both finances and liquidity on the part of V&P to

ensure the economic feasibility of all projects, as each of them involves a significant initial cashout due to the prohibitive cost of raw materials, particularly for panels and cabling.

### **Organizational structure and key functions**

Since all the businesses in which V&P operates are characterized by the same key activities, i.e., project development, negotiation of subcontracts to carry out the work, and financial management of the project, the company is based on a functional organizational structure, in which each of the major business divisions is responsible for a key process. Within this structure, then, there are function managers who are responsible for the performance of their teams and who report directly to the ownership.

This structure allows for an elevated level of horizontal specialization and technical expertise, as each department is led by specialists in its field, promoting greater operational efficiency and higher quality at work. In addition, again thanks to the functional structure, employees in each team have the opportunity to benefit from deeper personal learning, thanks to the experience of their manager. Finally, such a clear organizational structure facilitates control and supervision of activities, making management simpler and more straightforward.

However, this type of organization has limitations in terms of the company's flexibility and coordination of different departments; indeed, such a divided structure creates a narrow focus among different departments that makes it difficult for them to work together, and consequently makes the company slow to respond to changes and signals from the surrounding environment. Fortunately, however, given the still limited size of V&P, especially in terms of the number of employees, this would not seem to be a problem since coordination is still primarily based on direct confrontation between different department heads, or between managers and their subordinates.

In more detail, there are four core functions on which the company is structured. First and foremost there is the budgeting and finance function, which will be analyzed in more depth later, given the objective of the paper to describe how management control and budgeting are used in practice, and given also that it is in this function that the author has had the internship experience from which the idea for the paper itself originated. The purpose of this department is to develop forecasts of revenues and costs, rather than cash in and cash out, through business plans and budgeted cash flows, in order to check the economic feasibility of each project taken individually, and of all businesses altogether. On the basis of these estimates, profitability will then be analyzed and deviations between what is forecast and what is actually achieved will be quantified to highlight any critical issues or strengths. In addition, again this function is responsible for managing cost accounting, the objective of which is the analysis and validation of each cost item, with the aim of measuring as accurately as possible the expenses related to each cost center, and thus the actual marginality of those.

The second of the core functions is the design and real estate office, whose task is to interact with the client and develop the project, also with the help of external studies, which will be the starting point for the procurement and project management department to define the necessary operations and hence the suppliers to deal with. Another task of this function is to verify that the projects meet not only the requirements of the clients, but also all the legal requirements necessary to obtain permission for the work.

The third key department is the procurement and project management department, which, as mentioned earlier, aims to determine which activities are necessary to complete the project, based on which different suppliers will be identified to whom a subcontract will be proposed. Thus, the main objective of this function is to minimize the cost of implementation while still ensuring adherence to the predetermined timelines and quality of work. Consequently, it is from these two functions that management control, and therefore the finance and budgeting department, obtains the information needed to estimate future revenues (thanks to the design and real estate team) and costs (thanks to the procurement and project management team), both in terms of the economic value of the same and in terms of timing.

Finally, the fourth key function is the legal team, whose task is to draft contracts with clients and suppliers. So the work of this department is of fundamental importance for management control since it allows the accuracy of the forecasts made to be checked, comparing the same with the official values and timelines obtained from the legal documentation, and consequently makes possible an initial analysis of the deviations, thanks to which the budgeting function can periodically re-align the estimates, i.e., business plans and budgeted cash flows; thus providing more detailed and accurate information to the management and the ownership.

### **Internal and external business analysis**

As seen in the previous section, V&P primarily works in three industries; in fact, the company acts as a general contractor for energy improvement (of both residential and industrial/commercial complexes) and the development, installation or renovation of photovoltaic plants, as well as operating in the real estate sector. These three industries, although slightly different from each other, have several aspects in common.

First of all, for example, the fact that the organization does not carry out the operations themselves, but organizes them by subcontracting or outsourcing these, as is typical for general contractors. For this reason, this section will analyze the attractiveness of the three sectors, mentioned above, using Porter's 5 forces model.

Then, using the SWOT framework, the main strengths, weaknesses, opportunities, and threats of V&P will be detailed, with the aim of understanding how the control system, the

budgeting, and the finance function more generally, can contribute to the management of the company so as to reduce its vulnerability and to take advantage of future business occasions that will allow it to expand its market share and improve its performances (financial and others).

### **Porter's 5 forces model**

Porter's 5 forces model allows us to assess the attractiveness of an industry or a specific sector by analyzing how it is impacted by five main factors that contribute to an increase or decrease in the margins that, companies within the industry, are able to achieve, and thus on their profits.

#### ***Threat of new entrants***

The first force used by Porter's model is the Threat of New Entrants, which clearly causes greater competition in the industry and therefore lower profits for established companies. This threat is inversely proportional to the so-called entry barriers, that is, to those factors that make it more challenging and less convenient for a firm outside the industry to be able to enter a particular business. For the construction sector, more specifically that of real estate and energetic improvement, as well as for the photovoltaic one, there are several entry barriers that contribute to its attractiveness.

Among these, the main "protection" is certainly the need for considerable capital to initiate the operations; indeed, especially in the case of a general contractor, at least a down payment to the construction companies and professionals involved in the work is often required before revenues can be obtained from the client.

Another significant barrier lies in the reputation held by established companies, which allows them to benefit from privileged relationships with suppliers and thus to be able to offer a diversified service to customers.

Finally, another relevant barrier is due to economies of scale; indeed, larger firms can exploit these dynamics to reduce the impact of costs related to logistics and administration, making it difficult for smaller firms, and even more so for new entrants, to compete on price. This mechanism becomes even more crucial for a company acting as a general contractor if looking at the cost of capital the company incurs to finance itself. That is because, having limited availability of cash and having to advance a down payment to suppliers, it is necessary for these firms to rely on third-party capital. Obviously, the larger the size of the company, the lower the interest rate required on the capital; this allows large multinationals and real estate funds to reduce their financing charges, and thus offer more competitive prices. In conclusion, summarizing the above, the threat of new entrants in these fields is low due to the many entry barriers, which enhances the attractiveness of those industries.

### ***Suppliers' bargaining power***

The second force used by the model is the bargaining power of suppliers. Clearly, the same reduces upstream negotiation strength for companies in the industry, making it more difficult to obtain discounts and shorter lead times. For this force, it is therefore necessary to distinguish between suppliers in the real estate and energy efficiency fields and those in the photovoltaic industry.

In fact, in the former case, the main costs for the general contractor are the material supply and the costs of the construction companies that actually conduct the work. Both of these two types of suppliers are frequently embodied by small and undifferentiated firms. As a result, the bargaining power of suppliers in these areas is minimal, given their low concentration.

For the photovoltaic sector, on the other hand, the main cost lies in the materials needed to install the system, more specifically in the cost of panels, modules and power substations. These components are very complex and specific, and therefore difficult to source; this makes them highly differentiated and creates huge bargaining power for suppliers.

Consequently, from the perspective of supplier relationships, the real estate segment is much more attractive to a general contractor than the photovoltaic segment, due to the lower concentration of suppliers, which allows for cost reductions, thereby increasing margins or reducing the price offered and thus increasing volumes, depending on the company's strategy.

### ***Customers' bargaining power***

In addition to the bargaining power of suppliers, Porter's model also analyzes that of customers. This force also reduces the attractiveness of the industry; indeed, the greater the bargaining power of customers, the more companies in each industry will have to submit to the demands, adapting the prices offered, the timing of services and the characteristics of products, to the needs of customers. In this case, it is crucial to understand whether companies in the industry have a B2B or B2C business model, as corporate and private buyers have completely different needs and bargaining power.

More precisely, analyzing the industries in question, it is necessary to distinguish between general contractor activities for energy improvement works on residential buildings and the real estate industry, which mainly serve private clients; and general contractor activities for the installation or repowering of photovoltaic plants and for energy improvement works on commercial/industrial buildings, which serve corporate clients.

In the first case, there is a very low concentration of customers; these can in fact be any private individual intending to acquire a property or any condo complex that wants to renovate its building. Moreover, since these customers are not professionally involved in construction or related activities, they are often not aware of alternative companies to turn

to, but rather tend to rely on connections they already know or have heard good mentions of. However, for the real estate sector, the dynamic is slightly different, as potential buyers often turn to real estate agencies or intermediary entities, and therefore have more information available and thus a wider range of alternatives. However, this does not change the fact that their bargaining power is minimal, due to their very low concentration.

While it is true that the bargaining power of private clients is minimal because of the enormous demand, it is also true that this demand turns out to be particularly price-sensitive; especially in the real estate sphere, where the price of the property represents a significant investment for the buyer. So, this limits the ability of companies in the sector to impose excessive prices and unrealistic payment terms. In contrast, industries that target corporate clients, as in the case of general contractor activities for installation or repowering of photovoltaic systems and for energy efficiency works on commercial/industrial buildings, are characterized by greater bargaining power of clients. As these are represented by companies, even of significant size, that intend to invest in sustainability in order to benefit from a better reputation and lower utility costs, there is a greater concentration of customers and therefore the firms in the area are more dependent on the individual buyer. In addition, customer companies often have a process or function whose purpose is to evaluate different providers of that service, in terms of cost and time required to complete the tasks, this makes supplier differentiation particularly important and increases price sensitivity, thus reducing the attractiveness of these industries.

In conclusion, businesses serving private customers enjoy higher margins and thus greater attractiveness than those serving corporate customers, due to the lower concentration and less information availability of the former.

### ***Internal competition***

The fourth force analyzed in Porter's model is the industry's internal rivalry, since the greater this is, the smaller each company's market share is, thus the smaller the margins they are able to achieve. More precisely, internal rivalry is influenced by three main factors.

The first factor under analysis is the differentiation of products or services offered by the firms. In the case of a general contractor, the service offered is the execution of a project, from the design stage to the testing stage, including both the operations and financial planning required. Because all general contractors offer the same package of activities as a service, differentiation is minimal and mainly focused on the price and timelines offered, which contributes to increasing the internal rivalry.

In addition, internal competition is directly proportional to the number of players in an industry; as a matter of fact, an industry with few companies is characterized by less competition, which allows them to capture a significant market share, and thus earn higher profits. For this dynamic, it is necessary to distinguish between general contractors in

construction and energetic upgrading, where the number of players is large and consequently the competition is significant, and general contractors in the photovoltaic industry, where there are still few players, given the young age of the business, and therefore greater profitability for the companies.

Finally, the growth of the industry itself contributes to reducing internal competition, as it stimulates demand. Again, competition is greater in the area of construction, which is characterized by a lower growth rate, as this segment is already in the advanced stages of its life cycle; while the photovoltaic sector offers great opportunities and a very good prospect for growth, as it is still in the incipient stages and given the rapidly spreading trend of environmental concern. However, from 2020 to date, the construction industry has experienced important growth mainly due to the post covid pandemic economic recovery and government incentives, for example the "Decreto Rilancio," including the "Bonus 110." In conclusion then, it can be said that for a general contractor, the construction industry appears less attractive than the PV one, given the greater number of internal competitors and the more stagnant growth of the former.

### ***Threat of substitute***

The final force employed by Porter's framework is the threat of substitute products. This focuses on competition from other sectors, that is, those that offer different products or services, but which fulfill the same or at least an equivalent function. In the case of a general contractor, as mentioned earlier, the service offered is the development of a project from the ground up to implementation and eventual testing; clearly there is no substitute service, other than the ability for customers to perform all activities in-house.

This alternative is unthinkable for private clients, as they have neither the resources nor the necessary expertise; and it is, moreover, not very convenient for corporate clients either. Indeed, to be able to obtain the necessary resources and to implement the fundamental processes would require heavy investments, both in terms of money and time, which can be justified only if the company in question is willing to enter such a business, but at that point we would no longer be talking about substitute services but about internal competition.

In conclusion, the general contractor business in real estate and construction for privates has medium to high attractiveness, mainly due to low threat of new entrants, due to significant entry barriers such as the need for large capital and the importance of an established reputation, the small bargaining power of clients and suppliers, which is due to the low relative concentration and small size of those, and the threat of substitute services being almost zero. However, this industry faces significant internal rivalry caused by almost nonexistent differentiation, the vast number of competitors, and slow demand growth. The general contractor business in photovoltaics or corporate construction also enjoys moderate attractiveness, mainly due to low internal rivalry, given the rapid growth in demand and few competitors, low threat of new entrants, again due to the same entry barriers mentioned

above, and the threat of almost nonexistent substitute services. However, this business area faces suppliers and buyers who have strong bargaining power because of their customer concentration and provider differentiation.

### **SWOT analysis**

After analyzing the organizational structure, V&P's core businesses, and the dynamics affecting these businesses, the SWOT framework can be applied to understand more precisely how the company performs within the industry. First, the strengths and weaknesses of the company will be analyzed to determine how it can outperform the competition and what, on the other hand, are the difficulties encountered to this day. After that, some opportunities and threats, which are possible drivers for either improving or worsening the competitive position, will be detailed. Finally, the section will conclude with an analysis aimed at understanding how V&P can leverage its strengths to maximize opportunities, how it can reduce the impact of any threats, and how it can overcome any weaknesses, thanks also to the opportunities presented to the company.

#### ***Strengths***

The first point considered in the SWOT model are indeed the strengths of the company. In the case of V&P one of the main strengths is definitely the great horizontal specialization, which, as mentioned earlier, is possible thanks to a functional organizational structure. Indeed, thanks to this type of organization, the company has the possibility of focusing resources within functional teams, which, besides fostering learning economies, promote efficiency in the use of those resources. These dynamics are particularly relevant, especially for a general contractor, as they allow for the development of high-level business processes, which can be a differentiating factor in an industry where, as explained above, there is often competition only on price or delivery time. More specifically, the Design, Procurement and Finance functions, which V&P disposes of, are key in order to organize as efficiently as possible three key processes for the general contractor business. In fact, the design function ensures that the design is state-of-the-art and always aligned with the client's needs, the procurement department verifies that the execution of the work is in line with what is planned and that all the necessary materials and resources are available, and the finance and budgeting unit checks that the finances and cash flows associated with each project are actually on track.

Another important strength of V&P is its flexibility, which is mainly attributable to the limited size of the firm. As a matter of fact, despite its functionally divided organizational structure, the company manages to have quick responsiveness to changes in the market or client demands, since these changes can be easily communicated between different team leaders.

The third strength lies in the reputation V&P enjoys; indeed, after only 3 years the company has managed to establish itself as a major player in the general contractors industry, especially in the markets in which it operates (in Italy, but particularly in the north, between Piedmont, Lombardy and Veneto). This has facilitated the creation of a network of partners and suppliers to which two main advantages follow: first and foremost, the possibility of obtaining discounts on supplies, and thus being able to offer more attractive prices or being able to record higher margins. The second advantage consists in a continuous flow of business opportunities that are proposed to the company thanks to the references of the network of partners and associates.

Finally, the last strength, which is always attributable to the limited size of the company, is the upbeat and informal working environment, which, other than being a motivating factor for employees, fosters the rapid co-ordination of the different functions, thanks mainly to the direct confrontation between top management and managers, between the different functions and within the teams themselves.

### ***Weaknesses***

Beyond analyzing strengths, the SWOT framework also dwells on weaknesses. For V&P, these arise mainly from two factors: organizational structure and limited size. Indeed, although the structure chosen by the company favors horizontal specialization and learning economies, it leads to coordination difficulties. This is because different functions are often overly focused on their own processes that lose sight of business objectives or more simply forget to share crucial information to other teams. Limited cross-functional information flow is a major problem for the company both economically and in terms of time; indeed, lack of alignment leads to errors and delays that often result in penalties or economically inefficient choices made by top management. Although, to date, this weakness is limited through the direct coordination described above, which is only possible due to the small size of the firm, it is necessary for V&P to find a definitive solution to this problem if it is to pursue its goals of growth and expansion of market share. One possible solution, which will be detailed more in the opportunities section, lies in the implementation of state-of-the-art management software.

Another major point of vulnerability for the company, which stems from its limited size, is its limited liquidity; since a general contractor needs to frontload a percentage of its costs before being able to cash in, it is essential for V&P to have sufficient money available at all times to start new projects or to advance those already begun. This often results in the company having to rely on third-party capital, whether through opening bank financing or even crowdfunding. These two sources of capital, given the size and risky nature of the company, require high returns for the lenders, and thus a higher cost of capital for V&P, which significantly negatively impacts its profit.

In addition to this, the small size imposes a limited capacity of scale, meaning that it is more problematic for the company to pursue numerous major contracts at the same time; this results in less efficient project management or, even worse, lost business opportunities. Finally, because the firm operates only in one geographic market, Italy, it is highly dependent on local market trends, demand and regulations, which makes future prospects more uncertain and difficult to predict.

### ***Opportunities***

The third element of the SWOT analysis is the opportunities, which are all those trends and external factors that will bring a positive impact to the company. First among them is definitely the widespread interest in environmental issues that has led consumers, companies and governments to take more environmentally sustainable choices to reduce their environmental impact. This has led to an increased demand in both the photovoltaic and energy improvement work industries, ensuring faster growth for these sectors, and thus softer competition for V&P to deal with. In addition, major governments are introducing regulations mandating the adoption of sustainable plants or materials for new buildings under construction, meaning with lower utilities consumption or lower emissions, this in turn creates a new "forced" demand. Thus, even builders who were not initially interested in these kinds of dynamics are forced to comply with certain regulations, and in order not to risk falling into some violation, they prefer to turn to general contractors, who have more expertise in the field.

In addition to regulations, the Italian government has introduced various incentives that provide for the accrual of tax credits as a result of such work that can be exchanged for a discount on the invoice by the general contractor. These incentives, first the Bonus 110%, already adequately described, now the similar Bonus 70%, which from 2025 will become Bonus 65%, allow clients to obtain extremely advantageous prices and consequently stimulate demand for this kind of activity.

Besides that, V&P also has the opportunity to expand its businesses into new geographic markets, taking advantage of the structure and expertise it already possesses, or into other comparable sectors, again related to renewable energy (e.g. eolian, hydroelectric, marine, etc..) with the aim of expanding its package of activities to take advantage of all the synergies existing between those business areas.

Finally, a last opportunity from which the company can benefit is the adoption of an advanced ERP system; for this would solve those above-mentioned weaknesses in coordination, making the information flow much smoother, activities more aligned, and performance better in general. As a result, the company would be much more competitive and could truly establish itself as one of the leaders in the industry.

### ***Threats***

The last point in the SWOT analysis are the threats, in other words, all those external trends and factors that undermine V&P's profitability and performance. Among these, the most looming is certainly the competition stemming from large real estate funds and large multinational corporations, which due to their huge size can take advantage of economies of scale, thus offering lower costs to clients. This poses a major threat to V&P, since, as detailed in Porter's 5 forces model, the general contractor industry is characterized by a low level of differentiation and therefore price is often the strongest competitive factor.

An additional threat lies in the possible worsening of economic conditions, especially if in Italy, as the construction industry is one of the first to be affected by any crisis, which is mainly due to the large amounts of capital needed to both renovate and purchase a property; the same can be said for the photovoltaic industry.

In addition to this, V&P is subject to a continuous risk of over-indebtedness; in fact given the high cost of capital that the company is forced to pay and given the significant amount of capital borrowed, an increase in interest rates would result in reduced profit and increased vulnerability to unforeseen adverse events.

Finally, the last threat identified by the SWOT model is a change in negative terms in the regulations that already drive industry demand. Indeed, a potential reduction in incentives, or a change in the characteristics of the tax credits accrued through them, would lead not only to a reduction in demand, but also to a greater loss faced by V&P when liquidating the credits. Indeed, a key part of the firm's business model is to sell a good portion of tax credits, obtained from customers in exchange for an invoice discount, to banks or lending institutions, in exchange for a remuneration equal to a percentage of the face value of those credits. If a change in regulations were to take place, leading to a "negative" adjustment in the credit features, this percentage agreed upon with banking institutions would be lower, which would result in higher liquidation expenses and thus lower, if not negative, profits.

### **Management and Control Systems at V&P**

In this section, the paper will be concerned with describing the management control system used by V&P, so that later the activities carried out by the author during the internship can be clearly detailed, and so that the main critical aspects of the system itself can then be discussed. In general, it can be said that the MCS used by the company is relatively simple and not particularly advanced or complex, yet it is more than sufficient to ensure that top management and the heads of each unit are adequately informed and aligned on the overall performance of the company and each team. Indeed, given the small size and relatively young age of the company, it has not yet been necessary to develop a true planning process that involves all departments simultaneously; but strategic planning takes place by following the

entrepreneurial initiatives of the top managers, who from time to time meet with team leaders to check the feasibility of their ideas. Consequently, it is essential to have a flexible and simple management control system that performs three main functions. First, it must make it possible to control costs, check their appropriateness, and pay the respective suppliers by the deadlines, so that the various projects can proceed smoothly without causing delays or disputes with suppliers. The second key function is the establishment of accurate financial and liquidity forecasts by which the feasibility of each project can be verified, while also being able to perform a variance analysis, and thus derive information useful in quantifying the efficiency and effectiveness with which projects are administered. The last key function is the alignment and coordination of all components of the company, indeed because strategic planning continually adapts to the intuitions of top management, it is complex for all employees, especially those at the lower levels of the organizational chart, to be always aligned with medium-term goals and coordinated with their colleagues.

### **The cost accounting process**

Thus, the first pillar of the management control system is cost accounting, the purpose of which is to provide top management with detailed information about the costs incurred by operations so that they can make informed decisions about business management. In more detail, cost accounting deals with three activities; the first of these is the classification of costs, for example, between direct and indirect costs, fixed or variable, or by supplier.

The second key activity is the association to a specific cost center, which in the case of V&P is represented by a specific project, so that the total costs associated with each of these can be determined; this allows a more precise assessment of the marginality and profitability of each project.

Finally, the last activity is the comparison between the costs already incurred and those budgeted, which allows us to obtain an estimate of the costs still to be incurred.

At V&P the cost accounting process takes place weekly; through a thorough check of invoices received during the previous period. This control is carried out by the finance and budgeting function through a direct confrontation, if necessary, with all other departments, especially the procurement one. Once the costs have been validated as they are supported by the necessary documentation (contracts or quotations), their payment is authorized, and they are then used for different analyses.

Primarily, the costs are used to update the assessment of the actual job order marginality and profitability, which can then be compared with the budgeted ones forecasted at the budgeting stage. In addition, the "new" costs make it possible to update or modify cash outflow estimates with more precise timing and amounts, since they are supported by an official accounting document and not just an esteem; this makes it possible to draw up a forecast of the expenses that the company will face in the short term, allowing top

management to evaluate, where possible, the negotiation of new agreements with suppliers, especially those with whom the company has longer-lasting business relationships.

After that, should any of these agreements actually materialize, it will always be the task of management control to adjust the margin estimates for each project, adjusting the cost impact of that supplier if necessary.

If, on the other hand, a cost item were not to be validated, for example because of an incorrect amount or because such work was not carried out in a state-of-the-art manner, cost accounting makes it possible, first of all, to prevent the supplier from being paid unreasonably, but also to inform the procurement department of the need to interface with the supplier in order to resolve the misunderstanding.

### **The budgeting process**

The second pillar on which management control is based is the budgeting process, which is financial planning through the creation of a budget, that is, a detailed forecast of the organization's income and expenses. More specifically at V&P this activity focuses on two main forecasts, and thus two different types of documents and analysis.

The first consists of an operating budget for each individual project, within which all costs and revenues related to the same are estimated- Thus this type of process allows for the drafting of an initial business plan or budgeted income statement for the project, thanks to which an initial assessment of the expected profitability is made.

The second forecast, on the other hand, focuses on a liquidity rationale, and indeed it consists of a financial budget, both for each project individually and for the company as a whole, the main purpose of which is to keep track of the expected future cash outflows in each period, within project-specific cash flow statements, so that top management is able to assess new investment opportunities, knowing the company's cash availability.

Another function of financial budgets is to evaluate different timelines for paying suppliers or collecting from customers, before signing any contracts, so as to reduce the overall financial requirements of the project. After all, since V&P serves as an intermediary between the client and suppliers, being a general contractor, it can exploit the opportunity to take advantage of this middle position to reduce its financial exposure, leveraging its bargaining power as well.

Obviously, in order to obtain the most accurate forecasts possible, within the budgeted income statement and budgeted cash flow, it is necessary to involve all the main functions in the forecasting process; this has a double advantage since it allows all departments to be aligned on common medium-term objectives and because it facilitates the flow of information, even later, among them as it will be clear to all employees that a given project involves several teams.

Finally, budgeting also performs the function of monitoring and control since after implementing it, it is essential to monitor actual performances against planned ones. This makes it possible to identify any deviations and take corrective measures to stay within the budget. More in detail, it allows conclusions to be drawn about the effectiveness and efficiency of the work done, both by some internal resources and by the main suppliers, both in terms of cost and time; it also allows the variance between expected and actual margins to be assessed by identifying any teams that are underperforming compared to expectations.

In conclusion, the budgeting process is absolutely essential to V&P's management control system because it performs four critical functions. Indeed, it facilitates activity and supply planning by providing insights into the ideal timing in which to collect revenues or pay suppliers in order to minimize financial requirements; it also promotes coordination and alignment of the various functions, as they are all involved. In addition, it represents a first control tool for quantifying the quality of administration and management of different projects, thanks to the analysis of deviations, and allows to make an initial assessment of the profitability of potential future projects.

### **The medium-term planning and coordination process**

The last pillar on which V&P's management control system relies is the medium-term planning and human resources coordination system. This is crucial since, as already anticipated, there is still no real strategic planning process in the company that involves all the functions at the same time, but the company mostly follows the entrepreneurial intuitions of the ownership and top management.

So, it is crucial to have a process or practices in place to break down long-term goals into short-to-medium-term milestones and to make sure that all teams and all employees are aligned with these milestones. In addition, because top managers' priorities and ideas change frequently, these practices need to be quick to implement as well as provide the flexibility needed by the company. For this reason, planning and coordination in V&P takes place through three main activities, which have complementary time horizons and level of detail.

The first of those consists of extra-ordinary meetings, which take place quarterly and are attended by all employees, whose objective is to resume what the core values are, what the corporate mission is, and consequently the medium- to long-term corporate objectives are defined. Also during these meetings, top management is given the opportunity to elaborate on some particularly relevant past events (e.g., hiring, layoffs, the start of a particularly important project, etc...) framing them within the strategy; this is of paramount importance to ensure that all workers understand the company's intentions and to avoid the spread of workplace dissatisfaction.

The second practice used in V&P for planning and team alignment are weekly or monthly calls, either dedicated to a single relevant project or to several similar projects, and thus allowing

synergies to be exploited, in which all teams involved participate. Two main activities are carried out in these meetings. First, the review of the project's progress over the last period, which allows the identification of major deviations and thus any critical issues to be resolved as soon as possible. After that, the next steps that each team must achieve within the next lineup are defined so that the teams are aligned even in the short term, especially if there are activities involving two or more teams. In this regard, it is necessary to point out that V&P applies a Management by Objectives type of administration, as a result, the milestones that are defined by top management, in collaboration with department heads, consist of very short-term sub-objectives, which when added together constitute the short-to-medium-term objective, and not the specific activities that each employee must perform. In this way, employees and functions are more autonomous and can work with greater freedom, personally managing their own workload, which helps to motivate workers and ward off discontent.

Finally, the last practice necessary for alignment in the short run is continuous direct and informal coordination both between different departments and between different levels of each function. This is critical to ensure that the vision of top management is transmitted throughout the hierarchical structure of the organization and that any impulses or news from the external environment spread horizontally throughout the organization. Thus, this coordination mechanism is necessary to ensure that information flows through the company both vertically, in either top-down or bottom-up directions, and horizontally. In conclusion, V&P uses three systems to ensure planning and alignment with long-term goals (through extra-ordinary meetings on a quarterly basis), to short-to-medium-term goals (through management by objectives and through weekly or monthly alignment meetings), and to very short-term goals (through direct and informal coordination).

## **4.Results and Discussion**

Within this section, the main activities performed, and the main roles covered during the internship at V&P will be described. The goal is first to frame these tasks within the management control system described in the previous section. After that, thanks in part to the experience and process knowledge gained during the internship, a critical evaluation of the management control mechanisms currently in place in the company will be exposed, highlighting both their advantages and drawbacks. Finally, the company's management control system will be compared with the main references found in the literature, and presented in the initial part of the paper, with the aim of assessing the degree of complexity and evolution of the system itself.

## **Analysis of the activities carried out and associated outcomes**

The first activity carried out during the internship period, both chronologically and logically, was an initial settling-in period, which consisted of studying the company, its core businesses, the company's organizational chart, and the main medium- to long-term objectives. This task, clearly, did not contribute directly to the implementation of any of the management control mechanisms mentioned above (cost accounting, budgeting, and short-term alignment and planning), but it was essential to obtain all the knowledge and information needed to implement the subsequent activities. From this point on, the activities performed have evolved over time, both in terms of their complexity and in terms of their actual contribution to the finance and budgeting function and to the management control system as a whole.

### **The cost accounting tasks**

The first actual activity to be implemented was the validation and classification of costs related to projects already in progress; that is, cost accounting. More precisely, the cost validation part can be carried out through two alternative routes.

Indeed, the individual cost can be validated either through a contract or a commercial document between the company and the supplier, so the validation is carried out in complete autonomy by management control; or, in case no such documentation is available, the validation is carried out through a direct confrontation with the procurement department, as it is in direct contact with the suppliers and therefore aware of any agreements or extra-contractual costs.

In addition to the cost validation activity, classification also is carried out simultaneously. In detail, classification is done on three different axes. First, a classification by project takes place, that is, each cost is associated with one or more projects and is allocated among them according to different logics. As a matter of fact, some costs are allocated equally, others proportionally and finally, the most relevant ones are allocated precisely according to the utilization ratio of each project.

The second classification made is between direct and indirect costs, obviously only the latter should be allocated according to one of the logics mentioned above. The main indirect costs include overhead (rent, utilities, and administrative costs) and indirect materials; the former are often allocated equally or proportionally, while the latter on the basis of actual consumption.

The third classification is by category; indeed, expenses are divided between costs for professionals (engineering, architectural, legal, administrative consulting, etc...) and for supplies (actual construction work, supply of materials or machinery, etc...), after which for both categories the costs are in turn broken down by each supplier.

The main objective of cost accounting is to measure the ultimate marginality of each project; after all, given V&P's business model, revenues are pre-established contractually with the

client, so it is crucial to measure cost items with pinpoint accuracy in order to keep track of the margin generated by each project.

## Practical Example of cost accounting

Example Project EE0000		Budgeted Gross Margin	Actual Gross Margin	Delta Margin	Up to date Gross Margin	Overall cash flow			
		393.809 €	384.154 €	9.655 €	11.597 €	15.345 €			
Costs		404.195 € -		413.850 € -		9.655 € -		13.403 € -	
Suppliers	Cost description	Budgeted cost	Actual cost	Delta	Billed	Paid	To be Billed	To be Paid	
<b>Subcontract</b>									
Construction company	Outsourcing	348.072 €	348.072 €	- €			348.072 €	348.072 €	
<b>Outside professionals</b>									
External surveyor	Administrator fee	2.677 €	2.677 €	- €			2.677 €	2.677 €	
Construction engineer	Director of works & safety officer	18.742,36 €	18.742 €	- €	1.874 €		16.868 €	18.742 €	
Structural engineer	Thermotechnical project	18.742,36 €	18.742 €	- €	1.874 €		16.868 €	18.742 €	
<b>Other direct costs</b>									
Accounting firm	Compliance visa	15.960 €	15.960 €	- €			15.960 €	15.960 €	
Municipality	Public areas concession	- €	9.655 €	9.655 €	9.655 €	9.655 €	0	- €	
Revenues		798.004 €		798.004 €		- €		25.000 €	
Clients	Revenue description	Budgeted revenue	Actual revenue	Delta	Billed	Cashed	To be Billed	To be Cashed	
<b>Contract agreement</b>									
Commissioning	Contract revenues	239.401 €	239.401 €	- €	25.000 €	25.000 €	214.401 €	214.401 €	
Commissioning	Accrued tax credits	558.603 €	558.603 €	- €	0	0	558.603 €	0	

This section presents a practical example of cost accounting for a project currently underway, managed by V&P. The details of the project, such as the client, suppliers, and professionals involved, have been anonymized for privacy reasons; however, the approach used by the company and the relevant amounts are entirely plausible. The project in question is of limited scope, in terms of revenues and associated costs, as the objective of this example is to illustrate how costs are classified and how an initial measurement of profitability is made, as well as a comparison between the budgeted and actual amounts. Consequently, a more streamlined project, involving fewer suppliers and professionals, is of greater utility for such a demonstration.

Firstly, we observe the distinction between supplier costs and professional fees. In this case, the former consists of a single construction firm, as V&P's top management decided to implement a selection process within its supplier network, entrusting all project-related tasks to a single contractor. This approach simplifies negotiations for more favorable subcontracting prices, given the company's strong bargaining power, and facilitates cost forecasting and variance analysis. Indeed, as shown in the table above, the budgeted amount matches the contracted amount, indicating that the procurement function was successful in securing supply at the target price.

The second cost category includes professionals required to obtain the necessary project plans and documentation for the execution of the work. In this case, such expenses include the fees for the administrator, the project manager and safety supervisor, and the thermo-technical project. All these services are contracted and remunerated through a "standard" percentage of the total project cost; therefore again, the budgeted and actual amounts coincide.

Finally, there are other direct costs associated with the project in question. Among these are some expenses accounted for in the budget, such as costs related to obtaining the compliance certificate, which is calculated as a "standard" percentage of the total contract value; and indeed, in this case, the variance between the budgeted target and the actual value is zero. However, there are also unforeseen costs, such as fees for public land occupancy, which were not accounted for during the budgeting phase, thus creating a variance between the expected and actual profitability.

As for revenues, these are contractually defined based on technical calculations, drawn up with standard values, prepared by V&P and approved by the client. In this case, the variance between the budgeted target and the actual value is zero, as the client accepted the company's initial offer. Specifically, the revenues are divided between the amount already paid by the client (to date, 30% of the total contracted amount) and the tax credits accrued (to date, the remaining 70%).

For each of these items, both costs and revenues, the invoiced amounts and those already paid, as well as the outstanding amounts to be invoiced and paid, are detailed. This allows for an initial estimate of the future cash outflows associated with the project and each supplier.

In conclusion, cost accounting is applied to quantify the profitability of each project using two main metrics: the budgeted profitability, calculated as the difference between budgeted revenues and costs, and the actual profitability, calculated as the difference between contracted revenues and costs. The comparison of these two indicators allows for the identification of variances and, consequently, inefficiencies in project management. The difference between the budgeted and actual profitability is further broken down into two components: the variance between budgeted and actual costs and the variance between budgeted and actual revenues. The analysis is then detailed for each cost and revenue item. For instance, in this case, the only variance arises from the public land occupancy costs, which were not accounted for during the budgeting phase. This issue, rather than indicating inefficiency in the procurement function, highlights shortcomings in the budgeting process, and consequently in the finance function, as these costs, determined by the municipality and therefore not subject to negotiation, were not considered.

### **Drafting of commercial exposure recap and allocation of settlement agreements**

Thanks to cost accounting, and in particular thanks to the classification of costs by supplier, it is possible to identify those suppliers for whom we expect to incur significant cash outlays, related to invoices received but not yet paid or invoices to be received as a result of old contracts signed with the provider.

This has proven to be of great use to V&P, especially since one of the main medium-term goals, set at the beginning of the year, was to reduce costs and cash outflow. As a result, top management decided to undertake balance-and-release agreements with all those suppliers to whom the commercial exposure was greatest, favoring those with whom the company has long-standing business relationships and making a stronger use of its bargaining power with those who in previous years had not complied with certain clauses of the agreements (e.g., in terms of timing or quality of work).

So, an additional activity carried out during the internship, which follows from the cost accounting activity, was to draw up recaps of V&P's commercial exposure to different suppliers or professionals. More precisely, these overviews were to summarize the costs still unpaid to the supplier, breaking them down by project, and comparing them with what had already been paid to the supplier and with the amounts expected to be charged for the supply at the beginning of each project.

After that, these analyses are provided to top management, so that it can personally contract, with the support of the legal team, with the supplier, mainly leveraging the deviations between actual and projected costs, and the amounts already paid, in order to close a profitable deal.

Following the signing of the agreement, the activity in question is concluded through two successive steps. First, the alignment of updated costs in the margin analysis of the projects involved; this is done through a proportional allocation of the discount obtained, based on the exposure of each project.

That is, for each project the cost item of the relevant supplier will be reduced by an amount equal to the total discount obtained through the settlement agreement, multiplied by the project-only debt to the supplier, divided by the total trade exposure to the seller.

The next step is to align the cash-out estimates with the terms of the agreement; indeed, this type of contract often includes not only a reduction in the amounts due, but also deferred payments over time. In conclusion, this activity of supporting top management in the stage of negotiating settlement agreements has contributed, not only to achieving the goal of reducing costs and cash out in the medium term, but also to obtaining more accurate and reliable estimates of future cash out.

### **Preparation of forecasted income statements and cash flows for future projects**

All the activities described so far concern projects that have already started and are nearing completion, but during the internship, V&P has started several projects and evaluated even more, so it became necessary to carry out another task. More precisely, this additional activity involves drafting a budgeted income statement (or business plan) and a budgeted cash flow statement for all the projects being evaluated.

Accordingly, the first step is to develop as realistic estimates as possible of the value of revenues and costs, with the latter in particular being broken down into subcontracting work expenses, consulting fees for professionals, expenditures for the supply of materials, and other general expenses.

These forecasts are evaluated in cooperation with the design department, which is aware of the indications of the client or top management, with the procurement team, which can provide more accurate forecasts for construction costs, and with the real estate team, which is able to provide a more accurate estimate of revenues from the project (e.g., in the case of a real estate due to the estimated average price per square meter) . Thanks to these forecasts, the projected gross operating margin (or Gross Margin) for the project can be easily calculated.

After that, the timing of collection and payment of suppliers must be estimated; this is done based on similar projects, other previous agreements with the client or suppliers, or based on common practices.

This allows an initial version of budgeted cash flow to be sketched out by which a quantitative estimate of the project's financial requirements can be obtained. This need can be filled through different sources of capital (e.g., bank financing with or without pre-amortization, mortgages, or through crowdfunding), each of which has different repayment characteristics and associated interest. Thus, once the source of financing has been established, it is possible to accurately calculate an estimate of the financial burdens associated with the investment in question.

At this point a definitive first draft of the budgeted income statement and budgeted cash flows can be created. These two documents are of great informational value to top managers as they allow them to assess the financial requirements and cash outflow associated with each project and to quantify the expected marginality and profitability by calculating certain indicators such as ROI, CF-ROI, Operating Margin and EBT. As a result, top management can assess the attractiveness of potential projects, especially in terms of contribution margin in relation to cash requirements.

Naturally, these project-by-project analyses can be grouped together to obtain an overall corporate budget with a medium-term time horizon, which is updated from time to time with new relevant information, and which allows the company's financial performance to be assessed.

## Practical Example of Budgeted IS and CF

P&L	Initial budget at Mar '24	Last update at Sep '24	Delta
<b>REVENUES</b>	€ 6.104.000	€ 6.054.000	-€ 50.000
<b>Revenues</b>	€ 6.104.000	€ 6.054.000	-€ 50.000
Apartments retailing	€ 6.104.000	€ 6.054.000	-€ 50.000
<b>COSTS</b>	€ 5.146.350	€ 5.008.576	-€ 137.774
<b>Purchasing costs</b>	€ 3.430.350	€ 3.430.350	€ -
Asset purchase	€ 3.267.000	€ 3.267.000	€ -
Taxes	€ 130.680	€ 130.680	€ -
Notary's fee	€ 32.670	€ 32.670	€ -
<b>Construction &amp; Technical costs</b>	€ 1.285.000	€ 1.281.660	-€ 3.340
Renovation costs	€ 885.000	€ 885.000	€ -
Under roof implementation costs	€ 350.000	€ 350.000	€ -
Professionals' fees	€ 50.000	€ 46.660	-€ 3.340
<b>Technical charges</b>	€ 85.000	€ 85.000	€ -
<b>Financial fees</b>	€ 150.000	€ -	-€ 150.000
<b>Personell cost</b>	€ 50.000	€ 50.000	€ -
<b>Apartment vacancy costs</b>	€ 146.000	€ 149.000	€ 3.000
Compensation towards Tenant n°1	€ 28.000	€ 28.000	€ -
Compensation towards Tenant n°2	€ 28.000	€ 20.000	-€ 8.000
Compensation towards Tenant n°3	€ 18.000	€ 20.000	€ 2.000
Compensation towards Tenant n°4	€ 18.000	€ 20.000	€ 2.000
Compensation towards Tenant n°5	€ 18.000	€ 18.000	€ -
Compensation towards Tenant n°6	€ 18.000	€ 25.000	€ 7.000
Apartment clearance activities - Housing agency	€ 18.000	€ 18.000	€ -
<b>Marketing Costs- Sales fees - Housing agency</b>	€ -	€ 4.300	€ 4.300
<b>Marketing Costs- Advertising expense</b>	€ -	€ 8.266	€ 8.266
<b>EBT</b>	€ 957.650	€ 1.045.424	€ 87.774
<i>Gross marginality on revenues</i>	15,7%	17,3%	1,6%
<i>Gross return on invested capital</i>	84,8%	31,4%	-53,3%
<b>Taxes</b>	€ 263.354	€ 287.492	€ 24.138
<b>Net profit</b>	€ 694.296	€ 757.932	€ 63.636
<b>ROI</b>	61,45%	22,78%	-38,67%
<b>Sources and employment</b>			
<b>Cash requirements</b>	€ 4.329.850	€ 4.327.512	-€ 2.338
Purchasing costs	€ 3.430.350	€ 3.430.350	€ -
Other costs	€ 899.500	€ 897.162	-€ 2.338
<b>Financial sources</b>	€ 4.329.850	€ 4.327.512	-€ 2.338
Bank debts	€ 2.200.000	€ -	-€ 2.200.000
Invested capital	€ 1.129.850	€ 3.327.512	€ 2.197.662
Pre-sales	€ 1.000.000	€ 1.000.000	€ -

This example presents realistic data from a project assessed and launched by V&P around March 2024. As in the previous case, the project details, including suppliers and clients, have been anonymized for privacy reasons. The aim is to demonstrate how rolling budgeting is utilized by V&P to assess profitability and margin, quantify the need for external financing, and conduct variance analysis.

Regarding the first function mentioned, the quantification of profitability and margins, this is achieved through an initial estimate of EBT and Net Profit, obtained through a forecast of costs and revenues. Revenues are estimated by calculating an average price per square meter,

which is applied to the property, taking into account both its location and the type of dwellings; this parameter is often compared with similar properties. As for costs, some can be definitively known through preliminary agreements (e.g., the purchase cost of the asset), while others follow standard formulas (e.g., the notary fee is always set at 1% of the property's cost, and taxes are 4%). For other cost items, estimates are necessary, based on consultations with the most involved company departments or by referencing to similar projects. At this stage, it is possible to obtain an initial margin estimate, for instance, by calculating the Gross Margin on Revenues ( $EBT/Revenues$ ).

Once the estimates for costs and revenues have been defined, it is essential to analyze the sources and uses of liquidity, in order to highlight the need for external capital and the amount of capital the company has invested in the project. More specifically, the capital employed by the project is calculated as the sum of all the costs the company must immediately cover (e.g., purchasing costs), plus an estimated percentage of other costs that the company will need to pay before any sales are realized. On the other side, sources of capital include presales—revenues generated before the project is completed—bank loans or other forms of financing (e.g., mortgages, crowdfunding, etc.), and equity capital. Naturally, the total amount of sources must equal that of uses, and therefore once two of the possible sources (equity, debt, or presales) have been set, the third can be identified. For instance, the initial draft from March 2024 was used to quantify the invested capital required, assuming a bank loan of €2.2 million.

After quantifying the various sources of financing, it becomes possible to calculate the first indicators of project profitability, such as the Gross Return on Invested Capital ( $EBT/Invested\ Capital$ ) and the ROI ( $NP/Invested\ Capital$ ). These analyses are presented directly to top management, who can then evaluate the company's interest in pursuing the project and, if necessary, adjust the target values to further incentivize various corporate functions.

The company's use of a rolling budgeting process allows for the creation of monthly versions of the budgeted income statement; in this case, the version updated six months later, in September 2024, is shown. This facilitates the application of variance analysis, which highlights any efficiencies or inefficiencies within different departments.

For example, target revenues have decreased, indicating that the sales department underperformed, failing to achieve the average price per square meter set in the initial budget. On the other hand, construction costs have decreased due to lower professional fees, suggesting that the procurement function overperformed, and that the company overall enjoys strong bargaining power with its network of professionals. Additionally, the most significant change is the reduction in bank financing and the corresponding increase in invested capital, leading to a substantial reduction in financial charges. This was made possible by effective financial planning, primarily led by the finance function. The

procurement function also played a role by negotiating favorable payment terms with suppliers, allowing the project to proceed with limited financial needs. This will be analyzed in greater detail by reviewing the monthly budgeted cash flows.

Moreover, certain costs showed no variance, meaning the initial estimates were reliable (e.g., purchasing costs). Others, however, were not anticipated in the initial budget but became necessary later. For instance, marketing costs were incurred at a later stage to compensate for the poor performance of the sales department. Indeed, to mitigate the expected reduction in revenues, the company decided to launch an online marketing campaign.

In conclusion, variance analysis reveals better overall performance in terms of both gross and net margin, primarily due to the reduction in total costs, driven by lower financial charges. However, it also highlights a significant decrease in return on invested capital; in fact, reducing financial charges and, thus, debt capital requires the company to invest more of its own capital, resulting in a substantially lower gross or net return.

*Budgeted CF at Mar '24*

	Mar '24	Apr '24	May '24	Jun '24	Jul '24	Aug '24	Sep '24
Bank debt on deed	€1.600.000						€1.600.000
Bank debt	€600.000						
Pre-sales	€1.000.000				€180.000	€110.600	€35.000
Revenues from apartments retailing	€5.104.000						
<b>Cash inflows</b>	<b>€8.304.000</b>	<b>€0</b>	<b>€0</b>	<b>€0</b>	<b>€180.000</b>	<b>€60.600</b>	<b>€1.635.000</b>
<b>Asset purchase</b>	<b>-€3.430.350</b>						
Asset purchase	-€3.267.000	-€100.000	-€500.000	-€400.000			-€2.267.000
Taxes	-€130.680						-€130.680
Agency fees	€0						
Notary's fee	-€32.670						-€32.670
<b>Construction &amp; technical costs</b>	<b>-€1.320.900</b>						
Construction works subcontracting	-€1.250.000		-€62.500	-€125.000	-€125.000	-€125.000	-€125.000
Scaffolding cost	-€9.900						
Professionals' fees	-€61.000			-€12.200			
<b>Apartment vacancy costs</b>	<b>-€149.960</b>						
Compensation towards Mr Ibrahim	-€28.000	-€28.000					
Compensation towards Mr Reda	-€28.000	-€28.000					
Compensation towards Mr Bradan	-€18.000		-€18.000				
Compensation towards Mr Moustafa	-€18.000		-€18.000				
Compensation towards Mr Tawfik	-€18.000		-€18.000				
Compensation towards Mr Hassan	-€18.000		-€18.000				
Apartment clearance activities (Housing agency)	-€21.960	-€7.320	-€14.640				
<b>Interest, taxes &amp; debt repayment</b>	<b>-€2.350.000</b>						
Bank debt on deed - Reimbursement	-€1.600.000						
Bank debt - Reimbursement	-€600.000						
Financial fees	-€150.000						
<b>Cash outflows</b>	<b>-€7.251.210</b>	<b>-€100.000</b>	<b>-€563.320</b>	<b>-€149.140</b>	<b>-€537.200</b>	<b>-€125.000</b>	<b>-€2.555.350</b>
<b>Monthly cash flow</b>	<b>-€100.000</b>	<b>-€563.320</b>	<b>-€149.140</b>	<b>-€537.200</b>	<b>€55.000</b>	<b>-€64.400</b>	<b>-€920.350</b>
<b>Cumulated cash flow / Cash requirement</b>	<b>-€100.000</b>	<b>-€663.320</b>	<b>-€812.460</b>	<b>-€1.349.660</b>	<b>-€1.294.660</b>	<b>-€1.359.060</b>	<b>-€2.279.410</b>

Once all revenues and costs have been estimated, it is necessary to forecast the corresponding cash inflows and outflows in order to more accurately quantify the financial needs of the project. For this reason, a budgeted cash flow statement is drawn up, which is updated in parallel with the budgeted income statement. This analysis aims to quantify the amount of capital that the company must inject into the project and is thus of paramount importance to ensure the financial feasibility of each project and the overall liquidity of the company. By combining the monthly financial needs of all projects, it is possible to determine the amount of liquidity the company must have available to avoid insolvency.

More specifically, this analysis is divided into two parts: the breakdown of cash inflows and that of cash outflows. Regarding cash inflows, these are comprised of the previously mentioned capital sources and are therefore more easily predictable. In fact, both cash inflows from bank financing and equity capital are easily schedulable and foreseeable. The only element characterized by greater unpredictability is the cash inflows from actual revenues, as the sales department does not always meet the target values. Indeed, in this case, there was a shortfall of approximately €50,000 in August, likely attributable to the company's summer closure.

Regarding cash outflows, the budgeted cash flow is used to negotiate favorable payment terms with suppliers and professionals, with the aim of limiting the actual financial needs. Through careful planning of cash outflows, top management can compare the total financial requirements with available liquidity and determine whether or not it is advantageous to resort to bank financing.

**Budgeted CF at Sep '24**

	Mar '24	Apr '24	May '24	Jun '24	Jul '24	Aug '24	Sep '24
Bank debt on deed	€0						€0
Bank debt	€0						
Pre-sales	€950,000				€180,000	€60,600	€35,000
Revenues from apartments retailing	€5,054,000						
<b>Cash inflows</b>	<b>€6,054,000</b>	<b>€0</b>	<b>€0</b>	<b>€0</b>	<b>€180,000</b>	<b>€60,600</b>	<b>€35,000</b>
<b>Asset purchase</b>	<b>-€3,430,350</b>						
Asset purchase	-€3,267,000	-€100,000	-€500,000	-€400,000			-€2,267,000
Taxes	-€130,680						-€130,680
Agency fees	€0						
Notary's fee	-€32,670						-€32,670
<b>Construction &amp; technical costs</b>	<b>-€1,403,855</b>						
Construction works subcontracting	-€1,250,000		-€62,500	-€62,500		-€62,500	-€125,000
Scaffolding cost	-€9,900						
Architect's consulting fees	-€56,925			-€11,385	-€12,078		-€8,701
Engineer's consulting costs	-€2,030	-€2,030					
Urban development charges	-€85,000	-€85,000					
<b>Apartment vacancy costs</b>	<b>-€152,960</b>						
Compensation towards Mr Ibrahim	-€28,000	-€28,000					
Compensation towards Mr Reda	-€20,000					-€20,000	
Compensation towards Mr Bradan	-€20,000			-€10,000		-€10,000	
Compensation towards Mr Moustafa	-€20,000				-€20,000		
Compensation towards Mr Tawfik	-€18,000						-€18,000
Compensation towards Mr Hassan	-€25,000				-€25,000		
Apartment clearance activities (Housing agency)	-€21,960		-€3,660		-€3,660	-€10,980	-€3,660
<b>Marketing Costs- Sales fees</b>	<b>-€5,246</b>		-€5,246				
<b>Marketing Costs- Advertising expense reimbursement</b>	<b>-€8,266</b>						-€8,266
<b>Interest, taxes &amp; debt repayment</b>	<b>€0</b>						
Bank debt on deed - Reimbursement	€0						
Bank debt - Reimbursement	€0						
Financial fees	€0						
<b>Cash outflows</b>	<b>-€5,000,677</b>	<b>-€187,030</b>	<b>-€528,000</b>	<b>-€71,406</b>	<b>-€483,885</b>	<b>-€60,738</b>	<b>-€103,480</b>
<b>Monthly cash flow</b>	<b>-€187,030</b>	<b>-€528,000</b>	<b>-€71,406</b>	<b>-€483,885</b>	<b>€119,262</b>	<b>-€42,880</b>	<b>-€2,558,977</b>
<b>Cumulated cash flow / Cash requirement</b>	<b>-€187,030</b>	<b>-€715,030</b>	<b>-€786,436</b>	<b>-€1,270,321</b>	<b>-€1,151,059</b>	<b>-€1,193,939</b>	<b>-€3,752,916</b>
<b>Cash requirement Delta</b>	<b>-€87,030</b>	<b>-€1,710</b>	<b>€26,024</b>	<b>€79,339</b>	<b>€143,601</b>	<b>€105,121</b>	<b>-€1,473,306</b>

Furthermore, two different versions of the budgeted cash flow can be compared to evaluate the efficiency and effectiveness of the financial management of the project. For example, in this project, it was possible to avoid resorting to third-party capital. This led to a greater financial requirement, but reduced financial charges, and consequently, higher margins. This indicates that top management opted to prioritize absolute margins over the return on invested capital, likely due to the company's already high level of indebtedness. This situation, in part, results from its business model, which was already characterized by significant financial charges, allowing the company to accumulate enough capital to finance the project without needing additional loans. This decision necessitated postponing payments to suppliers and professionals as much as possible, especially given the reduction in revenues compared to the target. As can be seen from the tables above, payments related to the

subcontracting agreement were significantly delayed, once again demonstrating the effectiveness of the procurement function and the company's strong bargaining power. The same applies to the costs related to vacating the apartments, although in this case, a slight increase in amounts was necessary due to the delays.

In conclusion, the analysis of the evolution of budgeted cash flows allowed V&P to limit its level of debt through effective cash outflow planning, thus reducing the impact of financial charges. However, this also significantly increased the financial requirements of the project.

### **The sensitivity analysis for major projects**

Finally, the last major activity performed during the internship at V&P involves performing sensitivity analysis for the most relevant new projects. Indeed, since such investments require a significant amount of capital and resources committed for long periods, it is not sufficient to assess their profitability only in the case that all assumptions considered most realistic occur. Instead, on the contrary, it is necessary to analyze several scenarios, some more optimistic and some more pessimistic, in order to obtain a window of possible performances.

The first step in this task is definitely the identification of key variables, for these projects, being large, contain numerous uncertainties, but not all of them are significant enough to have a major impact on the profitability of the project.

After that, it is necessary to quantify the impact that a change in a key variable has on project characteristics, even before it has an impact on project profitability. Only after this step can the changes in costs and revenues of each scenario be quantified.

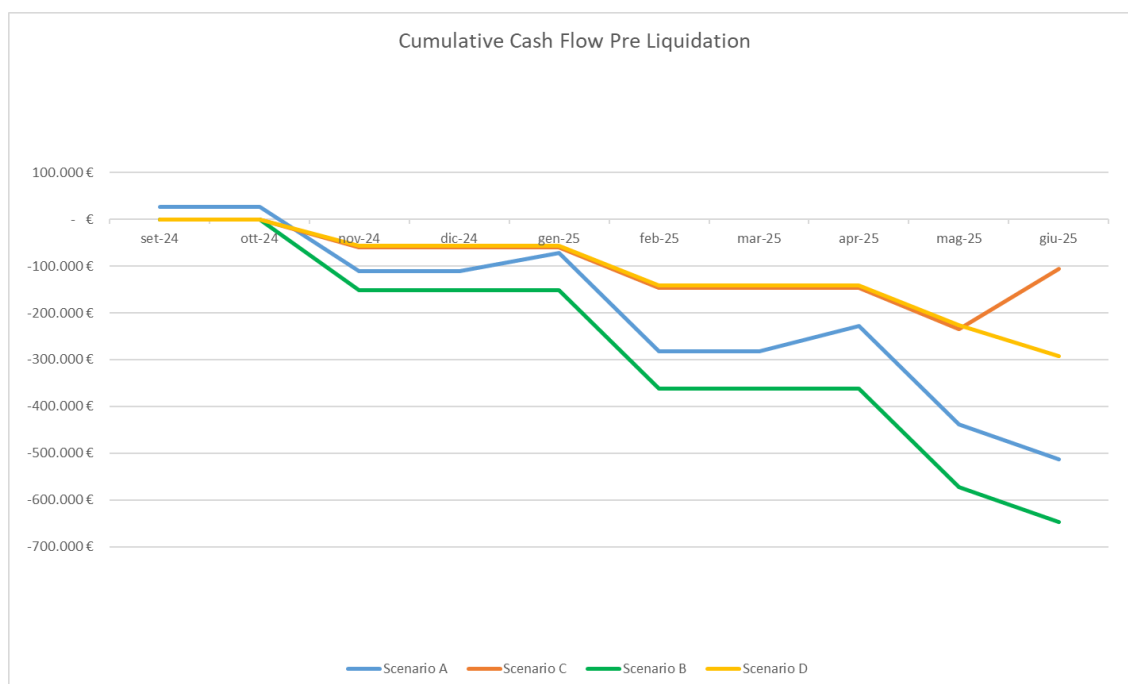
At this point it is necessary to draw up income statement and cash flow statement forecasts, following a procedure similar to what was previously detailed, in order to derive metrics, mostly financial, that quantitate, for each scenario, marginality (EBITDA, EBIT, EBT, etc...), reddyivity (ROI, ROA, CF-ROI, etc...), and financial requirements (month-to-month and overall).

Finally, the last step is to group and compare the indicators obtained for the different projects, through the use of charts, tables, and scorecards, in order to provide an accurate and detailed summary of the different possible scenarios to the top management.

Depending on corporate leadership's priorities, this type of analysis can be used for different purposes. For example, the main use of it at V&P is the evaluation of alternative developments of the same project, even in collaboration with external partners or with the client. Or it can be used to assess the cost and cash impact of the project as funding sources change (own equity, debt capital or hybrid sources, such as crowdfunding).

Finally, this analysis can also be used to determine the ideal characteristics of agreements with key suppliers (e.g., best payment terms). Obviously, the use that is made of these analyses is strictly dependent on the medium-term goals of the company; for example, if the current goal is to reduce financial outlay, these analyses will be used primarily to evaluate different sources of financing or to determine the ideal contracts with suppliers in order to reduce the cash outflow. If, on the other hand, the target is to increase the operating margin, this analysis will mainly be used to figure out how to develop a project while maximizing its contribution margin and how to reduce its implementation costs.

### Practical Example of a Sensitivity Analysis



Scenario	Description	Revenues	Total costs	Contribution margin post liquidation of tax credits	Financial margin post liquidation of tax credits	CF-ROI
A		1.270.373 €	846.933 €	156.515 €	309.686 €	60,4%
B		1.136.576 €	846.933 €	22.718 €	175.890 €	27,2%
C		200.000 €	305.043 €	105.043 €	34.955 €	-14,9%
D		- €	293.093 €	293.093 €	293.093 €	-100,0%

This example presents summary tables derived from the sensitivity analysis conducted to evaluate various proposals for a project, managed by V&P, in terms of profitability and margins during its kick-off phase. As in previous cases, the project details (such as the "Description" column) have been obscured for privacy reasons, but the values provided are entirely realistic.

As shown, this sensitivity analysis distinguishes four different scenarios, ranging from the most optimistic to the most pessimistic. These scenarios differ in the scope of work performed, depending on what is accepted by the client—factor which is external to the company—and in the project's ability to generate revenue, which is partially influenced by internal company dynamics. For each case, total revenues and total costs were estimated through the creation of budgeted income statements and cash flow statements, similar to those previously discussed. The sensitivity analysis then proceeds by calculating the contribution margin after the liquidation of any accrued tax credits; this metric is computed assuming a prudential estimate of a 30% loss in the liquidation of credits, based on their nominal value. This percentage is derived from the company's historical data, as well as an analysis of trends over time. While it was possible to liquidate such credits at 95-98% of their nominal value in the past, today it is more prudent and realistic to forecast a transfer at 70-75%.

Similarly, the financial margin is calculated, which measures the project's impact in each scenario on the company's liquidity, rather than on balance sheet accounts. This indicator is used to compute the CF-ROI (Financial Margin/Cash Requirement). Additionally, the sensitivity analysis provides an estimate of the cumulative cash flow for each possible scenario; these figures are obtained through the drafting of budgeted cash flows similar to those previously examined.

All of these analyses are provided to top management to aid in decision-making regarding how much time and resources to allocate to the project in question. For instance, it is evident from the tables above that scenarios A and B are the most profitable, both in terms of marginality and liquidity, while scenarios C and D, the more pessimistic ones, should be avoided due to their negative margins. Hence, rather than risking one of the latter two scenarios materializing, the company would prefer not to pursue the project at all. Similarly, although scenario A is more favorable than B, its feasibility not only depends on external dynamics (such as the client's willingness), but also requires the company to invest more substantial resources, and therefore more capital, into the project. Thus, if top management wishes to prioritize other investments, it would be preferable to allocate fewer resources to this project, making scenario B the more realistic option.

In conclusion, this sensitivity analysis aims to provide a comprehensive, yet sufficiently summarized, view of the potential outcomes of a significant project to the top management.

This enables the leadership team to evaluate alternative projects from various perspectives, both optimistic and conservative. Furthermore, this analysis can be used by top management to determine how to allocate the company's limited resources across different projects in the launching phase, ensuring both a good economic return and the financial feasibility of each project.

### **Critical evaluation of existing processes in the company**

#### **The simplicity, perhaps excessive, of V&P's management control**

The first critical assessment, and the most obvious, that can be made of the management control system currently in place at V&P concerns the simplicity of the processes used by it. Indeed, the system consists of simple and not particularly advanced mechanisms, as will also be ascertained by comparing them with the literature in the next section, mainly structured on financial metrics. This is because the main objective of the company's management control system is to provide as much information, and of the best possible accuracy, to top management, as the direction in which the company moves and the corporate goals evolve following the ideas and insights of the ownership, and therefore the top managers.

This is not a problem itself, as it brings both advantages and limitations to the company. The main advantage lies in the high responsiveness that this provides to the company; for thanks even to its limited size, V&P has demonstrated an amazing ability to adapt to relevant changes in the market. As an example, in the period of the internship alone, two events occurred that could have had disastrous effects on the company's performance, but were handled excellently, mainly due to the simplicity of the processes, adaptability, and responsiveness involved.

More specifically, the first change referred to relates to the change of the "Bonus 110" incentive to "Bonus 70" meaning that the amount of tax credits obtained by the client was reduced to an amount equal to 70% of the work, as opposed to the initial 110%, which translates into a cost to the client that went from being zero to being equal to 30% of the total amount. So, without such adaptability V&P would have experienced a drastic reduction in turnover, which to date has been offset thanks to other businesses undertaken in a short time (e.g., real estate and photovoltaic).

The second change in question, concerns the duration of the tax credits that the company obtained from clients in exchange for the discount on the invoice; actually for a brief moment of time the Italian government had thought of increasing this time frame from 4 to 10 years, this would have meant that a company would have been able to offset in one year only 10 percent, and no longer 25 percent, of the credits accrued. This would have reduced the

transfer price of the credits drastically, leading to a consequent steep increase in the company's financial burdens (within which are the losses on the disposal of credits). However, the company was able to quickly secure contracts for the sale of these credits with large multinational lending institutions, thus shielding itself from an eventual change in the rule, which fortunately for the company never came true later.

However, despite this significant upside, this set-up of the management control system, and of the company's administration in general, turns out to be overly dependent on the ideas and directions of ownership. As a result, business functions, especially the minor ones, possess little decision-making autonomy if significant choices are to be made. Thus, although the company applies a managerial style based on the management by objectives, important targets are often imposed by management; in other words, medium- to long-term goals are defined with only a top-down approach, while short-term goals are also defined with bottom-up input. As a result, alignment of functions, especially for workers at the lowest level of the organizational chart, occurs slowly, as they are not involved in the goal setting process. This issue is, in part, solved through the massive use of direct coordination and supervision by department heads, but this risks generating demotivation and alienation.

### **Superficial forecasted value estimates undermine the effectiveness of budgeting**

The second criticism that can be made of V&P's management control system concerns the quality of the forecasts on which it builds the budgeting process and variance analysis. Indeed, these estimates are often qualitative and rough since there is no real process for quantifying expected values that gathers the necessary information from the various functions, but instead it is the budgeting department that has to derive forecasts from its own assumptions.

However, in most cases, the budgeting function is not in direct contact with either the customer or the suppliers, as a result the assumptions made are not very accurate, so often a review with more informed teams is needed to correct the forecasts. This means that the initial budget is constructed from partial and not always accurate data.

As a result, although the measurement of actual data in subsequent time periods is done accurately, and although the rolling budget is constantly updated with the latest changes, the deviations, especially the first ones analyzed, meaning those near the start of the project, have little informational value.

Indeed, for delta analysis (ACWP, BCWP and BCWS) to help quantify efficiency and effectiveness in project management, it is necessary for both metrics to be reliable (both budgeted and actual values).

This issue is particularly impactful at the beginning of the project because the first estimates, that is those made at the project evaluation stage, are the most qualitative ones; indeed, the objective of budgeting activities, before the project is launched, is to assess its potential

profitability, in a short time frame, and is not to provide a starting point for assessing operational efficiency or effectiveness.

As a result, top management is not interested in receiving budgeted income statements and budgeted cash flow, in which the various revenue and cost items are estimated to the millimeter, as this would require a lot of time and the use of numerous resources; but they prefer to receive less detailed estimates more rapidly, then entrusting the choice of investment, not only to financial data, but also to their own intuitions. It will then be up to the budgeting function to detail the estimates more as time goes on, so that the deviations calculated later will be more useful.

However, there is a risk of identifying deltas, and thus critical issues, that are not real, but due to unrealistic initial estimates, especially in the early stages of the project. This leads to wasted time and resources that often result in delays, and thus a lower level of service for the client, and higher costs associated with the project, resulting in a lower actual margin than expected.

### **Impact of Limited Business Size on Cost Accounting Practices**

This section of the paper analyzes the impact that a company's limited size may have on the cost accounting practices it employs, specifically examining the main reasons that prevent small and medium-sized enterprises (SMEs) from implementing advanced and complex cost accounting mechanisms.

The first implication arising from the limited size of these companies is undoubtedly the stringent resource constraints they face. These businesses often operate with tight budgets, which restricts their ability to invest in advanced cost accounting systems. As a result, these companies often rely on basic accounting software or even manual methods for cost tracking, which can reduce the precision of cost allocation and limit overall financial insights. Moreover, due to limited financial resources, such companies may not be able to hire specialized personnel, leading to less detailed and less frequent financial analyses.

Another consequence of the reduced size is a simplified cost structure. SMEs typically deal with fewer products or services, which simplifies their cost accounting systems. Therefore, they might only require basic cost allocation methods, such as job order costing or simple direct costing approaches. Furthermore, these businesses often have lower overhead costs, meaning they do not necessarily need elaborate allocation methods like activity-based costing (ABC), which is more commonly used in larger, more complex businesses. Instead, the focus might be on controlling direct costs, such as materials and labor.

Due to resource limitations and their simpler cost structure, SMEs do not generally require sophisticated costing methods. Instead, they might rely on standard costing or basic estimates, which may limit accuracy and lead to suboptimal decision-making.

Additionally, SMEs typically prioritize short-term cost management over long-term financial planning, this could lead to an emphasis on cash flow analysis and break-even calculations, rather than a deep analysis of cost behavior or cost drivers. The emphasis is often placed on maintaining liquidity, which might lead to simpler approaches to cost accounting. With simpler systems and a focus on operational survival, SMEs may miss the strategic insights that come from more detailed cost accounting. For example, more advanced analysis could reveal cost drivers that affect profitability, inefficiencies in production, or opportunities for better pricing strategies. Therefore, as a SME grows, its cost accounting needs to evolve, indeed, initially the business may rely on simple methods like direct cost allocation, but as operations expand, the lack of an established, scalable cost accounting system can create inefficiencies.

So, in conclusion, the limited size of startups and SMEs impacts cost accounting by forcing these businesses to operate with simplified, less sophisticated methods due to resource constraints, limited personnel, and an emphasis on short-term survival. As the business scales, however, these limitations can hinder growth unless cost accounting practices have evolved to match the company's expanding needs. Implementing scalable cost management systems early on can help mitigate future challenges.

### **Management control is based on data that is not always clean and up-to-date**

Another major issue found when analyzing V&P's management control system is the poor quality and cleanliness of the data, caused by the company's young age and still embryonic processes. Indeed, in the early years of operation, the company created and collected an excessive amount of data due to the many projects that were initiated in order to generate enough revenue to support the company's growth.

However, this data was not properly managed, which can be attributable to either the lack of a dedicated internal process, the insufficient skills of previous employees, or the superficial organization of work. For example, for the first projects launched, only operating margins were calculated, without considering the possible financial impact, and with the inaccurate allocation of the overheads. As a result, all subsequent evaluations proved unreliable, and it often proved complicated and costly to realign the actual and correct data with those available to the teams.

This means that, the company and all of its departments, find themselves having to work with inaccurate and dirty data that taints the quality of analysis and forecasts, especially if they are not specific to a particular project but are made for the company as a whole. This has proven

particularly problematic in the case of cash outflow forecasts; indeed, every week in V&P the forecasts of the overall monthly and weekly cash outflow are updated so that ownership can ensure the company's solvency in the short term.

In this particular case, the presence of incorrect data generates two types of problems. The first occurs in the case of an excess figure, that is, an expected cash outflow when in fact this will not occur or will occur with a considerable "lag," this results in an excessive amount of tied-up capital in the company's treasuries, to which follows a higher opportunity cost, related to possible investment set aside or the possibility of making certain projects proceed more expeditiously.

In contrast, the second case, which is the most severe problem of the two, concerns a missing figure, i.e. in other words, an unanticipated cash outflow that will, however, take place or will take place in "advance"; this results in a temporal insolvency by the company or at least a short delay in payment, to which follows a deterioration in reputation or in the relationship with suppliers, which, as already mentioned, represent an important competitive advantage and are therefore to be preserved as best as possible.

Of course, it is rare for such errors to occur for transactions of significant amounts, since these are unlikely to go unnoticed, so erroneous data are likely to be of marginal amounts. However, the sum of multiple missing data constitutes a fairly substantial amount, so the problem is handled through a "buffer," comparable to a safety stock, of cash kept aside to pay for any unanticipated transactions.

### **V&P's management control ignores relevant perspectives**

In addition, V&P's management control system appears to be excessively focused on the financial perspective, so much so that almost all the main activities carried out by it (e.g. cost accounting and budgeting) rely on financial data and are aimed at assessing the company's performance in this area.

This leads the company to ignore some other important aspects; for example, the strategic or competitive perspective, by which strategic positioning and ability to adapt to competition are assessed, is not considered by management control, but, as mentioned above, is analyzed and evaluated from time to time by the ownership. For this reason, the management control system does not quantify with non-financial indicators such aspects as competitive positioning, the degree of service innovation, and the quality of strategic partnerships.

Furthermore, the customer perspective is also not considered by the system; indeed, there are no methodologies used to assess V&P's ability to meet buyers' demands and gain market share. This is a major limitation for the company as it makes it myopic to changes in demand and thus makes it more complicated to accurately forecast revenues in future periods.

Finally, the perspective of growth and learning is also not considered by the management control system. This means that there is no way to measure the return on investment in human capital and infrastructure that the company has sustained to foster its growth. As a matter of fact, although there are procedures in place to align the behaviors and goals of workers, no metrics are used to assess their developed skills or satisfaction; still, the company invests significantly in the development of its employees' skills, through the use of specialized courses, and in the dissemination of workplace satisfaction, mainly through events organized by the human resources unit.

Thus, the problem lies not in the lack of investment, but in the at least momentary indifference to precisely measuring the return on these expenditures; this is probably due to top management's belief that it can personally control the return of these activities, without the need for dedicated processes.

### **Excessive compartmentalization of information**

Finally, the company's management control is characterized by excessive compartmentalization of information, which has materialized through a discontinuous flow of information. Although this is necessary for sensitive or private information (e.g., important fiscal data or private employee data), for all other contexts this represents a significant problem that slows down the normal operation of the enterprise.

Indeed, it is often the case that some information of common utility to all employees is only spread within the unit receiving that specific input, as a result when another team needs to receive that intelligence, they find themselves forced to interrupt the task they were performing to "chase" it. In turn, other units will also be interrupted and distracted from their work because they will have to be questioned in order to get the missing data.

This means that business processes are continually interspersed with moments of confrontation between workers in different functions so that information spreads horizontally throughout the organization. The result is longer times to carry out any task and reduced efficiency, which can be matched by delays in project delivery or supplier management, undermining V&P's reputation and the quality of relationships with the supply network.

This dynamic is partially managed by the excellent spirit of collaboration and the tendency to teamwork found in the work environment, and which the environment itself stimulates, which allows continuous confrontations to be managed more efficiently. For this reason, it is crucial for the organization to invest time and money to maintain this atmosphere, not least because, given the prospect of growth, and the consequent increase in the number of employees, this dynamic will be increasingly time consuming and it will be more and more complex to ensure the spirit of collaboration among different resources.

## **Critical analysis of empirical results and comparison with the literature**

### **Comparison with Anthony's definition and the system developed by DuPont**

Looking at V&P's management control system, one can see that it is composed mainly of simple processes, which are almost entirely based on financial metrics. The purpose of these indicators is to provide information to top management on the company's performance.

Thus, the philosophy on which the company's management control is based is aligned with the first definition provided by Anthony in 1965, who, in fact, understood management control as "the process by which managers ensure that resources are obtained and used, efficiently and effectively, so that the organization's intended objectives can be achieved," providing a view of management control that is strongly accounting-oriented.

This explains why most of the practices used by the company in controlling and realigning business performance are so heavily focused on financial or accounting measures. As a matter of fact, as mentioned earlier, V&P's control system is built primarily on cost accounting and budgeting, first broken down by project and then grouped together to assess business performance overall.

More specifically, although financial indicators are at the heart of management control, those used by the firm are not particularly advanced, and, even when considered together, do not provide a complete representation of the various performances that a firm should track. Indeed, all the best practices introduced by the Dupont company, which were later theorized and described by Johnson, in 1975, and Chandler, in 1977, are widely understood and used; including, for example, the use of metrics such as ROI, or similar, rather than EBIT margin or NP margin, to quantify profitability and to evaluate alternative investments.

These methodologies, however, are not thoroughly examined; for although ROI, or similar indicators, is widely used, the decomposition of this indicator is almost never analyzed. The result is a superficial profitability analysis, which does not investigate the main determinants of company performances, breaking them down into different operational sub-components for each department, which would be of great use in understanding how each function contributes to the overall business performances.

Furthermore, the practices introduced by Dupont were later complemented by additional refinements, such as the use of discounted cash flows, the usefulness of which in assessing profitability was first introduced by Dean; but to date in V&P these refinements are rarely considered, for example, DCFs are evaluated only when analyzing overall company performances, and rarely for a project specifically.

This is attributable to the fact that the investments and projects carried out by the company have nearly always a limited lifespan, from a few months for less significant projects to a maximum of 3-5 years for major investments, consequently the impact of discounting is negligible for almost all cases.

An additional step up that has been explored in depth in the academic literature but is not considered of V&P's management control system, is the use of quantitative analytical models, such as probability theory, to supplement the already widely used financial analyses. Because these tools are particularly complex, and consequently require skilled resources and long timelines, they are not used by the company, which, as mentioned above, prefers a faster and more adaptable system, even at the expense of more detailed control and analysis; for this reason, these tools are replaced by sensitivity analysis, which, as previously mentioned, is applied only to projects of greater caliber.

Thus, on the whole, the system in place at V&P is very similar to the centralized system introduced by Dupont, Brown and Sloan; indeed, in it we find:

- An annual forecasting system, also used as a planning tool, which translates corporate strategy into accounting terms.
- A rolling budgeting system that makes it possible to assess the alignment between current results and what was planned, identifying corrective actions if necessary.
- A management control system that allows top management to allocate available resources among different projects and distribute bonuses to the most efficient functions.

Obviously, compared to the system used by the Dupont company, V&P's system is less layered and more linear, given the company's limited resources, but it uses some newer approaches that had not yet been developed at the time (e.g., sensitivity analysis) and can rely on the technological innovations of recent years that allow a greater amount of data to be handled more simply and at a lower cost.

#### **V&P's management control is only partially aligned with Kaplan's definition**

Furthermore, the management control used in V&P appears to be partially aligned with the definition provided by Kaplan in 1991. Indeed, Kaplan defines management control as “that which enables the firm to adapt to changes in the system, to provide feedback on performance, to assess profits from specific products/customers, and to evaluate various capital investment decisions.”

As explained above, it is from this new definition that tools such as balanced scorecards, which allow the company's performance to be evaluated from a variety of perspectives, arise. However, these tools are not widespread in V&P since of all the perspectives considered by them, only a few are, at the time, constantly monitored and measured by the company.

More in depth, the perspective of greatest interest is certainly the financial perspective, on which the entire management control system of the company is based, as already repeated several times. In addition, the business processes perspective, the goal of which is to understand which core processes have the greatest impact on overall performance, is sufficiently considered by the company, although few metrics and KPIs are used in this area.

For example, the core processes certainly include supplier relationship management and the administration of the company's finances. The efficiency and effectiveness of the former process is quantified by keeping track of discounts and payment terms contracted during the signing of balance and write-off agreements with the suppliers themselves. Accordingly, write-offs of larger amounts or percentages and with payment terms deferred over time correspond to optimal management of one's supply network. In contrast, the management of cash and cash equivalents is assessed by periodically comparing it with forecasts of cumulative cash outflow for the future short and medium term. Thus, even from this perspective, the most widely used KPIs are accounting measures, confirming the excessive focus of management control in this regard.

The customer perspective is also only partially considered and is evaluated only through accounting indicators, such as the revenues related to a particular project in relation to those expected. Consequently, a positive deviation (actual revenues greater than estimated ones) corresponds to a good understanding and management of customer preferences, while a negative deviation indicates a departure from market preferences.

Finally, the learning and growth perspective, which is an important part of the analysis performed by balanced scorecards, is not measured or monitored periodically by V&P. This is not to say that this perspective is completely ignored by management, but that there are no processes or activities designed to calculate indicators to assess its performance. This, probably, can be attributed to the intention of the ownership to focus the available resources on internal and more immediate issues.

In conclusion, the management control system of V&P appears to be only partially aligned with what Kaplan introduced, in particular there are significant opportunities for improvement regarding the control of non-financial, but operational performance, which will be discussed in more detail later.

### **Comparing cost accounting activities with the literature**

In addition to assessing business results from different perspectives, the new definition provided by Kaplan understands management control as a useful tool for accurately measuring the costs associated with each product, or in the case of V&P with each project.

From this point of view, the system in place is aligned with what scientific management introduced and what Kaplan intended, which is to measure direct and indirect costs for each cost center. Indeed, in order to better quantify and control the expenses of each project, it is necessary to allocate indirect costs as well, so that the marginality of each revenue center can also be better assessed.

For this reason, the activity-based costing method is used, with the goal of allocating overheads as precisely as possible. However, although V&P's management control system is set up to allocate these overheads, this is not always done in the most accurate way possible.

As a matter of fact, in some cases, indirect costs are divided equally among projects, without considering utilization ratios or other inherent cost drivers in order to break them down more accurately. This is justified by the fact that, given the typical intermediary nature of the company's core businesses, indirect costs amount to relatively insignificant sums compared to the total costs of a project.

Indeed, if one thinks of the general contractor's business, it is clear that most of the costs will be due to the amount paid to the supplier for outsourcing operations and to the expense for purchasing materials that are directly used for that project; in contrast, indirect operating costs, which are mainly due to equipment used on multiple projects, have less significant amounts. As a result, the company prefers to apply a more approximate approach to the latter, but less onerous in terms of the time required from the employees, so that human resources can be used for more relevant activities.

Thus, comparing V&P's cost accounting with what is provided in the academic literature shows that the company uses a sufficiently accurate approach to measuring operating costs, resulting in an almost excellent quantification of the operating margin (Gross Operating Margin, EBITDA margin, etc..), especially considering the company's size and limited availability of resources. However, this is no longer true if one wants to extend the discussion to include non-operating costs in the analysis, such as personnel costs, office-related expenses (utilities, materials, cleaning, etc...). Indeed, these expenses are quantified only at the overall level and no procedure is applied to allocate them to the different cost centers; as a result, it is impossible to quantify the contribution margin of each project to the company's overall net profit or EBT.

There are two reasons why this is done; first, as mentioned above for indirect operating costs, the intention of top management to take advantage of limited staff for activities that contribute more to the advancement of the company and to the improvement of its results.

Beyond that, the breakdown of these costs would be particularly complex, as there are no drivers for allocating expenses in a precise way that can be easily measured. For example, if one thinks of personnel costs, in order to break them down among each project it would be necessary to use an allocation based on the man-hours actually devoted to each, but the company does not have the necessary tools for this type of measurement. An alternative would be to allocate personnel costs based on the revenue or overall costs of each project, or even better to allocate the costs of some functions (e.g., design and commercial) based on revenue and other functions based on overall costs (e.g., procurement). However, given the vast number of ongoing projects managed by V&P this approach would generate little difference on the measure of marginality otherwise achieved, against an immense use of resources.

### **The management control function of aligning employees with corporate objectives**

If, on the other hand, one evaluates V&P's management control system for its ability to align the goals of individuals with corporate strategy, it is necessary to compare it with what Peter Drucker established regarding the management style named Management by Objectives.

This comparison shows that the company is only slightly aligned with what has been theorized in the academic field. Indeed, the MBO framework involves setting goals through a process that is both top-down and bottom-up to ensure the alignment of all workers.

This is not always the case in the company, especially with regard to long-term goals, which are often set by the ownership, briefly confronting only a few department heads. As a result, a fundamental characteristic of goals used by management by objectives (which as described in the literature review must comply with the 5 characteristics summarized by the acronym SMART), the fact of being Achievable, may be missing. Indeed, while it is true that short-term goals set by the company, using a dual top-down and bottom-up approach, are often successfully achieved, the same cannot be said, or at least happens less frequently, for long-term goals that are instead imposed by management without first checking their feasibility with the various departments.

Moreover, even the characteristic of being Measurable easily and using reliable data, is not always met. This is due to the fact that the data used by V&P are not always accurate and clean, but sometimes, especially in the case of long-standing projects, report inaccuracies or missing values, which affect the quality of measurement of the progress of certain objectives.

In contrast, the other qualities described by the acronym SMART, namely being Specific, Realistic, and Timed, are met, as the targets set are always related to a particular project and function and have specific deadlines, in order to meet the schedules offered to clients or suppliers; this is essential given that meeting timelines is a competitive feature in the general contractor industry, as well as a differentiating factor.

Another important framework, explored in depth in the literature review, which investigates the mechanisms by which management control can guide workers' behaviors to align them with long-term corporate goals, is the Simons' levers of control theory.

Applying this theory to V&P's management control system shows that the company uses only three of the four levers described by Simons. Indeed, within the company the belief system is well understood, because the company values, as well as the vision and mission, are well disseminated among employees, for example thanks to extra-ordinary meetings in which the latest changes taking place are discussed in depth and core values are repeated, as explained earlier. This is crucial to ensure employee motivation and to transfer purpose to them.

The boundary system, again used by Simons in his theory, is also well defined in V&P, but without being too rigid. As a matter of fact, the company leaves considerable freedom to its employees, in terms of work schedules and organization, while still defining ground rules to ensure its smooth and proper functioning. This is essential to make sure that employees are motivated in the workplace, so as to avoid behaviors such as quiet quitting, free riding or other opportunistic behaviors, which, in addition to dampening the office climate, would lead to a worsening of business performance.

The diagnostic system, the purpose of which is to ensure that key players are supported so as to carry out core activities, is also well developed in V&P. The company identifies top management, of course, and department heads as key players; and indeed, the main objective of the management control system is to provide as detailed and up-to-date information as possible to management, so that it can make informed decisions, including by confronting certain department heads. However, these mechanisms in place to support key actors act primarily vertically, in other words, they are structured to ensure that employees support their superiors almost exclusively, but they do not consider the possibility of developing cross-functional support and integration mechanisms.

Finally, unlike Simons's levers of control, no interactive system is structured to encourage learning and initiative for the development of new and improved procedures. This can be explained by the predominantly top-down and highly hierarchical management approach that precludes the contribution of lower levels in developing new procedures.

In conclusion, V&P applies a diagnostic system and non-interactive control, as do most of the companies analyzed by Simons in his 1995 study. Moreover, this is consistent with what Ponssard and Saulpic stated later. Indeed, the company, which uses a diagnostic management control system, grounds its analysis on generic indicators and tools, for instance the classic financial metrics (ROI, Gross Profit Margin, EBITDA margin, CF-ROI, etc...); whereas if it had used an interactive system it would have relied on more customized tools.

## **5. Conclusions and Recommendations**

In this chapter, the paper will summarize the key findings best detailed in the previous sections so that the most relevant implications for V&P can be drawn from them, particularly in terms of the firm's economic performance, since, given the company's short history, such data appear to be the only reliable means of comparison for drawing conclusions about the management of the firm itself. In particular, the analysis of the main implications will focus on how the management control system, and thus primarily the budgeting and cost accounting processes, helped top management to expand the company's activities and deal with the obstacles that stood in its way. Finally, the paper will conclude with some suggestions to further improve the contribution that management control system makes to the leadership, and to propose changes, including structural ones, which will facilitate the management and smooth operation of core businesses, further improving their performance, not only financial.

### **Key results and conclusions**

#### **A simple and primary management control system**

The first key finding from the assessments made so far within the paper is the simplicity of the management control system of V&P, which actually consists of elementary and not very elaborate processes. Indeed, this is based mostly on the practices of budgeting and cost accounting, which have long since been theorized by academics and adopted in the vast majority of businesses around the world.

It follows that the processes in place to date are neither particularly advanced nor even complex. In addition to this, the tools used by management control are very simple and not very personalized, resulting at times almost superficial in their analysis; in fact, the metrics mainly used by the system consist of financial or accounting indicators that in other structured companies represent only the starting point of similar analyses. As a result, V&P's management control system is characterized by simplicity and quickness in responding to changes. This is critically important to the company for two significant reasons.

First, given the functional organizational structure that favors the pursuit of efficiency in every department rather than structural flexibility, and thus gives little ability to coordinate the various functions, it has proven useful, if not indispensable, to adopt control systems that ensure an adequate level of flexibility, so as to have a certain balance between efficiency in the use of resources and speed in responding to changes in the market. In this way, as will be explained below, the company is able to limit its operating costs, but without losing its attractiveness from the customer's point of view thanks to its ability to quickly respond to unforeseen events and changes in buyers' preferences.

In addition to this, the good reputation V&P has managed to build over its years of operation, and the extensive network of suppliers with whom the company interfaces with excellent relationships, represent two of the company's critical strengths, as shown by the SWOT analysis. Consequently, a management control system that provides the responsiveness to customer and supplier needs quickly, while still meeting established deadlines, is critical to keeping these strengths solid, and consequently to consolidating its position in the market.

Finally, as already described by Porter's five forces framework, the industries in which V&P operates are characterized by few aspects that can differentiate the services offered; indeed, the general contractor services are often evaluated by potential clients only in terms of overall cost and time required to complete the projects. As a result, it is crucial for the company to be able to propose reduced timelines compared to its competitors in order to avoid falling into a price war, which would reduce its margins.

#### **A management control system overly focused on accounting metrics**

The second key finding from the paper is the excessive focus of the management control system, but also of corporate management, on financial and accounting metrics. Indeed, both budgeting and cost accounting activities do not consider alternative perspectives to the financial-economic one, and even top management seems to be mainly interested in these types of indicators.

As a matter of fact, the company rarely investigates and delves into other aspects of its management, whether external, such as the level of understanding of customer demands, that is, the level of service provided, or internal, such as the level of employee satisfaction or the ability to improve its processes. These dynamics, which have all been explored in depth in the academic literature, for example by Kaplan and Norton through the balanced scorecards, and which are to date considered to be of equal importance to the economic performances, if not even of greater relevance, as they represent the main drivers that determine them, are to date measured in almost all major large-scale companies. Consequently, if V&P aspires to expand its activities and consolidate its position, it will have to develop systems and KPIs to analyze these aspects as well.

However, for the time being, given the mediocre size and limited resources, both economic and human, it is not feasible, or at least a priority, to put such procedures in place. That is because the nature of the company's core businesses, requires a great deal of concentration on financial dynamics, since it is typical for the general contractor's business the necessity to anticipate part of the project costs in order to be able to start the work and thereby to then collect part of the revenues.

Consequently, not having a large supply of equity capital, or preferring to use it for other purposes, such as simple shareholder remuneration, it is essential for V&P to focus a large part of its resources and time on ensuring the financial and economic feasibility of operations

and verifying that they proceed according to timelines. Thus, the management control system focuses on internal dynamics, such as the financial and liquidity situation resulting from each project, and the progress of those activities; in addition, these analyses are grouped together in order to obtain information regarding the company as a whole.

This reasoning shows the importance of the Finance and Budgeting and Procurement functions in order to be able to analyze the marginality of projects, to define the most advantageous payment terms with suppliers, and to ensure the progress of operations in line with what has been planned.

### **Trade-off between the degree of detail and flexibility of the management control**

As a result of what has been said so far, one important trade-off that V&P must manage is the one between the simpler management control system, and the resulting rapidity that it infuses the company with, and the quality in terms of the level of detail and granularity of the economic-financial analyses carried out.

Indeed, it is not possible to employ a control system that allows responding to unforeseen events quickly and that is at the same time structured on quantitative analyses detailed to the penny, especially since these evaluations are put in place for each project. Thus, given the many projects active simultaneously and the company's limited resources, it is impossible to apply such an analysis. Consequently, as stated in the previous sections, the management of V&P has chosen to favor a more approximate but flexible approach.

For this reason, economic analyses are accurate only up to the operational level, i.e., up to the calculation of the gross margin or EBITDA of each project, but if we extend the analysis, considering also the impact of financial management and CAPEX, there are not, at the moment, any processes in place, which would allow us to derive accurate indicators per project. However, this problem does not exist when the analysis is generalized at the overall level for the whole company, because although there are no existing procedures for allocating financial costs and depreciation among different projects, this is not necessary if overall performance is to be evaluated.

Thus, in this way, V&P is able to quantify the operational profitability of individual investments, as well as assess the efficiency and effectiveness of overall financial management. The former is critically important for evaluating alternative investments or for comparing the expected marginality with the actual marginality of ongoing projects, deriving insights into the quality of their management, both in terms of their ability to capture revenues and in terms of cost control. The second aspect, on the other hand, is substantial for ensuring the company's solvency, thus its survival and the expeditious progress of operations. In this case, therefore, it is not necessary to assess financial management on a project-by-project basis, but it is sufficient to ensure that the company has access to the necessary financial resources.

So, in conclusion, the allocation of indirect operating costs alone, thanks to frameworks such as activity-based costing, and not that of administrative or financial costs, is a good intermediate solution that allows V&P to maintain enough flexibility while still providing sufficiently detailed information to top management and head of units on the status of projects and the company as a whole.

### **Applying more complex management control processes is challenging for SMEs**

Another key finding that can be deduced from the analyses and assessments made is, surely, the difficulty that small or medium-sized companies have in applying more complex and advanced management control processes or frameworks. This can be attributed to the fact that these companies often lack the resources and expertise to implement such processes, as well as the technological infrastructure to support and facilitate them. Indeed, V&P uses simple and sometimes superficial frameworks and methodologies that have long since been outdated or further integrated by leading firms in their industries.

For example, when thinking about expense control, the activities carried out in cost accounting, which only involve the allocation of operating costs, and do not consider finance charges or depreciation, are not sufficient to enable V&P's top management to keep costs under control accurately.

The firm's budgeting process is also not advanced; indeed, merely drafting a document that provides cash outflow forecasts, without this incorporating information and updates derived from other teams, but including only what the Finance & Budgeting function is aware of, makes these forecasts poorly detailed, and with an excessively low level of granularity. In addition, estimates of revenues, and related receipts, especially when referring to a specific project, also often need to be corrected, due to delays in customer payments or discounts offered relative to budgeted prices.

Finally, budgeted income statements and cash flow statements also frequently need to be updated with information coming in from other teams. It follows that V&P must periodically update its estimates of its profitability and future cash outflows or inflows. Although this is not a major problem with regard to its profit forecasts, it is more troublesome with regard to its estimates of future cash outflow. As a matter of fact, the solution that the company uses to obviate these periodic updates, which are typical of rolling budgeting, is to keep a level of cash on hand immediately ( either in current accounts or through direct lines of credit) as a safety stock, to reduce the risk of default but therefore generating a higher opportunity cost to the business.

Obviously, the company would have to keep a cash stockpile even if it used the more advanced budgeting and forecasting processes known to exist, however, the amount of these would be considerably less, due to reduced variability in estimates and related errors encountered.

### **The lack of a technology infrastructure to support the alignment**

In addition to this, not having advanced technologies to support more elaborate, 360-degree processes generates a variety of coordination problems between different business functions. Indeed, an important function of the management control system is to make sure that all employees are aligned with the company's strategic goals and are coordinated with each other.

This is not always the case, especially if the company does not have a management software that supports a continuous and integrated information flow between different departments. Fortunately, very often small or medium-sized companies are able to compensate for this lack of infrastructure and true processes that facilitate collaboration between different teams thanks to coordination through informal comparisons and direct supervision.

Indeed, these types of communication are facilitated by the small size of such enterprises, and thus the limited number of employees, and the informal atmosphere often found in these companies. As a result, SMEs tend not to develop coordination processes and often prove reluctant to invest in state-of-the-art ERP software, especially for a cost-cutting rationale, as happened with V&P.

But if the company aims to grow, expanding its business, it will need to hire more employees and manage processes that will gradually become more and more complex; as a result, it is necessary for these firms to invest time and resources in making sure that the different functions are aligned, developing well-defined coordination processes and adopting the necessary technological solutions to facilitate the smooth flow of these processes.

### **Practical implications for V&P**

In this section, the paper will analyze the main implications, past and projected for the future, which follow both from changes in the external environment and from the characteristics of V&P, and its management control system, which were described earlier. The goal is to understand how management control has contributed to the company's development, or how its weaknesses have slowed it down, but more importantly, how they may do so in the future. In this way, it will be possible to identify some improvements that can be proposed to the company's management to consolidate strengths and compensate for some weaknesses.

#### **V&P's ability to record growing revenues.**

The first implication, and the most obvious, that emerges when looking at the company's performance in recent years is, certainly, a trend of strong revenue growth that V&P has managed to seize since its early years of operation.

Certainly the heavy fiscal incentive program released by the Italian government helped to stimulate the demand, creating a vast number of potential clients that established companies

alone could not handle, consequently this represented a great opportunity for the company, both in terms of revenues and the possibility of building a solid reputation, to be exploited also in the future. This was further assisted by the ability of V&P, and other start-ups or SMEs, to respond more quickly and flexibly to changes in regulations and external industry dynamics.

Indeed, because the attractiveness of the industry is highly dependent on government incentives and current regulations, the sector is characterized by a climate of intense uncertainty, mainly due to the fear of a change in the legislation. For this reason, too, the company has chosen to evolve by adopting a simpler but quicker management control system, which enables it to handle the variability typical of its core businesses.

Finally, the excellent working relationship that the company has created with its suppliers and partners has proven to be crucial in managing this uncertainty. In fact, having a large network of suppliers has ensured that V&P has been able to implement changes to projects already underway, both in terms of delivery times and in terms of actual workmanship, as a result of changes requested by clients or imposed by changes in regulations, which have made them mandatory.

The network of has also proven to be very useful in stimulating the demand the company benefits from, thanks to the advertising spread by word of mouth.

#### **Implications for the future: the forecast of declining revenues**

As for future implications, however, it is necessary to analyze what are the expectations regarding external market dynamics for the upcoming years, so that V&P's strategic choices can be evaluated, and consequently the contribution that the management control system can have in achieving those goals. In this regard, the firm anticipates a sharp drop in demand, due to a reduction in government incentives that has drastically reduced the number of potential clients willing to carry out energetic upgrading work on residential or commercial properties.

Indeed, whereas in past years clients faced no out-of-pocket costs at all, the reduction in government bonuses has meant that, today, buyers have to incur an expense, although only of 30-35% of the total amount, greatly reducing the demand V&P gets for its core businesses.

This change in regulations has had a very strong impact on the industry, especially on companies of limited size and that had not planned their finances adequately; as a result, to date, many companies comparable to V&P are in a drastic position, very close to insolvency and with almost zero profitability. V&P, on the other hand, has managed to compensate, even if only partially, for the reduction in revenues, having expanded its business into new areas, such as photovoltaics or real estate, which have enabled it to exploit various synergies with its existing activities, and which seem to have more appealing growth prospects for the future.

This has been possible, first and foremost, because of the entrepreneurial vision of the ownership, which has enabled the company to anticipate future events, and consequently to prepare sufficiently in advance for the necessary changes. Indeed, in order to start operations in these new business areas, V&P had to develop new activities and processes, including within the management control system, as well as hire new resources that could implement them.

For example, budgeting and cost accounting activities were heavily implemented to be able to manage more complex projects, such as those related to photovoltaic plants or real estate investments. In fact, if before it was sufficient to roughly track the operating costs and revenues of each project, for these new activities a much more precise measurement and planning is required, and one that also considers the financial dynamics, given the significant amount of these projects, but especially considering that the general contractor activity requires excellent financial planning that ensures the feasibility, economic and monetary, of the project.

So, in conclusion, V&P's management control, while simple, proved sufficient to provide top management with the insights needed to anticipate market developments and thus to develop alternative business strategies. In addition, the flexibility typical of such a management control system allowed the company to constantly measure the operation and usefulness of newly introduced processes, to quantify the effectiveness and efficiency of operations, including for new industries, and to verify the alignment of new resources introduced to develop these new businesses.

### **Implications for the future: the need to cut operating costs**

V&P's constrained decision to expand its business into the photovoltaic and real estate sectors forced the company to put in place a more state-of-the-art budgeting and forecasting process that could be used to evaluate the various projects, both in terms of profitability and financial requirements, and to check their progress, quantifying any deviations, and taking corrective action if necessary. In parallel with this, the forecast of declining revenues forced management to look for ways to reduce costs, at least proportionally to the reduction in revenues, in order to maintain similar percentage margins as before.

The first expedient that has been adopted is to achieve a reduction in operating costs through balance and write-off agreements with suppliers. Clearly, these agreements do not always take place with cooperation between the parties; in fact, they often sour the relationship with the supplier, especially if there are not many profitable partnerships behind them.

Consequently, the management control system has proven to be of great use, especially through the practices carried out in cost accounting. Indeed, the tracking of costs and any deviations made it possible to identify the "best" suppliers, which were those that guaranteed

the execution of the work in the shortest time, at the lowest cost and of the highest level, and the "worst" ones, which were those that often lagged behind the expected delivery time or demanded the highest prices.

This type of analysis is the foundation of the supplier network selection and skimming process that the company initiated with the intent of reducing future costs, but also improving the level of service provided. Thus, once the suppliers to be excluded had been identified, it was possible to undertake numerous write-off agreements with them, including identifying instances of non-compliance on their part, thanks mainly to the confrontation with the procurement function, which could be leveraged to obtain a larger write-off.

In conclusion, then, the management control system, thanks mainly to cost accounting and variance analysis, made it possible to identify major inefficiencies in the supply network, and consequently to take corrective actions, such as terminating relations with these suppliers, in order to repair for the extra costs that V&P had faced.

In addition, again thanks to management control, it was possible to reconcile the quantification of the actual marginality of each project as a result of the agreements undertaken with suppliers, thus considering the reduction in operating costs. This allowed top management to more accurately assess the company's overall performance, as well as to obtain an estimate of the bargaining power the company has with suppliers.

#### **Implications for the future: the need to reduce financial burdens**

In addition to lowering operating costs, management control has helped lower another major cost item, financial expenses. Indeed, because of the limited availability of equity capital and the nature of V&P's core business, which involves having to frontload a portion of costs, the company must rely on borrowed capital and consequently must pay relatively high interest rates each year, especially given the risky nature of the company and its small size.

Another important component of financial expenses is the cost item of "loss on liquidation of credits," which is the difference between the nominal value of tax credits obtained from customers and the percentage value obtained from the sale of those receivables to a third party.

These financial costs will be limited as much as possible thanks to management control; actually, this flexible system quickly alerted management to the increasing impact that credit liquidation has on the overall costs.

As a result, it has been possible to undertake more advantageous arrangements for mass sales of large amounts with big lending institutions, banks or multinational organizations, which having huge taxable income (EBT) are willing to buy these "packages" even at a higher percentage of the face value compared to the market, as this allows them to significantly simplify the tax planning process.

In addition, the more advanced budgeting and forecasting procedures implemented by V&P allows them to have a good planning of the overall cash outflow in subsequent periods. On top of that, budgeting is used to set optimal payment terms with suppliers, further reducing financial requirements. As a result, the company has less need for debt capital, which significantly reduces the interest it pays each year, contributing to an increase in EBT.

Finally, budgeting and forecasting activities provide the data needed to implement good fiscal planning. Indeed, having a sufficiently accurate estimate of revenues, operating costs, and financial costs, at least for the coming year, it is possible to calculate the taxable amount and consequently keep aside the optimal amount of tax credits to offset against taxation.

This further contributes to the reduction of losses when settling credits. So, in conclusion, the management control system, and in particular the more advanced budgeting and forecasting processes, have made it possible to plan the company's cash outflows and fiscal management, in an optimal way, that is, in a way that reduces financial expenses. This, together with the reduction in operating costs, supported by the management control system through cost accounting, makes management control critical to achieving target margins, especially given the downward dynamics plaguing the industries of the company's main core businesses.

#### **Implications for the future: the need to expand the scope of the management control**

From the implications determined so far, it follows that after years of excellent performance, both in absolute value and from a growth standpoint, V&P faces a future characterized by reduced turnovers, which, however, will be offset by a commensurate reduction in costs.

Consequently, thanks to the management control practices put in place, the company will be able to ensure not only its survival, despite unfavorable market dynamics, but also the maintenance of good net results, both in terms of profits and free cash flow. This will enable the company to continue to pursue its goal of growth and consolidation of its position in the market, possibly expanding its market share, thanks to investments made in new related areas as well.

That is precisely why the evaluations and reasoning made so far point to an excessive focus of management control on the financial aspect; indeed, the growth of the company and the expansion of its core businesses have shown a lack of attention to at least three issues.

First, the customer perspective, which is considered at the strategic level but is not monitored at the operational level; there are in fact no procedures or metrics used by the management control system to assess the level of service provided and customer satisfaction.

In addition to this, employee alignment is also not quantified, although there are procedures used primarily by management control to ensure the spread of a good work climate, again the system does not provide for the evaluation of KPIs, quantitative or qualitative, that would allow for the periodic measurement of employee motivation.

Finally, internal processes are not evaluated for their operational efficiency; for instance, there are no measures that quantify, for example, the average delay of a task or the number of delays, as would be the case for a normal production process. Probably, this is determined by the fact that because the company offers a service, and therefore does not have a manufacturing process, it is the management's idea that it is not necessary to evaluate the performance of daily operations.

However, if V&P wants to expand its operations it will be necessary to develop control mechanisms that provide feedback to the management control regarding these aspects in order to further improve business performances. Some improvements along these lines will be proposed in the next section.

### **Over-reliance on top management decisions**

Finally, the last implication about V&P's management control system that is made clear from the paper, as well as from the internship conducted for the company, is the strong dependence, probably excessive, that the company has on the capabilities and visions of the ownership (and top management). So much so that the company rather than being a true autonomous entity is more likely to be a tool that management uses to materialize the business ideas of the shareholders.

Indeed, while it is true that the entrepreneurial initiatives of top management are fundamental in defining corporate strategy and thus long-term goals, it is also true that at V&P even the short- and medium-term goals are overly dependent on the choices of management, with little input from employees, especially those in more operational and non-administrative roles.

As a result, the company misses the opportunity to take advantage of the initiatives of those who are in daily contact with customers or suppliers; this, too, is an indicator of how little customer and process improvement perspectives are considered by top management.

In addition, this risks creating misalignment between departments, especially if individual objectives are not aligned with those of the company, which is difficult to assess given the lack of KPIs that measure employee motivation and alignment, just highlighted. Thus, the company is faced with a principal-agent problem (as defined by agency theory) that is addressed through the principles of management by objectives, which are also applied to the management control system.

In other words, while it is true that the long-term objectives are defined by top management and imposed on the functions using a top-down approach, it is also true that the shorter the time horizon, the greater the involvement of the functions in determining their own objectives. That is, medium-term goals are still defined by management, but first going through a discussion with the managers of the teams involved to check their feasibility, and short-term goals are defined through a dual top-down and bottom-up approach.

This provides greater freedom and a greater sense of contribution to employees, consequently reducing the risk of opportunistic behavior and contributing to cost reduction. Indeed, having a staff that is poorly motivated and poorly aligned with the company's goals would make them less efficient and less effective in their tasks, slowing down the progress of operations and thus leading to higher costs for the company, since, for example, new resources would have to be hired to perform the same number of activities, resulting in higher personnel costs.

### **Potential improvements for the management control system**

Within this section, the paper aims to propose some improvements that V&P could implement to its management control system, given the practices in place to date and the critical issues found during the internship, and previously analyzed. The goal of these possible improvements is thus to overcome these critical issues and resolve some of the company's weaknesses, which were highlighted by the SWOT analysis, so as to facilitate the company's future development and growth, thus achieving the strategic objectives determined by top management. Accordingly, in addition to the possible solutions identified by the paper, the crucial points for the successful implementation of these improvements will also be detailed in order to clearly identify future key success factors.

### **The implementation of an ERP software**

The first improvement, which is absolutely necessary as a result of the analyses and evaluations made so far, definitely consists of the possible implementation of an ERP (Enterprise Resources Planning) management software. In fact, if V&P wants to pursue its strategy of growth and expansion into new areas, it is essential that it has the necessary technological infrastructure to support operations and internal processes. More specifically, this software should incorporate at least the following four modules. First and foremost, a financial module, which would be properly integrated with the accounting management software already in use, so as to facilitate accounting and budget management activities. In addition to this, a financial module would make it easier to manage budget forecasting and planning, and thus to more fully define business objectives and estimates used by the budgeting process (Budgeted Income statement and cash flow statement); and to have more integrated cash flow and liquidity management among the different business functions.

The second indispensable module for V&P is definitely the project management module; since the company divides its activities according to related projects, consequently this software would be of great use in facilitating the management of more complex projects and monitoring their progress. More precisely, these modules make it possible to plan the different activities, monitor their timelines and costs, quantify their progress and, above all, to integrate all this information to the budgeting process, updating the estimates according to the deviations detected.

In addition, the third module needed would be supply chain management (SCM), which enables supplier network management, facilitating demand planning, supplier relationship management and supply chain optimization resulting in cost reduction.

Finally, a business intelligence module that allows for advanced reporting and detailed analysis tools could be of great use. Indeed, this software enables accurate monitoring of business performance and thus supports decision making through analysis of business data, creation of ad hoc reports and utilization of simulations.

Thus, the adoption of an ERP software would allow the creation of a complete and continuous flow of information between the different business functions, consequently improving their coordination, and reducing the time that each employee "wastes" to obtain the necessary intelligence. This results in a significant increase in operational efficiency and consequently lower operating costs for the company, which will certainly offset the costs required to implement the software itself in the long run. In addition, the adoption of such technology would solve the problem related to data quality; because thanks to the integration of the different functions, there will no longer be missing or duplicate data, which will allow for more detailed and accurate economic and financial analysis.

Clearly, for such a technological infrastructure to be successfully implemented and adopted by all employees, significant investments will be required, both in monetary terms and in terms of time and human resources. For this reason, it is of paramount importance to develop control mechanisms that ensure the proper use of this tool by all employees, in order to take full advantage of its enormous potential.

### **The employment of more advanced economic analysis**

Another improvement that V&P could make to its management control system is the introduction of more advanced and in-depth economic analyses, at least for the most relevant future projects. This would make it possible to provide more detailed information to top management about the performance of major projects, and consequently also about the overall performance of the company in broad strokes, with a limited increase in the time and resources needed to process such analyses, especially if supported by a management software such as the one just described.

For example, the first analysis that can be implemented to improve the level of detail of the economic evaluations made by V&P's management control system is, certainly, the breakdown of ROI, which is already calculated for each project to date. More precisely, this involves decomposing ROI into two main components the Net Profit Margin (NP Margin) and the Rotation of Invested Capital (ROT), as provided by DuPont's model. The first component, calculated as the ratio of net profit to total revenue, quantifies the overall profitability of the project and can in turn be detailed further by deriving:

- the gross margin, which quantifies efficiency in operations management and direct cost management, hence in the management of subcontractors as far as V&P is concerned.
- the operating margin, which considers all operating costs, including indirect costs, and thus can be used to quantify efficiency in the administration of a project (e.g. in terms of associated personnel costs, marketing costs, etc...)
- the net margin, which also considers nonoperating costs, e.g., finance charges and taxes, and thus can be used to assess the cash and fiscal management of a project.

Thus, the NP margin can be used by management control to evaluate the functions of procurement and operations, in terms of operating costs and supply chain management, finance and budgeting functions, in terms of the quality of financial planning and liquidity, and commercial and real estate functions in terms of their effectiveness in generating revenue.

The second component of the ROI decomposition is ROT, calculated as the ratio of revenue to net invested capital, which quantifies the efficiency of the company in managing the assets dedicated to a project to generate revenue from it. ROT can be decomposed in turn into Return on Assets (ROA) and Financial Leverage. From this decomposition it is possible to quantify the level of debt resulting from a specific project, and consequently it is possible to assess the quality of financial management and cash flow planning done by the budgeting function. Thus overall, the second component of the breakdown can be used to assess the efficiency in resource management, financial management, and risk management of a project, or of the company as a whole.

Thus, applying the ROI decomposition through DuPont's model to the analyses already in place to date would allow V&P to obtain more in-depth information regarding the performance of each function by calculating the aforementioned subcomponents. As a result, it would be possible for top management to take more specific corrective actions. However, in order for this type of evaluation to be possible, it is necessary to have accurate and always up-to-date data in order to be able to calculate some of the sub-indicators into which ROI is broken down, especially if one wants to apply this analysis to a single project and not to the company as a whole. For example, although it is easy to calculate the NP margin of an individual project, it is equally complicated to calculate its ROT, since it is complex to accurately quantify the invested capital associated with it. For this reason, it again proves to be of great benefit to implement an ERP software to obtain such detailed necessary data.

In addition to ROI decomposition, the economic analyses already used by V&P's management control can be implemented through the use of more advanced quantitative analytical models, which would allow for more precise estimates in budgeting and forecasting processes.

For example, the sensitivity analysis that is already used today to assess the possible outcomes of relevant projects could be integrated using the probability theory, thanks to which an overall estimate of the average expected marginality could be obtained, weighted according to the probabilities of each scenario.

Parallel to this, optimization models subject to probability theory could be used to allow management to evaluate alternative investments depending on whether the company decides to be conservative or aggressive. For example, if management chooses a safer approach it should opt for an optimization model of the maximin type, with regard to profitability, that is, choosing those projects that provide the greatest profit in the worst case scenario, and a minimax type approach, with regard to financial requirements, that is, choosing those projects that require the least cash installment in the worst case scenario.

On the other hand, if the company were to decide to implement a more optimistic approach to the market, it would have to use an optimization method of the maximax type, for assessing profitability, thus choosing those projects that would confer the greatest profit in the best case scenario, and minimin, for assessing cash requirements, choosing those projects that require the least cash in, in the best case scenario.

In addition to this, the management control system could be implemented through the use of tools such as linear regression that would provide even more realistic estimates on which to structure the budgeting process. This would result in an analysis of variances that would be even more informative to management, as the target baseline on which these are calculated would be even more accurate, and as a result better-informed decisions could be made and more effective corrective actions implemented.

For example, linear regression could be used to estimate revenues for a project, deriving even more realistic estimates of the average price per square meter by considering not only the quality of the property, but also the area in which it is located, the type of housing, and other relevant factors. This would make it possible to obtain a more lifelike forecast of a project's revenues and thus more accurately assess the performance of the sales function and marketing campaigns in hindsight.

Thus, through the use of quantitative analytical models, the management control system could derive more in-depth analyses, and consequently would be able to better fulfill its function of informing top management about the performance of V&P and of each function. Clearly, however, if such advanced analyses are to be implemented, it is necessary for the company to have the data and the technology to process them (thus the usefulness of ERP

software again becomes apparent) and employees with the necessary skills to perform these analyses and to fully understand the results.

Finally, V&P's management control system could be further improved by more widely adopting cost allocation practices, such as Activity Based Costing (ABC), even for non-operating indirect costs, such as also for administrative costs (personnel and office costs), financial expenses, and depreciation and amortization. Indeed, as explained earlier, the latter are not allocated to individual projects because there is no cost driver that would allow them to be divided accurately. This makes cost accounting accurate only up to the operational level, or even at later levels but only for the company as a whole. Instead, with the adoption of these practices even for nonoperating indirect costs, it would be possible to quantify, not only gross, but also operating and net margins for each individual project.

In this way, the management control system could be used to assess, not only the quality of the operational management of each project, and thus the efficiency in the administration of operations, but also the financial and liquidity management, evaluating, for example, the financial charges associated with it or the loss from the liquidation of tax credits.

Again, it must be emphasized that this type of activity is particularly time consuming, given the vast number of projects being managed by the company, and the varied indirect cost items to be allocated; consequently, it is necessary to have accurate cost drivers available to allocate these expenses accurately and expeditiously. Consequently, the project management module of the ERP software would be of great use, as this allows resources and costs associated with multiple projects to be allocated in a short time. In addition, it is critical that this module be used in the best possible way and by personnel with the necessary skills, so that the analyses derived are correct and thus can bring informational value to management with regard to the management of indirect nonoperating and financial costs, and thus with regard to efficiency in the utilization of available resources and financial and fiscal planning.

### **Expanding the scope of the management control**

In order to further improve the management control system, it is necessary to broaden the perspectives through which it constantly monitors the company. Indeed, given the system's excessive focus on financial metrics, the management of the company turns out to be myopic to other dynamics that are equally fundamental.

First and foremost, it is crucial that management control also focuses on the customer perspective, that is, that it assesses the company's ability to create value for its customers by meeting their needs, measuring their satisfaction and perceived value. In this regard, non-financial KPIs could be introduced into management control, such as Customer Satisfaction (CSAT) or Net Promoter Score (NPS), which measure through scores provided directly by the clients their satisfaction and the likelihood that they will recommend the company to others. The goal of these metrics is to assess customer fulfillment and loyalty, so that insights can be

derived to improve the level of service provided, and consequently expand one's market share.

Another perspective that absolutely must be included in V&P's management control is that of internal processes, which assesses the quality and efficiency of internal operations with the goal of reducing costs and cycle times. In this regard, one could introduce KPIs such as the cycle time of each process and the lead time of a project, which measure the speed of execution of a single function or from the development to the delivery of a project.

Finally, the perspective of employees and learning is also equally important to evaluate. For only through the growth of human resources, and their skills, can the company sustain its long-term growth. For this reason, V&P should measure certain KPIs, such as Employee Satisfaction and Employee Turnover Rate, which quantify employee satisfaction and the resulting number of resignations. The goal of these indicators is to improve working conditions for workers and increase their satisfaction so that the company succeeds in retaining its talent.

Thus, the implementation of these three perspectives, integrated with the financial one, would enable management control to provide a more complete picture of the different factors that contribute to the efficiency and effectiveness of the company's management. This would make it possible to identify further opportunities for improvement with a greater level of detail.

### **Improvements in addressing employee motivation and alignment**

Again, with regard to worker motivation, this could be improved by more frequent use of also a bottom-up approach when setting goals, especially medium- to long-term goals. Indeed, as mentioned earlier, such goals are often imposed by top management with a top-down approach, neglecting any contributions from employees, and making them demotivated by a poor sense of contribution. Instead, by using more frequent confrontation with employees, it would be possible to spread a greater sense of involvement and usefulness to them, which would definitely improve their mood and motivation. This is followed by improved performances, both in terms of efficiency, and thus cost reduction, and effectiveness, and thus increased revenues.

In addition to this, the bottom-up approach in goal setting makes it possible to ensure their feasibility in the medium term. So much so that the greater the number of resources involved in the goal-setting stage, the easier it will be to anticipate possible future problems, especially operational ones, and consequently possible solutions. In this way the company can set realistic and achievable goals, which is not always the case nowadays.

Finally, to further improve the motivational aspect and alignment of employees, the management control system could introduce a system of remuneration through incentives, which is structured from the long-term corporate objectives, and which uses the KPIs, not

only financial, indicated above, to evaluate the performance of each worker. Here, too, it is necessary to emphasize the great contribution of the ERP software, which would make it possible to calculate the indicators accurately and quickly, perhaps even for each worker.

Clearly, the idea behind such a remuneration system is to increase the motivation of employees, through financial incentives, in order to improve their performance, and thus also the company's overall results. In addition to this, this would allow increasing the alignment and coordination of different functions; for since the KPIs on which the incentive system is structured are consistent with the corporate strategy, all teams will also be aligned with each other and with the strategy, since they will work "chasing" the target values for those indicators.

So, in conclusion, although it may seem that such a remuneration system would lead to higher personnel costs, and thus higher expenses for V&P, it is equally true that it would contribute to better operational performances. Indeed, such a system would allow for greater efficiency in processes and resource management, resulting in lower operating costs, and greater effectiveness, resulting in a higher level of service provided, and thus higher revenues; consequently, it would have a positive impact on the company's margins and profitability.

### **The impact of AI on management control**

Further improvements that can be made to the management control system certainly come from the application of artificial intelligence-based technologies. Indeed, these new tools make it possible to support and lighten the managers' task of assessing business performance trends. Artificial intelligence, however, is still not widely used, as it is a very advanced tool, and consequently onerous both in economic terms and in terms of the skills needed for the company to fully exploit it.

### **Potential Improvements for Cost Accounting**

Artificial Intelligence (AI) can have a profound impact on cost accounting, enhancing the efficiency of data collection and analysis processes, improving the accuracy of cost information, and supporting strategic decisions based on more reliable data. First and foremost, the use of AI allows for the automated gathering of data needed for cost accounting analysis, for example, through IoT (Internet of Things) sensors to capture information about the production process, or through integration with management software, where AI can automatically extract and analyze financial and operational data. This offers significant advantages in terms of efficiency, as it reduces the time that human resources dedicate to low-value activities, such as data entry, and improves the precision and accuracy of the data available to the company, and therefore the analyses used to support top management's decision-making.

Additionally, AI's ability to handle large volumes of cost data and apply advanced analysis techniques, using complex algorithms that require significant computational power, would enable cost controllers to more accurately identify patterns and anomalies in spending. This greatly assists management in understanding the company's cost structure and potential inefficiencies.

Furthermore, AI enables more precise and detailed allocation of indirect costs. By analyzing a larger volume of data, it is possible to identify more representative cost drivers. Additionally, AI can monitor in real-time the consumption of resources and the costs associated with each activity or product, enhancing the accuracy of cost allocations.

The automation of low-value tasks with AI also brings a significant advantage in terms of reducing human error. Automated processes and continuous oversight from AI can substantially reduce the risk of errors in cost accounting, eliminating human mistakes in calculating and allocating costs across different business areas.

Thus, AI can certainly be leveraged to provide strategic insights into the cost structure, enabling top management to make more informed decisions about product profitability, pricing strategies, or the need to reorganize internal processes to reduce costs. By providing and analyzing detailed data on production and distribution costs, AI can assist managers in identifying inefficiencies and operational strengths. Finally, AI can be used to improve the connection between cost accounting and budgeting by integrating historical cost data with future forecasts, thereby enhancing the accuracy of corporate budgets and providing a stronger basis for investment and planning decisions.

In conclusion, AI has the potential to revolutionize cost accounting by improving efficiency, accuracy, and transparency. Through automation, advanced analysis, and real-time monitoring, AI allows for more accurate and strategic management of business costs. This not only helps to reduce inefficiencies and waste but also enables better strategic planning and increased market competitiveness. However, the integration of AI requires technological investments and the development of adequate skills to fully realize its benefits.

### **Potential Improvements for Budgeting**

Just as in cost accounting, budgeting processes can also be significantly improved by the application of artificial intelligence. First, like cost accounting, budgeting processes can be automated, reducing the time and effort required to collect, consolidate, and analyze financial data, which would be automatically extracted from various management software. This allows Finance teams to focus on higher-value activities, such as interpreting results and formulating strategies.

Moreover, by using machine learning algorithms, AI can enhance the accuracy of budget forecasts by analyzing large volumes of historical and current data. This enables the identification of patterns, trends, and anomalies that may influence future projections. AI also allows for more accurate predictions by identifying external factors, such as economic conditions, market trends, or regulatory changes, which could impact future budgets. Additionally, it facilitates the execution of simulations of various economic or market scenarios, providing dynamic forecasts and improving the ability to plan realistic and adaptable budgets in response to the external environment.

AI can also be used to perform “what-if” simulations, assessing how changes in external or internal factors might influence the budget. This enables managers to better prepare for uncertain situations and to have contingency plans in place. For instance, AI can simulate economic crises or market shifts to evaluate how a change in demand or raw material prices might affect the budget or conduct stress tests to understand how a sudden increase in operating costs could impact liquidity and profitability.

Finally, AI facilitates the adoption of adaptive budgeting models, such as rolling budgets, where the budget is continuously updated based on newly available data. This model, made more feasible by AI’s automation and advanced analysis, allows for a constant alignment between the budget and operational reality.

In conclusion, the introduction of AI into budgeting improves its efficiency, accuracy, and flexibility at all stages of the process. It enables more informed decision-making, reduces the risk of errors, and allows for real-time budget adjustments. Additionally, AI supports predictive analysis and scenario simulations, which help anticipate changes and optimize resource management. However, to fully capitalize on AI in budgeting, a solid technological infrastructure and appropriate expertise are essential to interpret the results generated by AI systems.

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