



FROM RESOURCE RATIONALIZATION TO PERFORMANCE ENHANCEMENT: HOW BUDGETARY CONTROL CAN MAXIMIZE RESULTS IN THE ENERGY SECTOR ? CASE STUDY: DDAT (SONELGAZ)

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SUMMARY

This study aims to examine the impact of budgetary control on financial performance through a confirmatory research approach, utilizing a single case study within the National Company of Electricity and Gas (SONELGAZ), specifically in the Ain Temouchent Distribution Division (DDAT). The investigation is supported by a semi-structured interview with a responsible officer from the budget and management control department.

The findings indicate that budgetary control **actively contributes** to the rationalization of resource utilization within the organization; however, its overall contribution to performance enhancement **remains moderate**. Therefore, for its full potential to be realized, budgetary control must be reinforced by a **strategic framework** that is adopted and actively supported by senior management, ensuring sustainable financial performance.

Keywords: Budgetary control, financial performance, resource management,

JEL Classification: L25, L94, L95, M41



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INTRODUCTION

Budget management is a systematic process encompassing the planning, oversight, and control of an organization's financial resources. It serves as a cornerstone of organizational efficiency by ensuring the optimal allocation of fiscal assets to achieve strategic objectives. Through the formulation of budgets, organizations can accurately forecast revenues and expenditures, thereby facilitating more effective resource management and enabling informed strategic decision-making.

The critical importance of budget management resides in its capacity to directly influence organizational performance. An accurately constructed budget aligns operational activities with overarching corporate goals and provides a benchmark for assessing actual financial outcomes against projected figures. This control mechanism is vital for identifying deviations, understanding the underlying causes, and enabling managers to revise strategies accordingly, thus driving performance optimization.

A comprehensive understanding of forecasting and budgeting techniques is essential for devising effective budgets that cater to organizational needs. These techniques—whether quantitative, qualitative, or a combination of both—are instrumental in enhancing the precision of financial predictions, ultimately contributing to the enterprise's overall success. Mastery of these methods is therefore a crucial foundation for achieving sound budget management and fostering strategic organizational growth.

Given these considerations, the following question naturally arises:

« To what extent does budget management enable the optimization of public funds utilization and enhance performance within the DAAT (SONELGAZ)? »

In order to address this research question, we hypothesize that budget control—a fundamental component of the budgeting process—has a moderate effect on performance improvement and a significant impact on resource rationalization. This analysis adopts a confirmatory approach, based on a single case study supported by semi-structured interviews with a manager from the Budget and Management Control Department.

To structure this work, we will first present a review of the literature on budget management as a key concept. Subsequently, in the second section, we will explore a relevant budgetary tool—the budgetary control—and its relationship with organizational performance. Finally, to deepen our understanding of these relationships, we will introduce a case study focused on the Société Nationale de l'Électricité et du Gaz (SONELGAZ), specifically examining the impact of budget control on organizational performance within the Distribution Department of Ain Temouchent (DDAT).

1. LITERATURE REVIEW

1.1 BUDGET MANAGEMENT AS A TOLL FOR MANAGEMENT CONTROL

The theoretical underpinnings of management control rest on fundamental concepts that enable the assessment of an organization's performance. At the heart of these concepts is the idea that management control acts as a mechanism to ensure that an organization's resources are used in an efficient and effective manner to achieve its strategic objectives. This process involves planning, monitoring, and making adjustments to various organizational activities.

The primary function of management control is to evaluate and improve operational performance. This is accomplished through performance indicators that compare actual outcomes with budgeted targets. Such evaluations facilitate the identification of variances and underpin the formulation of corrective actions when necessary.

Furthermore, management control is not a standalone process; it is intrinsically linked to budget management. Budgets provide the framework within which performance is evaluated, establishing clear financial targets for each department. This interdependence indicates that modifications in budget management can directly influence performance outcomes, and vice versa.

1.1.1 DEFINITIONS

Budget management can be defined as a strategic tool that translates long-term organizational objectives into short-term operational plans, commonly referred to as budgets. This translation process is so fundamental that it is a core element in most definitions of budget management.

According to G. Depallens (1971), budget management can be defined as « *A systematic forecasting and control method based on budgets derived from a comprehensive plan that can cover a relatively long period and is broken down into action programs with nearer deadlines, each of which is determined in such a way as to be realistic and achievable* ».

P. Lauzel (1994) describes it as « *The translation of the operational program into a set of operating budgets and the monitoring of the degree of achievement of the corresponding forecasts* ».



J. Lochard (1998) further asserts that « *Budget management is a management approach that involves translating management decisions—taken jointly with responsible parties—into quantified action programs, commonly referred to as budgets* ».

For B. Doriath (2002), budget management « *Translates objectives into short-term action plans at each responsibility center level, detailing the means required to achieve these goals. It involves the annual preparation of budgets expressed in monetary terms, broken down month by month* ».

She added another definition (2008) « *A management approach characterized by articulating management's decisions, in collaboration with responsible parties, into detailed, quantifiable action programs referred to as budgets* ».

In essence, budget management is a comprehensive process comprising the planning, control, and evaluation of an organization's financial resources. It plays a crucial role in organizational governance by ensuring that resources are utilized efficiently to meet predetermined objectives. By integrating financial projections with ongoing adjustments, budget management enables companies to navigate a often unpredictable business environment and adapt to market realities.

The significance of this discipline lies in its capacity to align expenditures with strategic priorities. Through the establishment of clear budgets, organizations can better control costs and maximize profitability. The core objectives of budget management encompass the forecasting of revenues and expenses, the measurement of performance against established forecasts, and the identification of variances that may require corrective actions. Furthermore, this framework fosters a sense of shared responsibility across teams, promoting a culture of collective accountability.

1.1.2 BUDGET MANAGEMENT PROCESS

The budget management process is a structured sequence consisting of three main stages: *Forecasting, Budgeting, and Budget control*. Forecasting serves as the starting point, wherein managers analyze historical data and current trends to estimate future revenues and expenses. This step enables organizations to project into the future and set realistic financial targets. Accurate forecasts are fundamental, as they provide a solid foundation for developing the budget. I. de Kerviler, I. de Kerviler (2000).

Next comes budgeting, where these forecasts are translated into a concrete financial plan. This phase involves allocating resources across different activities and projects, all while considering the organization's strategic priorities. Effective budgeting ensures each department is equipped with the necessary funds to achieve its objectives, while adhering to overall financial constraints. J. Meyer (1970).

The final stage is budget control, which entails monitoring the execution of the budgets. Managers compare actual results against planned forecasts to identify variances. This continuous tracking is vital, as it facilitates real-time adjustments and prompt responses to changes. By integrating these three stages, organizations can ensure coherent and proactive financial management. M. Gervais (1994).

Ultimately, this budget management process lays the groundwork for understanding the various types of budgets—operational, financial, and strategic—that align with the organization's specific needs and objectives.

1.1.3 PERFORMANCE EVALUATION AND ADJUSTMENTS

Performance evaluation constitutes a key component of the budget management process, as it involves comparing actual results to initial forecasts. Analyzing variances allows managers to identify discrepancies between planned and realized outcomes. This assessment helps pinpoint areas requiring corrective measures, whether through reallocation of resources or strategic adjustments. This capacity for adaptation is essential for ensuring that the organization remains aligned with its objectives, even amidst unforeseen changes in the economic environment. Corrective actions extend beyond financial adjustments and may include operational modifications or revisions of strategic priorities. For instance, if a division underperforms and does not meet revenue expectations, it may be necessary to revise sales strategies or enhance staff training. In this way, performance evaluation becomes a dynamic tool, enabling the organization to respond swiftly to challenges and optimize operational efficiency.

However, this flexibility also presents challenges. Excessive adaptation to short-term results can undermine long-term strategic goals. This highlights the importance of maintaining a balance between regular performance assessments and preserving a long-term vision. While budget management provides tools for reacting to change, it is equally crucial to remain aware of the limitations of these adjustments. This balance warrants further exploration, particularly in the context of the challenges posed by budgetary control.

1.1.4 LIMITATIONS AND CHALLENGES OF BUDGET MANAGEMENT

The limitations and challenges associated with budget management are critical to consider in order to understand how this practice can sometimes hinder an organization's potential. One notable constraint is the rigidity of traditional budgeting methods, which can impede prompt responses to market fluctuations. Budgeting processes



are often lengthy and may become outdated in the face of rapidly evolving economic dynamics.



This can lead to decisions based on obsolete data, making it difficult for organizations to adapt swiftly to emerging opportunities, another significant challenge is the tendency to prioritize short-term results. Under pressure to deliver immediate outcomes, managers may be tempted to adopt strategies that maximize short-term profits at the expense of long-term sustainability. Such behavior can stifle innovation, as resources are often allocated to low-risk, quick-return projects, thereby sidelining more ambitious initiatives that could yield substantial long-term benefits. B. Doriath (2008).

2. BUDGET CONTROL AS A LEVER FOR IMPROVED PERFORMANCE

2.1 PERFORMANCE MANAGEMENT

Organizational performance is a fundamental concept in management sciences, widely recognized for its role in measuring the success and sustainability of a company or institution. It is generally defined as an organization's ability to meet its strategic, operational, financial, and social objectives while optimizing resource utilization. The term "performance," deriving from the Latin "performare," signifies achievement or realization; however, contemporary interpretations extend beyond this simple notion to encompass a multi-dimensional set of interconnected facets.

Since the advent of modern management thinking, numerous approaches and interpretations of performance have emerged. Traditionally, it can be measured through conventional financial indicators such as turnover, profitability, or capital valuation, which assess the economic yield of the organization. Nevertheless, this unidimensional view has proven insufficient to grasp the complexity and diversity of organizational challenges. In an increasingly globalized, competitive, and socially responsible environment, the concept of performance has broadened to incorporate non-financial dimensions such as human resource management, quality, innovation, customer satisfaction, and environmental impact.

The conception of performance rests on three main criteria: **effectiveness** (the ability to achieve set objectives), **efficiency** (performance measured in terms of resources mobilized relative to results obtained), and **relevance** (alignment between actions taken and strategic priorities).

Performance manifests at multiple levels—including strategic, operational, social, economic, and societal—making it clear that it cannot be reduced solely to financial metrics. Instead, performance should be viewed as a dynamic system, integrating diverse levers within a holistic framework.

Performance management is thus defined as a continuous process of coordination involving the dissemination, analysis, and adjustment of actions aimed at achieving strategic goals. This process relies on various tools such as transfer pricing, target costing, and variance analysis. These instruments facilitate monitoring, controlling, and refining operational and strategic management, ultimately helping optimize the organization's overall performance. B. Doriath (2008).

The formalization of performance indicators is essential for quantifying and guiding actions. These indicators must adhere to the SMART principles (Specific, Measurable, Achievable, Realistic, Time-bound). The process of identifying relevant indicators begins with clarifying the organization's mission, isolating its key points, and evaluating critical elements that require close monitoring. Designing these indicators involves a degree of creativity to ensure they are aligned with the mission and strategy, while remaining compatible with management control processes. P. Voyer (2006).

Financial performance, considered a key indicator of an organization's financial health, is typically evaluated through various ratios such as economic profit, financial return on investment (ROI), operational profitability, and Economic Value Added (EVA). These metrics assess the organization's ability to generate profit, optimize resource use, and create value for shareholders. A. Rivet (2003).

However, the measurement of financial performance has inherent limitations. It captures only one dimension of overall performance, often neglecting non-financial aspects like social responsibility or environmental sustainability. Moreover, these indicators tend to focus on short-term results and may provide a partial and limited view of true performance. Their interpretation can also be complex and challenging for some stakeholders, impacting their reliability and usefulness.

2.2 BUDGETARY CONTROL: VARIANCE ANALYSIS AND INTERPRETATION

Budgetary control is a fundamental tool for assessing financial performance. It enables the comparison of actual results with forecasts, decomposes variances into significant sub-variances, and helps identify root causes for targeted corrective actions. The decomposition of variances offers a precise view of deviations, thereby facilitating informed decision-making.

2.2.1 VARIANCES: PRINCIPLES OF DEVELOPMENT, DECOMPOSITION AND LIMITATIONS

According to Doriath (2008), "A variance is the difference between a reference data point and an observed data point."



Hence, a variance represents the difference between actual results and those projected in the budget. Variances



can be expressed in monetary terms—for example, personnel costs—or in non-monetary terms, such as reject rates in a production process. The interpretation of this difference varies depending on its context: whether it pertains to revenues, costs, or margins, the impact on performance analysis will differ accordingly.

2.2.1.1 PRINCIPLES OF VARIANCE CALCULATION

The identification of variances responds to the operational monitoring needs of management entities; it is inherently contingent. It is impossible to exhaustively predefine all possible deviations. C.Alazard, S.Separi (2013). Below are some conventional principles related to the construction of variances:

- **Principle 1:**

A variance reflects the difference between the observed value of the analyzed data and a standard (or reference) value. Typically, the observed value corresponds to the actual figure reported in managerial accounting, while the reference value may be a forecasted, standardized, or budgeted figure. When comparing two successive periods, the reference value usually corresponds to the earlier period.

- **Principle 2:**

A variance is characterized by a sign (+ or -), a magnitude, and an orientation (favorable or unfavorable). Importantly, the same algebraic value of a variance can have different implications depending on whether it relates to costs (expenses) or revenues (income).

- **Principle 3:**

Analysis of a variance always aims to attribute the effect to a single component through the calculation of sub-variances. For a given data point with n components, n separate sub-variances should be computed to isolate individual influences.

- **Principle 4:**

In the case of standard cost variance analysis, any calculation involving the multiplication of a monetary amount (such as unit price) by a volume indicator (such as quantity produced or sold) should be split into two parts: one analyzing price variance and the other analyzing volume variance. This distinction allows for a more precise understanding of the differences between planned and actual costs or revenues.

2.2.2 LIMITATIONS OF VARIANCE ANALYSIS

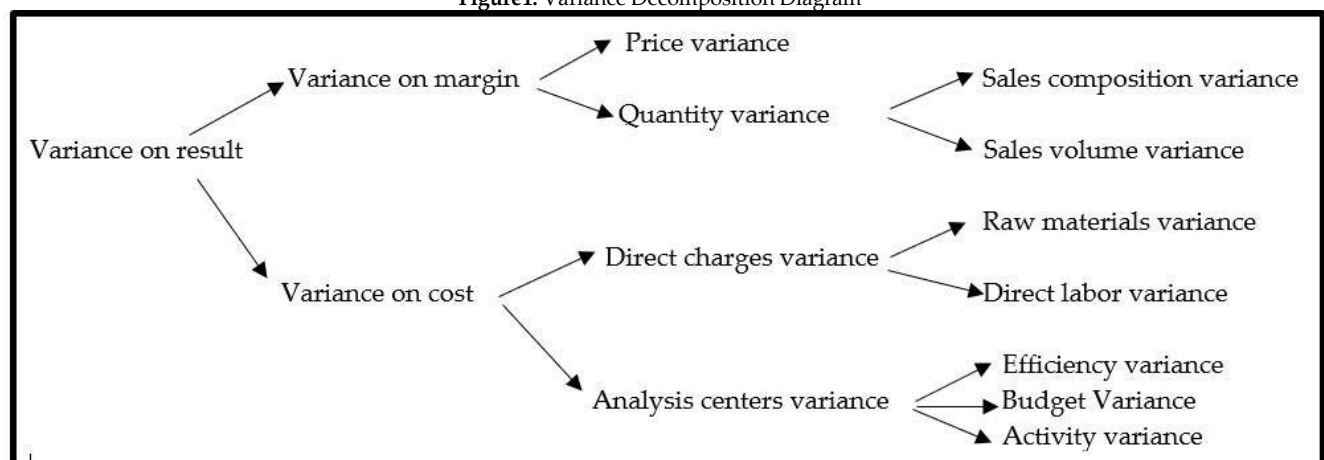
Despite its widespread use, variance analysis faces several criticisms regarding its flexibility and adaptability:

- It encourages a rigid management approach, where fixed standard costs are emphasized. In a competitive environment, rivals may have already optimized their costs through innovation.
- It tends to focus narrowly on achieving target values, which can create a stressful environment and potentially demotivate personnel. A.Bernard, N.Gerald (2011).
- The reliance on variances can also lead to manipulations or distortions of figures, risking loss of reliability.

2.2.3 DECOMPOSITION OF VARIANCE

Variance analysis hinges on the decomposition of total variances into simpler sub-variances (see Figure 01). This breakdown is essential for identifying the root causes of deviations and understanding their impact. Proper decomposition allows management to pinpoint specific issues and devise effective corrective measures, ultimately enabling a more accurate evaluation of organizational performance.

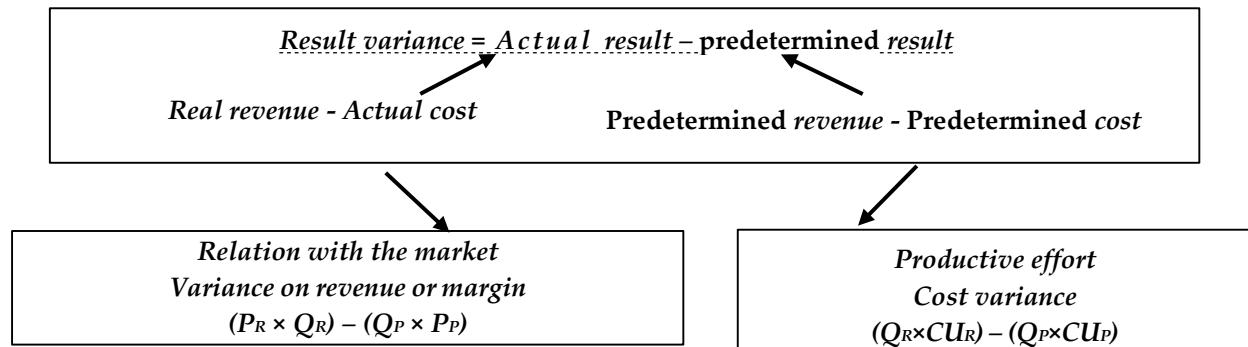
Figure1: Variance Decomposition Diagram



Source : Adapted from B.Doriah, C.Goujet, *Gestion prévisionnelle et mesure de la performance*, édition DUNOD, Paris, 2002. P250 .

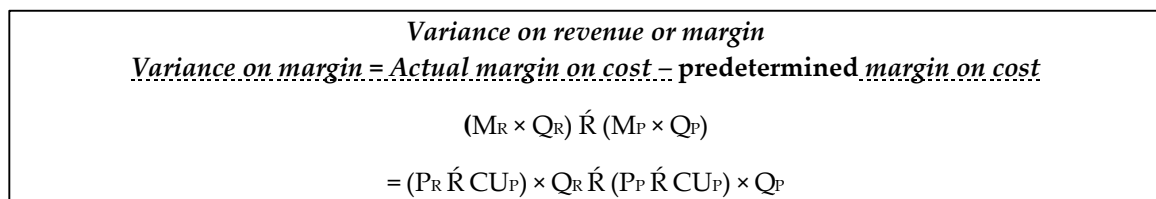


2.2.2.1 RESULT VARIANCE: Defined as the difference between the actual outcome and the predetermined reference result. The result variance measures deviations in overall performance.



a) REVENUE VARIANCE:

The variance in margin is the difference between the actual margin on cost (predetermined) and the planned margin on cost (predetermined).

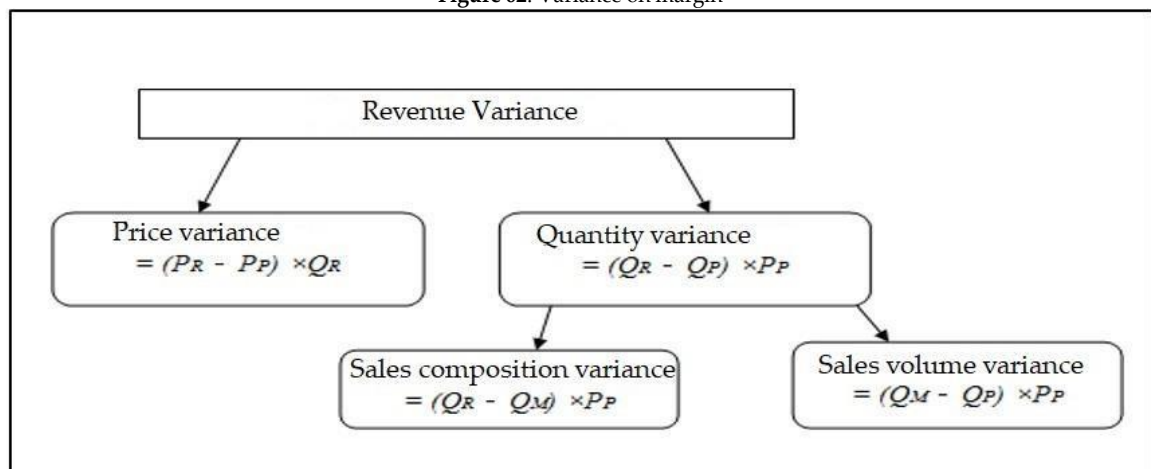


Let:

- **Q:** Quantity sold,
- **C_UP:** Predetermined unit cost,
- **P:** Unit sale price,
- **M:** Unit margin based on predetermined cost,
- Indices **R** for actual and **P** for planned.

The unit margin based on the predetermined cost, whether actual or forecasted, is expressed as: **M=P-C_UP**

Figure 02: Variance on margin



Source: Adapted from B.DORIATH, *Contrôle de gestion en 20 fiches*, 5ème édition, DUNOD, Paris ,2008. P 77.

2.2.3 ANALYSIS, INTERPRETATION, AND CORRECTION OF VARIANCES

❖ **VARIANCE ANALYSIS**

According to P. Honorat (2008) variance analysis enables the identification of the sources of deviations between budgeted forecasts and actual outcomes, whether these deviations stem from external or internal factors within the responsibility center. These causes can be categorized as follows:

a) EXTERNAL CAUSES TO THE CENTER: These distort the meaning of the reference framework:

- An external situation that diverges from initial projections;
- Sudden changes in the working methods of clients or suppliers;



- Significant transformations in strategy since the formulation of forecasts.



b) INTERNAL CAUSES WITHIN THE CENTER:

- Excess expenses (resource utilization exceeds budgeted estimates);
- Divergence regarding the funds employed;
- Reduced activity due to a defect within the center;
- Or an excessively ambitious budget accepted reluctantly.

❖ INTERPRETATION OF VARIANCES

Interpreting the causes of variances involves investigating, within operational units, the origins of these deviations in relation to forecasts. At this stage, deviations are expressed both quantitatively and qualitatively. It is crucial that operational staff, who participated in the formulation of forecasts and possess the necessary technical expertise, are involved in this analysis process to ensure effective implementation of subsequent corrective measures.

B. grandguillot, F. grandguillot (2004)

❖ IMPLEMENTATION OF CORRECTIVE ACTIONS

According to B. doriah, C. goujet (2002), The primary goal of control is not to punish failure but to prevent its recurrence. It is important not to focus solely on unfavorable variances. Equally, favorable variances should be highlighted and analyzed, as they serve as motivational drivers. The corrective actions to be applied should be tailored according to the nature of the case.

Below is an illustrative table with some causes of variances and their corresponding corrective measures:

Table 01: Presentation of some causes of variances and their corrective actions

Causes of Variances	Types of Corrective Actions
Forecasting Deficiency Example: Overestimated market growth.	New Action: Launching an aggressive marketing campaign or adopting a new strategy—competitive differentiation of the product rather than price-based competition.
Permanent Environmental Changes Example: Legislation on reducing working hours.	Recruiting new personnel or motivating employees to increase productivity.
Human Error Example: Machine misalignment.	Accidental and non-innocent errors: no correction needed. Errors related to employee inexperience, such as a newly hired worker: provide training to these employees.
Material Error Example: High rejection rate linked to the raw material.	Switching suppliers.

Source : B.DORIAH, C.GOUJET, *Gestion prévisionnelle et mesure de la performance*, édition DUNOD, Paris, 202

After establishing the conceptual framework and examining the main concepts related to budget management and performance measurement, it becomes imperative to apply these theoretical principles in an empirical context.

3. EMPIRICAL STUDY: CASE OF DDAT

The primary objective of this section is to evaluate the impact of budget control on enhancing performance management within the Ain Témouchent Distribution Department (Sonelgaz).

To this end, this chapter is structured into three parts: the first provides an overview of the relevant organizational unit, with particular emphasis on the Finance and Accounting Department; the second briefly explores the role of management control within DDAT, along with its key tools for performance monitoring; and the third assesses the extent to which budgetary control influences the financial performance of DDAT.

This analysis is based on a comprehensive review of internal documents containing detailed information on budgets and actual performance data for the period **2019–2020**, aiming to identify and interpret budget variances.

3.1 PRESENTATION OF THE RESEARCH SETTING

This section introduces the Electric Power Distribution Department of Sonelgaz in Ain Témouchent, with a particular focus on the Finance and Accounting Division.

Sonelgaz, the national utility responsible for electricity and natural gas supply in Algeria, operates as a public industrial and commercial entity. It plays a crucial role in the generation, transmission, distribution, and



commercialization of energy at the national level. Its primary objective is to ensure a reliable public service while



complying with current legislation, coupled with ongoing internal reorganization efforts aimed at optimizing its organizational structure.

The local subsidiary, the West Electricity and Gas Distribution Company (SDO), manages the technical and commercial distribution of electricity and gas across **511 communes within 17 wilayas** in the northern and western regions, covering an area of approximately **933,362 square kilometers** and serving around **10 million** residents. The company maintains **113 customer** service points, comprising **63** for electricity, **46** for gas, and **19** dedicated to gas operations.

3.1.1 THE AIN TÉMOUCHENT DISTRIBUTION DEPARTMENT (DDAT)

Under the authority of the West Distribution Company (SDO), the DDAT is situated on the route of the Chaabat commune. It employs **315 staff members** from diverse professional backgrounds. The department oversees the technical and commercial management of the electricity and gas networks across the entire wilaya of Ain Témouchent.

The district encompasses the entire territory of Ain Témouchent and is subdivided into eight principal districts:

1. Ain Témouchent; 2. El Malah; 3. Ouled Kihal; 4. Hammam Bouhadjar; 5. Oulhaça; 6. Aghlal; 7. Chaabat; 8. Tamzoura.

The infrastructure includes six commercial agencies, three technical stations for electricity, and three for gas.

The Finance and Accounting Division is a strategic component of the department, responsible for overseeing the overall financial management, debt settlement procedures, and monthly revenue tracking. It manages quarterly and annual inventories, prepares the budget during the first half of the year, monitors cash flow, supervises payroll operations, and records all financial transactions in the accounting journal.

This division is organized into several specialized units: a Division Head of Finance and Accounting, the Financial Service, the Exploitation and Accounting Service (comprising a service chief, a study officer, and an accountant), and the Budget and Management Control Service.

3.1.1.2 STATUS OF ELECTRICAL AND GAS NETWORKS

The Ain Témouchent province benefits from diversified energy infrastructures, notably well-developed electrical and gas distribution networks:

- **ELECTRICAL NETWORKS**

Power supply is ensured through four substations and three mobile cabins, with a total capacity of **540 MW**, distributed as follows: two substations in Ain Témouchent (**160 MW**), one in Skhoune-Béni Safa (**40 MW**), one at L'Émir Abd El Kader (**240 MW**), one mobile cabin in Ain Témouchent (**20 MW**), and two mobile cabins in Tamazoura (**80 MW**). The average length of low and medium voltage networks reaches **3,778.3 km**, serving **119,183 consumers** in low tension and **513** in medium tension. The overall electrification connection rate is approximately **96%**.

- **GAS NETWORKS**

As of **December 31, 2019**, the natural gas coverage rate in Ain Témouchent province stood at **76.77%**, corresponding to **71,267** connected subscribers.

3.2 THE BUDGETARY FRAMEWORK OF DDAT

Following the presentation of the Ain Témouchent Distribution Department, the discussion now shifts to a crucial component of the budgetary framework: the budget itself. The subsequent analysis aims to elucidate the scope and intricacies of the budgeting process within the organization, with particular emphasis on the roles and tools relevant to the management controller.

3.2.1 THE ROLE AND TOOLS OF THE MANAGEMENT CONTROLLER WITHIN DDAT

Within DDAT, the management controller holds a pivotal position in the organizational structure. Their core responsibilities encompass a broad spectrum of activities, including:

- ✓ The development and implementation of management tools, monitoring procedures, and verification processes;
- ✓ The surveillance of deviations between forecasts and actual outcomes, coupled with the proposition of corrective actions;
- ✓ The preparation of investment budgets;
- ✓ The presentation of diagnostic reports via dashboards and comprehensive reporting mechanisms.



Management control instruments are of paramount importance in shaping the budgeting process and underpin strategic decision-making at both short and long-term horizons. The control and budgeting service primarily relies on two key tools:

❖ REPORTING

This communication mechanism constitutes an effective means of ensuring information flow from operational units up to the executive and strategic levels. Developed by the management controller, its objective is to provide senior management—including the Sonelgaz Board of Directors—with a synthesized overview of overall organizational performance. Two predominant forms of reporting are distinguished:

• MANAGEMENT REPORT

At each fiscal year-end, the SONELGAZ management controller is responsible for preparing a comprehensive report addressed to the Minister of Industry, senior management, and the Board of Directors. This report provides a detailed overview of the company's current status, offering an in-depth analysis of operational performance and organizational health. Additionally, it includes extensive information on the workforce, examining trends and changes relative to prior periods to inform strategic human resource planning.

• Operational Report

The management controller is also tasked with producing, at regular intervals—monthly, quarterly, or semi-annual—the organization's consolidated operational briefing. This report aims to provide a succinct yet comprehensive summary of the company's activities, facilitating ongoing monitoring and evaluation of operational efficiency.

• Dashboard

Typically compiled at the end of each month or upon request of the Distribution Director, the dashboard serves as a strategic tool for decision-making, coordination, and supervision of departmental activities. It functions both as a communication mechanism and a performance management instrument, enabling the management controller to draw attention to key issues within supervisory responsibilities. By highlighting priority areas and critical indicators, the dashboard supports immediate corrective actions and continuous improvement initiatives.

3.2.2 The Budgeting Process at SONELGAZ

DDAT primarily develops three types of budgets, each playing an essential role in activity management and control:

- **Sales Budget:** The Commercial Relations Division is tasked with preparing the sales budget. This process involves analyzing past sales data to establish realistic sales targets for forthcoming periods.
- **Investment Budget :** The investment budget plays a central role in future planning, ensuring an efficient and disciplined allocation of financial resources. Its primary purpose is to support sustainable development by financing strategic projects aimed at increasing operational capacity, enhancing organizational performance, and reinforcing competitiveness. The budgeting process for investments comprises eight sequential steps:

1. Identification of Investment Needs

Typically starting in October according to a strict timetable, this step is critical to ensure completion before the start of the fiscal year, thus preventing operational disruptions.

2. Data Collection and Analysis

Before drafting the budget, a detailed review of previous expenditures and forecasts for the upcoming year is conducted. This involves scrutinizing prior budgets, balance sheets, cash flow statements, and other financial statements to assess project progress, incurred expenses, and remaining funds. By July, each division manager receives a standardized form to accurately detail their actual needs. These forms are submitted to the management controller for meticulous review, ensuring the draft budget reflects specific requirements.

3. Forecasting

To project investment needs for year N+1, past two-year cumulative investments (years N and N-1) are considered, applying evaluation rates to estimate future requirements.

4. Project Prioritization and Scheduling

The management controller sorts and ranks projects based on their criticality, while also tracking ongoing projects initiated in previous years that remain incomplete. This step requires precise information regarding current projects requiring funding, as well as new initiatives to be launched.



5. Request for Program Authorization (PA)



Prepared by the management controller in early January, is based on a standardized form designated as X240. This document encompasses a comprehensive set of data, including:

- The nature of the operation: electricity (ELEC), gas (GAZ), or others;
- The location of execution; and planned duration for completion.

This form (X240) provides an overview of expenses incurred or pending settlement, miscellaneous invoices related to materials, and the status of associated financial commitments.

Expenses attributable to each project are computed using a specific formula that incorporates various financial and technical parameters as outlined below :

$$\text{The amount of the Program Authorization} = \text{Expenses of Year N-1} + \text{Probable Expenses of Year N+ (Forecasted Expenses for Year N+1)}$$

6. Budget Validation and Approval

Meetings are organized with higher management of the Western Distribution Region (RDO) to confirm overall investment allocations and formally approve the budget. These meetings enable discussion on immediate projects, deferrals, or justification requests.

7. Monitoring Expenses and Commitments

The management controller rigorously tracks expenditures, dividing them into two primary categories:

- ✓ Equipment expenses, including procurement and infrastructure upgrades;
- ✓ Replacement costs, involving repairs and renewal of obsolete or deteriorated equipment.

8. Budget Closure and Recommendations

The management controller conducts in-depth analyses to identify weaknesses or potential variances, and formulates recommendations to optimize budget implementation. These recommendations are communicated to senior management to support strategic and operational decision-making.

In practice, while some managers may consider these proposals, the final decisions typically rest with the RDO management. Such decisions can include the discontinuation of certain investments, the prioritization of specific projects, or the reduction of budgets allocated to particular initiatives, all aimed at better aligning the budget with organizational objectives and available resources.

Having outlined the various stages of the budgeting process, we now present the 2021 investment budget as follows:

Table 02: The 2021 Investment Budget in KDA (Thousands of Algerian Dinars).

Projects	Chapter /Article	Description	Requested Amount for 2021 (KDA)	Planned Amount for 2021 (KDA)
PPE	43	HTA Restructuring	34320,00	0,00
		Low Voltage (BT) Network Rehabilitation	2100,00	1400,00
		Creation of Low Voltage (BT) supply branch	16500,00	11000,00
		Creation of HTA/BT Substation	70000,00	62200,00
	71	Electrical Replacements	40000,00	29920,00
PPG	52	Extensions, Network Reinforcements, Gas	4500,00	0,00
	72	Gas Network Replacements	15185,00	15185,00
RCNE	62	RCN, Electrical, CD, Ain Témouchent	630000,00	210000,00
		Shadow zones (Electrification) CD, Ain	90000,00	90000,00
	63	RCN, Gas, CD, Ain Témouchent	520018,00	520000,00
		Shadow zones (Gas) CD, Ain Témouchent		
	81	Acquisition of Office Furniture and Equipment		
	84	Acquisition of Tools	2000,00	1000,00
	85	Acquisition of Miscellaneous Equipment	2000,00	1000,00
	91	Headquarters Extension Work		
	92	Rental Space Renovation	7000,00	3500,00
	93	CMT Center Renovation Work	6300,00	6000,00
TOTAL for Year 2021			1603758,00	1088540,00



Source: Internal Company Documentation.



Commentary :

The 2021 investment budget, systematically presented in a tabular format, provides a comprehensive overview of all projects by correlating each with its respective chapter and article numbers. Each investment initiative comprises specific financial amounts, which are established by the DDAT as budget requests, and the approved figures assigned by the West Distribution Manager. This dual approach ensures meticulous oversight of funding allocations and project prioritization.

❖ Cash Flow Budget

The cash flow budget represents the definitive financial plan that the DDAT is obligated to implement. It functions as an overarching summary that consolidates preceding budgets and reflects the net liquidity position—namely, the difference between inflows and outflows of cash related to operational charges and revenue streams derived from various sectoral budgets.

To streamline and optimize cash flow management, the DDAT leverages two technologically advanced solutions developed by ELIT, a subsidiary specialized in information and communication technologies tailored for the Sonelgaz group. The first system, “Maliya,” facilitates the centralization of group cash operations, aids in identifying financing needs, explores investment opportunities, and provides risk control measures to ensure financial stability.

The second tool, “GTC,” is dedicated to the management of collections, reconciliation with the Maliya system, and oversight of fiscal obligations. This system also handles anomaly detection—such as unpaid checks, erroneous transfers, or unrecognized transactions—and manages the overall treasury situation. Its functionalities include centralized cash stopping and the integration of external data files, enhancing overall financial control.

The DDAT develops the cash flow budget by integrating data from sales and investment budgets, with inputs coordinated across multiple departments. Commercial and management control units input data through integrated software platforms— notably “CRMS”—which records collections, gas and electricity consumption, and subscriber details. Subsequently, the accounting department processes this information using “Hissab,” a software that generates trial balances and general ledgers, thereby ensuring the reliability of the data used to formulate the cash flow forecast.

3.3 MONITORING BUDGET DEVIATIONS: A KEY DRIVER OF FINANCIAL PERFORMANCE IMPROVEMENT

Effective budget control, grounded in monthly analyses of deviations between actual results and forecasts, is essential for evaluating whether the DDAT’s financial objectives are being met. This process serves as a pivotal mechanism for continuous performance enhancement within the organization.

3.3.1 ANALYSIS OF SALES BUDGET VARIANCES FOR DDAT IN 2019 AND 2020

The tables presented below provide detailed forecasts and actual figures for revenues, focusing specifically on electricity sales, for the years 2019 and 2020. Comparing these data points allows for a detailed examination of variances, thereby facilitating a deeper understanding of operational performance and informing future budgeting strategies.

Table 03: Sales Budget for the Fiscal Years 2019-2020 in Billion Algerian Dinars (MDA).

	Electricity	Forecast Unit Price 2019	Forecast Quantity 2019	Forecast Revenue 2019	Actual Unit Price 2019	Actual Quantity 2019	Actual Revenue 2019	Achievement Rate
2019	LV	4,634	314,63	1 458,01	4,573	311,05	1 422,42	98%
	MV	4,073	126,45	515,03	3,877	163,87	635,32	123%
	HV	2,426	449,51	1 090,51	2,425	430,92	1044,97	96%
	Total de la prévision du CA			3 063,55	Total de la réalisation du CA		3 102,71	101 %

2020	LV	4,550	309,22	1 406,94	4,527	318,87	1 443,54	103%
	MV	3,0805	247,59	762,71	3,759	212,55	798,96	105%
	HV	2,405	424,85	1 021,77	2,374	404,06	959,23	94%



		Forecasted Total Revenue	3 191,42	Actual Total Revenue	3 201,73	100,3%
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Source: Established by the author based on internal company documents.



❖ Calculation of the Global Revenue Variance (2019)

$$\text{Global Revenue Variance} = \text{Actual Total Revenue} - \text{Forecasted Total Revenue}$$

$$\text{Global revenue variance} = 3\,102,71 - 3\,063,56 = \mathbf{39.15\,MDA}$$

Breakdown of the Global Revenue Variance:

Electricity (Low Voltage):

$$\text{Revenue Variance} = (\text{PR} \times \text{QR}) - (\text{PP} \times \text{QP})$$

$$\text{Revenue Variance} = (4.573 \times 311.05) - (4.634 \times 314.63)$$

$$= \mathbf{-35.56\,MDA}$$

Electricity (Medium Voltage):

$$\text{Revenue Variance} = (\text{PR} \times \text{QR}) - (\text{PP} \times \text{QP})$$

$$\text{Revenue Variance} = (3.877 \times 163.87) -$$

$$(4.073 \times 126.45)$$

$$= \mathbf{120.30\,MDA}$$

Electricity (High Voltage):

$$\text{Revenue Variance} = (\text{PR} \times \text{QR}) - (\text{PP} \times \text{QP})$$

$$\text{Revenue Variance} = (2.425 \times 430.92) -$$

$$(2.426 \times 449.51)$$

$$= \mathbf{-45.53\,MDA}$$

Decomposition of the Revenue Variance:

$$\text{Price variance} = (\text{PR} - \text{PP}) \times \text{QR}$$

$$\text{Price variance} = (4.573 - 4.634) \times 311.05$$

$$= \mathbf{-18.97\,MDA}$$

$$\text{Quantity variance} = (\text{QR} - \text{QP}) \times \text{PP}$$

$$\text{Quantity variance} = (311.05 - 314.63) \times 4.634$$

$$= \mathbf{-16.58\,MDA}$$

Decomposition of the Revenue Variance:

$$\text{Price variance} = (\text{PR} - \text{PP}) \times \text{QR}$$

$$\text{Price variance} = (3.877 - 4.073) \times 163.87$$

$$= \mathbf{-32.11\,MDA}$$

$$\text{Quantity variance} = (\text{QR} - \text{QP}) \times \text{PP}$$

$$\text{Quantity variance} = (163.87 - 126.45) \times 4.073$$

$$= \mathbf{152.41\,MDA}$$

Decomposition of the Revenue Variance:

$$\text{Price variance} = (\text{PR} - \text{PP}) \times \text{QR}$$

$$\text{Price variance} = (2.425 - 2.426) \times 430.92$$

$$= \mathbf{-0.44\,MDA}$$

$$\text{Quantity variance} = (\text{QR} - \text{QP}) \times \text{PP}$$

$$\text{Quantity variance} = (430.92 - 449.51) \times 2.426$$

$$= \mathbf{-45.09\,MDA}$$

❖ Calculation of the Global Revenue Variance (2019)

$$\text{Global Revenue Variance} = \text{Actual Total Revenue} - \text{Forecasted Total Revenue}$$

$$\text{Global revenue variance} = 3\,201,73 - 3\,191,42 = \mathbf{10.31\,MDA}$$

Breakdown of the Global Revenue Variance:

Electricity (Low Voltage):

$$\text{Revenue Variance} = (\text{PR} \times \text{QR}) - (\text{PP} \times \text{QP})$$

$$\text{Revenue Variance} = (4.527 \times 318.87) - (4.550 \times 309.22)$$

$$= \mathbf{36.57\,MDA}$$

Electricity (Medium Voltage):

$$\text{Revenue Variance} = (\text{PR} \times \text{QR}) - (\text{PP} \times \text{QP})$$

$$\text{Revenue Variance} = (3.877 \times 163.87) - (4.073 \times 126.45)$$

$$\text{PP}$$

$$= \mathbf{120.30\,MDA}$$

Electricity (High Voltage):

$$\text{Revenue Variance} = (\text{PR} \times \text{QR}) - (\text{PP} \times \text{QP})$$

$$\text{Revenue Variance} = (2.425 \times 430.92) - (2.426 \times 449.51)$$

$$= \mathbf{-45.53\,MDA}$$

Decomposition of the Revenue Variance:

$$\text{Price variance} = (\text{PR} - \text{PP}) \times \text{QR}$$

$$\text{Price variance} = (4.527 - 4.550) \times 318.87$$

$$= \mathbf{-7.33\,MDA}$$

$$\text{Quantity variance} = (\text{QR} - \text{QP}) \times \text{PP}$$

$$\text{Quantity variance} = (318.87 - 309.22) \times 4.550$$

$$= \mathbf{43.91\,MDA}$$

Decomposition of the Revenue Variance:

$$\text{Price variance} = (\text{PR} - \text{PP}) \times \text{QR}$$

$$\text{Price variance} = (3.877 - 4.073) \times 163.87$$

$$= \mathbf{-32.11\,MDA}$$

$$\text{Quantity variance} = (\text{QR} - \text{QP}) \times$$

$$\text{Quantity variance} = (163.87 - 126.45) \times 4.073$$

$$= \mathbf{152.41\,MDA}$$

Decomposition of the Revenue Variance:

$$\text{Price variance} = (\text{PR} - \text{PP}) \times \text{QR}$$

$$\text{Price variance} = (2.425 - 2.426) \times 430.92$$

$$= \mathbf{-0.44\,MDA}$$

$$\text{Quantity variance} = (\text{QR} - \text{QP}) \times \text{PP}$$

$$\text{Quantity variance} = (430.92 - 449.51) \times 2.426$$

$$= \mathbf{-45.09\,MDA}$$





Commentary :

2019 Performance Surpasses Expectations

The results for **2019** exceeded initial forecasts, marking a positive trend for DDAT. With a realization rate of **101%**, this performance reflects a growth of **39.15 million** Algerian Dinars (MDA) compared to projections, primarily driven by increased electricity sales volumes and higher prices.

Segment-wise Analysis:

- The **Low Voltage (LV)** segment recorded a negative variance of **35.56 MDA**, with a **98%** achievement rate, largely due to decreased sales volumes and declining unit prices.
- Conversely, the **Medium Voltage (MV)** segment demonstrated resilience, with an excess of **120.30 MDA**, reaching **123%** of the target, thanks to significant increases in distributed quantities.
- The **High Voltage (HV)** segment experienced a slight shortfall of **45.53 MDA**, achieving **96%**, mainly due to reduced volumes and average prices.

Context and Implications:

Despite segment-specific deviations, the overall result remains favorable for the company. The decline in the BT segment appears linked to an overall decrease in domestic consumption, possibly as an immediate consequence of the COVID-19 pandemic. The HT segment's downturn might indicate a slowdown in industrial activity, reflecting broader economic impacts.

The robust performance of the MT segment underscores SONEGAS's capacity to adapt, notably through effective management of medium voltage distribution, ensuring financial stability amid economic uncertainty.

These variances highlight how commercial performance is sensitive to sales dynamics and pricing strategies, emphasizing the importance of more vigilant management to better anticipate future fluctuations.

The comparison between sales forecasts for **2020** and actual results reveals a notably positive performance, with a realization rate of **100.3%** and a positive deviation of approximately **10.31 MDA**. This outcome confirms the company's resilience, with actual sales surpassing initial expectations, largely due to increased electricity consumption amid the **COVID-19 pandemic**.

Segment-wise Analysis:

- The **Low Voltage (BT)** segment posted an excess of **36.57 MDA**, with a **103%** achievement rate, primarily driven by higher sales volumes.
- The **Medium Voltage (MT)** segment showed an even stronger performance, with an excess of **36.27 MDA** and a **105%** achievement rate, mainly due to higher unit prices than initially estimated.
- The **High Voltage (HT)** segment, however, experienced a deficit of **62.53 MDA**, with a **94%** realization rate, attributable to decreases in both sales volumes and unit prices.

Underlying Factors:

Variations in prices may stem from tariff adjustments or billing errors, while volume discrepancies often relate to unexpected demand fluctuations, delays in connection operations, or unavoidable technical losses. Importantly, for both **2019 and 2020**, DDAT's forecasts consistently underestimated actual outcomes, underscoring the accuracy and reliability of the company's planning—initial underestimations likely reflecting prudent caution or greater-than-expected growth potential.

Analysis of Investment Budget Variances (2019–2020)

This section examines how planned investments compared to actual expenditures by the Distribution Department of Ain Témouchent during **2019 and 2020**. The analysis, based on **Table 04** (not shown here), presents initial forecasts versus realized investments in **Chapter 43**, measured in thousands of Algerian Dinars (KDA).



Table 04: Forecasts and Achievements of Chapter 43 for the Fiscal Years 2019 and 2020 in KDA.

Years	Forecasts	Achievements	Variance	Achievement Rate
2019	57047	39008	-18039	68,37%
2020	76 536	43290	-33246	56,56%
Total	133 583	82 298	-51 285	61,6%

Source: Established by the author based on internal company documents.

Commentary:

The analysis of investments carried out by the DDAT during the fiscal years **2019 and 2020** reveals an overall trend of underperformance relative to initial forecasts. In 2019, investment projections stood at **57,047 KDA**, but actual implementation only reached **39,008 KDA**, resulting in a negative variance of **18,039 KDA**.

This indicates a achievement rate of merely **68.37%**, implying that nearly one-third of the planned investments were not realized that year. Several factors may explain this situation, including delays in fund disbursement, operational constraints, or administrative and technical difficulties that hindered the effective implementation of projects.

In 2020, the situation became even more pronounced: despite a more ambitious forecast of **76,536 KDA**, actual achievements amounted to only **43,290 KDA**. This represents a substantial shortfall of **33,246 KDA**, with a achievement rate of just **56.56%**. This poor performance suggests that more than half of the anticipated funds were not spent or mobilized for the intended investments that year.

The exceptional circumstances caused by the **COVID-19 pandemic**, with its significant economic and logistical impacts, might have further exacerbated this situation.

In summary, combining both years, the total forecasted investments were **133,583 KDA**, but actual achievements reached only **82,298 KDA**, resulting in an overall shortfall of **51,285 KDA**. The global achievement rate is approximately **61.6%**, highlighting a notable under-execution of planned budgets.

This situation underscores the need for the DDAT to strengthen its monitoring and control mechanisms to better anticipate and address obstacles that hinder the achievement of set objectives. It also emphasizes the importance of adjusting investment planning to reflect realistic constraints and unforeseen factors, ensuring optimal utilization of public resources and improved implementation of infrastructure projects.

To illustrate this point further, a summary table (**Table 05**) will be presented, encompassing the investments realized and the variances observed relative to forecasts for **2020**, as follows:



Table 05: Progress Report on the Implementation — Quantitative Estimate Sheet for the 2020 Fiscal Year in DA.

N° Article	Désignation	Unité	Quantités			Prix Unitaire	Montants en Hors Taxes			
			Prévues	Réalisées	Ecart		Prévues	Réalisées	Plus Value	Moins Value
1	Armement NV	UN	1,00	0,00	-1,00	5000,00	5000,00	0,00	/	5000,00
2	Chaîne à 3 élé CTV 254	UN	3,00	0,00	-3,00	1000,00	3000,00	0,00	/	3000,00
3	Support Béton	UN	1,00	0,00	-1,00	5000,00	5000,00	0,00	/	5000,00
4	F/P Conducteur 3x93,3 mm ²	MI	12410,00	7829,00	-4581,00	1250,00	15512500,00	9786250,00	/	5726250,00
5	F/P Fil de Garde	MI	590,00	412,00	-178,00	1000,00	590000,00	412000,00	/	178000,00
6	F/P Support 106 BS 88 "G"	UN	5,00	5,00	0,00	220000,00	1100000,00	1100000,00	/	/
7	F/P Support 2x106 BS 88 "G" Jumelé	UN	1,00	1,00	0,00	880000,00	880000,00	880000,00	/	/
8	F/P Support 2x126 BS 77 "G"	UN	1,00	1,00	0,00	440000,00	440000,00	440000,00	/	/
9	F/P Support Béton 12/1000	UN	1,00	1,00	0,00	155000,00	155000,00	155000,00	/	/
10	F/P Support Béton 3X12/1000	UN	3,00	3,00	0,00	495000,00	1485000,00	1485000,00	/	/
11	F/P Support Béton 2X12/1000	UN	22,00	14,00	-8,00	310000,00	6820000,00	4340000,00	/	2480000,00
12	F/P Support Béton 2X12/630	UN	7,00	6,00	-1,00	270000,00	1890000,00	1620000,00	/	270000,00
13	F/P Support Béton 12/630	UN	18,00	18,00	0,00	135000,00	2430000,00	2430000,00	/	/
14	F/P Support Béton 12/400	UN	60,00	44,00	-16,00	105000,00	6300000,00	4620000,00	/	1680000,00
15	F/P Support 126 BS 77 "G"	UN	3,00	3,00	0,00	220000,00	660000,00	660000,00	/	/
TOTAUX							38275500,00	27928250,00	0,00	10347250,00

Source: Established by the author based on internal company documents.

Commentary:

A detailed analysis of the deviations observed in the table, as well as those depicted in the histogram, reveals a clear pattern: initial forecasts frequently exceeded the actual achievements, leading to negative variances. This situation primarily results from several specific factors directly linked to project execution phases and resource management practices.

Firstly, on-site adjustments were made during the implementation of projects, particularly concerning quantities. For example, certain items such as the **F/P Conducteur 3 x 93.3 mm²** and the **guard wire F/P** were reduced or modified to better reflect actual needs on the ground. These modifications aimed chiefly at cost rationalization and at avoiding unnecessary expenses, thereby fostering more efficient budget management.

Secondly, some components or equipment initially planned were either discarded or substituted. Examples include NV equipment, the three-element CTV 254 chain, and the concrete supports. These decisions were driven by technical or economic assessments, with the goal of adopting alternative solutions or eliminating items that had



become obsolete or redundant.



Thirdly, supply chain constraints and equipment availability issues significantly contributed to these discrepancies. Logistical challenges, especially in rural settings, along with supply chain disruptions, hindered timely deliveries and consequently limited the actualization of investments as originally scheduled.

It is crucial to underscore that budgetary control transcends simple comparisons between planned and actual expenditures. Rather, it plays a strategic role by facilitating early identification of cost overruns and operational inefficiencies, thereby providing vital insights for enhancing overall project performance.

Table 06: Cash Flow Budget for the Fiscal Years 2019 and 2020 in KDA

	Montant prévu 2019	Montant réalisé 2019	Ecart	Taux de Réalisation	Montant prévu 2020	Montant réalisé 2020	Ecart	Taux de Réalisation
Les encaissements	4680,5	5394,07	713,57	115,2%	5613,29	6028,47	415,18	107,4%
Ventes Elec et Gaz	4226,5	4560,08	333,58	107,9%	4833,68	5015,26	181,58	103,8%
Ventes (BT /BP)	1960,09	2047,99	87,9	104,5%	2170,87	2251,96	81,09	103,7%
Ventes (MT /MP)	672,11	791,35	119,24	117,7%	838,83	870,49	31,66	103,8%
Ventes (HT/HP)	1594,3	1720,74	126,44	107,9%	1823,98	1892,81	68,83	103,8%
TPR	76	89,25	13,25	117,4%	94,61	98,18	3,57	103,8%
Encaissement travaux	378	744,74	366,74	197,0%	685	915,03	230,03	133,6%
Les décaissements	5364,25	6100,7	736,45	113,7%	6362,32	6870,25	507,93	108,0%
Dépenses d'exploitation	5047,25	5355,96	308,71	106,1%	5677,32	5955,22	277,9	104,9%
Achats consommés	3384,09	3642,59	258,5	107,6%	3861,15	4012,68	151,53	103,9%
Les services	963,16	1034,37	71,21	107,4%	1096,43	1265,54	169,11	115,4%
Charges Personnel	700	679	-21	97,0%	719,74	677	-42,74	94,1%
Impôts et Taxes	-	-	-	-	-	-	-	-
Autres Charges	-	-	-	-	-	-	-	-
Dépenses d'investissement	317	744,74	427,74	234,9%	685	915,03	230,03	133,6%
Autofinancement	0	-308,35	-308,35	100%	0	-490,2	-490,2	0,0%
Solde de trésorerie (HT)	-683,75	-1014,98	-331,23	148,4%	-749,03	-1331,98	-582,95	177,8%
Agios sur découvert	-173,2	-192,65	-19,45	111,2%	-221,24	-218,38	2,86	98,7%
Solde de trésorerie initial	-1501	-1427	74	95,1%	-2761,3	-1569,7	1191,6	56,8%
Solde de trésorerie final	-2357,95	-2634,63	-276,68	111,7%	-3731,57	-3120,06	611,51	83,6%

Source: Established by the author based on internal company documents.

Commentary:

A thorough analysis of the DDAT's cash flow budget for **the year 2019** reveals significant discrepancies between initial forecasts and actual outcomes. Notably, the revenue realization rate surpassed expectations, reaching **115.2%**, corresponding to an overachievement of **713.57 million DA**. This favorable variance can be attributed to several key factors.



Firstly, revenues from electricity and gas sales amounted to **4,560.08 million DA**, representing a surplus of **333.58 million DA** relative to projections. This reflects a period of growth or improved collection efficiency. Secondly, reimbursable services experienced an increase of **13.25 million DA**, with a realization rate of **117.4%**, indicating efficient management and a rise in revenue-generating activities.

Furthermore, cash inflows from projects experienced an exceptional growth of **366.74 million DA**, with a realization rate of **197%**, indicative of an active project execution phase or extensive third-party service delivery.

On the expenditure side, the realization rate was also favorable at **113.7%**, with an excess of **736.45 million DA**. This increase primarily stems from higher procurement costs, totaling **3,642.59 million DA**, which equates to a positive variance of **258.5 million DZA**, largely driven by a growth in electricity and gas customers during 2019.

Moreover, service expenses increased by **71.21 million DA** in line with forecasts, while personnel costs slightly decreased by **21.00 million DA**, achieving a **97%** realization rate. Significant growth was also observed in investments, with a variance of **427.74 million DA**, corresponding to a realization rate of **234.9%**, reflecting intensified resource mobilization for large-scale projects.

However, despite these achievements, the year-end cash balance registers a deficit of **2,634.63 million DA**. This unfavorable variance of **276.68 million DA**, with a realization rate of **111.7%**, is mainly due to self-financing of investments, which, while supporting growth, also contributes to liquidity depletion. Additionally, interest charges related to overdraft facilities, totaling **192.65 million DA**, weighed heavily on the final balance, emphasizing the need to optimize cash management to reduce financial costs.

In summary, although the DDAT's collection capacity exceeded forecasts, the management of disbursements—especially the final cash balance—exposes ongoing challenges in maintaining financial equilibrium and controlling cash flows. These results underscore the importance of proactive and strategic cash management to ensure financial stability and sustainable operations.

The analysis for **the year 2020** indicates that the projected end-of-year cash balance was overestimated compared to actuals. The realization rate stood at **83.6%**, corresponding to a positive variance of **611.51 million DA**. This positive discrepancy suggests an overestimation in the initial forecasts or the influence of unforeseen factors that affected liquidity availability at year-end.

Specifically, the total cash inflows in **2020** reached **6,028.47 million DA**, against an initial forecast of **5,613.29 million DA**—a favorable variance of **415.18 million DA**. This surplus is predominantly due to increased sales of electricity and natural gas, as well as cash receipts from project activities, all of which exceeded their projections.

More precisely, these variances are **181.58 million DA**, **3.57 million DA**, and **230.03 million DA** for each respective category. These positive results are likely attributable to heightened energy consumption, possibly intensified by the **COVID-19 pandemic**, which led to a significant increase in demand for electricity and natural gas for residential and industrial purposes.

Despite this positive performance in inflows, expenditures also grew, resulting in unfavorable but numerically positive variances totaling **507.93 million DA**, with a realization rate of **108%**. This expenditure increase can be explained by several factors. On the one hand, operating expenses rose by **5,955.22 million DA**, with a positive variance of **277.9 million DA**, achieving a realization rate of **104.9%**. This likely reflects higher costs associated with intensive operations, possibly driven by additional expenses related to **COVID-19** health measures and logistical adaptations.

On the other hand, investment expenditures grew with a variance of **230.03 million DZA** and a realization rate of **133.6%**, indicating intensified efforts in maintaining or launching new projects. This investment expansion may be linked to needs to upgrade the electrical infrastructure or modernize facilities in response to increased demand or strategic growth objectives.

It is noteworthy that, over the **2019–2020 period**, disbursements consistently exceeded inflows, both in forecasts and actuals. This pattern suggests two possible hypotheses: either the organization faces high investment costs that surpass its income streams, or it struggles with budgeting and expense control.

Finally, the exceptional situation in **2020**, marked by significantly increased revenues, primarily stems from the pandemic's impact, which led to heightened electricity and gas consumption. This unexpected surge in inflows improved the cash position, despite parallel increases in expenses, underscoring the critical importance of cautious



and strategic resource management amid uncertain conditions.



In conclusion, the DDAT's financial performance during this period reflects both an ability to capitalize on increased energy consumption and an imperative to strengthen management mechanisms—particularly in controlling costs and planning more effectively to ensure ongoing financial health and operational sustainability.

3.4 Contributions of Corrective Actions to the Improvement of Financial Performance

Following the analysis of the budget discrepancies identified within the DDAT, and to strengthen the conclusions of our research, a semi-structured interview was conducted with the head of the **Budget and Management Control department**.

The objective was to evaluate the impact of budget control on financial performance, particularly in the context of the corrective actions implemented.

This approach enabled us not only to gather relevant data but also to confront some hypotheses formulated within the framework of our research with real-world insights. After collecting and analyzing this information, we synthesized the responses as follows:

Q1: How are discrepancies between budget forecasts and actual achievements analyzed?

Once discrepancies are identified, a thorough analysis is conducted to understand their causes, regardless of their origin:

Internal causes:

- Control deficiencies, errors in project planning, or misallocation of resources;
- Inaccurate budget forecasts due to poor cost estimation of raw materials;
- Technical or organizational issues leading to delays in project execution;
- Defects related to monitoring energy consumption and operational costs.

External causes:

- Fluctuations in raw material prices driven by economic conditions;
- Regulatory changes affecting environmental or safety standards, resulting in additional costs or modifications to work methods;
- Variability in electricity and gas demand due to seasonal or economic factors.

Q2: What corrective actions are implemented following significant discrepancies?

SONELGAZ undertakes various measures to address deviations between forecasts and actual results. For the cash flow budget, forecasts are adjusted based on current requirements—for example, during the COVID-19 pandemic, some expenditures were reduced while others, such as sanitary and preventive measures, were added, based on available data. This facilitates the detection of significant gaps, specifically when discrepancies exceed predefined thresholds.

For investment budgets, adjustments are made through resource reallocation, goal modification, or project prioritization. Moreover, depending on the magnitude of these discrepancies, specific actions are taken to request budget extensions:

- When the ratio of actual to forecasted results is less than or equal to 10%, management undertakes a budget review within a specified timeframe and prepares a report justifying the discrepancy; this report is then submitted to the RDO for approval after review.
- When the ratio exceeds 10% but is less than 20%, management drafts an amendment document detailing the affected projects, amounts, invoices, and any modifications, which is subsequently submitted for validation.
- When the ratio is equal to or greater than 20%, a new submission is prepared, supported by justificatory documents, and submitted for approval.

Q3: Who decides on the corrective actions to be implemented?

Decisions are made collectively. The management control department proposes potential actions, but the final decision rests with the executive management, in consultation with the RDO and the operational manager of the distribution company (SDG).

Q4: Has SONELGAZ established a system of sanctions or rewards related to achieving budget objectives?

Yes, SONELGAZ has implemented a system of sanctions and rewards. This is notably reflected in performance-related bonuses awarded to employees and profit-sharing bonuses for the DDAT director, which can be incrementally increased based on achieving targets or decreased in case of poor results. This system aims to motivate employees



and foster accountability in budget management.

Q5: What is the overall impact of corrective actions on SONELGAZ's financial performance?



Corrective measures yield a measurable, albeit modest, short-term impact on SONELGAZ's financial performance. Primarily, they help control budget deviations and reduce unforeseen expenses, such as unexpected consumption increases, without significantly disrupting financial stability.

By promptly adjusting budgets—via revisions, amendments, or new submissions—SONELGAZ manages to:

- Minimize overruns that threaten profitability;
- Reallocate resources towards more profitable and urgent projects;
- Improve the accuracy of forecasts, thereby reducing underfunding risks;
- Better control costs, enhancing self-financing capacity and maintaining financial equilibrium.

Assessing the true impact on DDAT's financial performance requires a combination of financial and non-financial indicators for a comprehensive and reliable evaluation of these adjustments.

Q6: In your opinion, can budget control alone improve the company's financial performance?

No. Budget control is a useful tool but not sufficient on its own. It must be integrated into a comprehensive strategic approach, involving a strong managerial commitment and a culture of responsibility and continuous improvement within the organization.

• **Summary of the Interview with the Head of Budget and Management Control Department**

The interview reveals that the management control department of DDAT adopts a systematic and rigorous approach to analyzing discrepancies between forecasts and actual outcomes. The process begins with precise identification of variances, followed by a thorough investigation to determine their underlying causes, which may be internal or external. This clear delineation of causes enables the department to propose targeted actions tailored to each specific context.

Corrective measures are implemented in a structured manner, depending on the severity of the discrepancy. The gradation of interventions—from simple revisions to new submissions—demonstrates a cautious and prudent management of financial resources.

Decision-making is based on a collaborative governance framework, where management control proposes solutions, but ultimate approval resides with senior management, ensuring strategic consistency.

Furthermore, the implementation of a performance-based incentive system fosters employee accountability and reinforces a culture of effective management. This reflects the organization's commitment to fostering a positive dynamic aimed at achieving its financial objectives.

Regarding impact, budgetary control, complemented by these corrective measures, appears effective in managing discrepancies in the short term, reducing overruns, and enhancing financial stability.

However, this impact **remains limited**: it primarily functions as a **regulatory tool** rather than a catalyst for **profound transformation**.

Conclusion

This study confirms that budget management is a central element in improving financial performance, both in practical terms and within the broader academic discourse.

Theoretically, it reaffirms and even strengthens the validity of management control models that emphasize the strategic role of planning and budgeting as key levers for performance optimization. It also highlights the importance of integrating budgetary management within the overarching context of corporate governance, providing empirical insights that enrich existing literature in this area. In this regard, it contributes to advancing knowledge by demonstrating how the reliability of budget forecasts and their strategic use foster proactive, performance-oriented management.

Empirically, this research offers concrete, actionable guidance for industry professionals and stakeholders, particularly within the energy sector, as exemplified by SONELGAZ. An effectively managed forecasting system reduces uncertainty, better anticipates financial challenges, and guides decision-making—an invaluable asset for managerial practice.



The financial performance of DDAT, evidenced by the consistency between forecasts and results, underscores the tangible value of a rigorous budget control system. Consequently, this contribution enables managers to adopt or enhance their control tools, improve operational efficiency, and strengthen organizational financial stability. It also demonstrates that the disciplined application of budget management principles can produce tangible outcomes — improved profitability, cost control, and **optimal resource allocation**—affirming **the relevance of these practices within an industrial context**.

The management control department of DDAT appears to operate in a structured, disciplined, and responsive manner, with a strong capacity to analyze, adjust, and reinforce financial management. Nevertheless, reliance on reactive measures and the need for a broader strategic commitment suggest that, while effective in the short term, sustainable performance requires a deeper integration of these tools within a comprehensive managerial approach rooted in a culture of responsibility, anticipation, and continuous improvement.

In conclusion, budget control **actively contributes** to resource rationalization within the organization, yet its impact on enhancing performance **remains moderate**. Therefore, it must be **bolstered by a strategic direction** endorsed and supported by leadership to ensure sustainable financial performance.

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