

Measuring and improving strategic performance using the Balanced Scorecard (BSC) model for service organizations in the petroleum sector

Hamza Benamor ¹, Zine Younes ², Bachir Benamor ³

¹University of Eloued- Algeria. Email: hamza-benamor@univ-eloued.dz

² University of Eloued- Algeria. Email: zine-younes@univ-eloued.dz

³ University of Eloued- Algeria. Email: Bachir_benamor@univ-eloued.dz

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Abstract:

This study aimed to evaluate the impact of applying the balanced scorecard model to measure the strategic performance of oil companies – a case study of the Naftal Company in the Oued El Oued fuel district. We chose this particular company for two reasons: first, because it is among the Algerian companies active in the Algerian economy and contributes to its life cycle; and second, because of the scarcity of studies in the oil sector related to the balanced scorecard.

-The process of collecting information and data was carried out through a series of direct interviews that we conducted with department heads and some employees, as well as extracting a set of data and indicators from the company's documents. The research results were based on an analysis of the reality of the activities and practices carried out by the company. The results also showed the following:

-The company provides high-quality petroleum products due to the lack of competition in the market. The public petroleum services company, Naftal, monopolized the market until 2014. However, a significant decline has been observed in recent years, evident primarily in the customer focus, further demonstrated by the lack of new entrants despite its loyal customers. This is due to the company's focus on internal development through strategic plans for its internal operations, which has had a negative impact on its development and growth.

-The public petroleum services company set goals and work plans to achieve results and linked these to direct and indirect incentives.

The study confirmed that the more the balanced scorecard is implemented, the better the strategic performance assessment, contributing to its improvement. From this, we conclude that the Algerian petroleum company under study uses the four dimensions of the BSC and links them to the requirements of this model, primarily to measure strategic performance and ultimately improve it.

Keywords: Financial performance measurement, petroleum services; strategic performance; four dimensions.

Introduction

In light of the contemporary challenges facing economic institutions, it has now become imperative for institutions to be managed democratically. An objective dialogue takes place between managers and employees, regardless of their positions and administrative levels, to define the institution's vision and mission, as the starting point for determining the overall direction of the institution. This is based on a strategic analysis of the opportunities and threats that have arisen in the market, an analysis of internal strengths and weaknesses, and a basic dialogue about the overall goals and objectives to be achieved.

American thinker Tom Peters says, "What can be measured can be accomplished." Performance indicators play a very important role in providing senior management with a clear and accurate picture of what is happening within an organization, enabling them to make corrections and adjustments. Performance indicators are increasingly important through their impact on the organization's operations, increasing its capabilities and efficiency and enhancing its competitive advantage in the sector. In light of this trend, a set of models has emerged to help measure and evaluate strategic performance. These models link the organization's need to achieve its objectives of profitability and growth with the needs of stakeholders within the organization to develop and achieve their own interests. This represents a new development in the approach to control and performance evaluation. It is classified as one of the techniques of management accounting and strategic planning. It is considered a combination of a system for measuring aspects related to the organization's activity and environment by presenting what is known as the "Balanced Scorecard" (BSC). This method was founded by researchers Robert Kaplan and David Norton, and its idea was first discussed at Harvard University in 1992. This method is distinguished from other control and performance evaluation methods by its combination of performance measures. Financial (traditional accounting measures) and non-financial performance measures, which are easy to track and link to the organization's strategy. Through this article, we seek to answer the following main question:

What is the impact of implementing a balanced scorecard model to measure and improve the strategic performance of oil services companies?

Based on the problem of the study, we pose the following hypotheses, which are hypothetical answers to the question of the problem. They are:

- In general, the evaluation of strategic performance in oil services companies is based on financial performance;
- Oil services companies rely on financial and non-financial indicators to measure strategic performance;
- The successful adoption of a balanced scorecard model in oil services companies contributes effectively to improving the performance level of these companies.

Previous Studies:

1- A study (2015, Mohamed Amal El Deen Ahmed) entitled:

"Maximizing Strategic Performance Results: Adopting Balanced Scorecards and BI Tools"

In this study, the researcher relied on the Balanced Scorecard (BSC) as an applied tool for performance management and measurement, as well as effective data representations. This was achieved by identifying the most meaningful performance indicators, translating strategies into action, and applying the most appropriate business intelligence tools to measure the performance process. This is achieved by aligning the application of the BSC model with business intelligence (BI dashboards). The researcher focused on the latter, considering it one of the most important methods and tools for information investigation, which can be viewed from two perspectives. The first is the translation of human intelligence capabilities applied to business activities and the use of artificial intelligence tools to solve various business problems. The second perspective is the view of intelligence as centered on the information that encodes data and knowledge. The term "intelligent" is currently of paramount importance because it involves the continuous analysis of numerous data sets and the consideration of various alternatives to an organization's performance. The study concluded the following:

- Integrating the BSC model with Business Intelligence (BI) helped managers and decision-makers review past, present, and future performance results, identifying both opportunities and potential problems and developing appropriate measures.
- Using BI solutions (trend analysis, predictive analysis, customer data integration, and dashboards) to align specific business and strategic objectives with the BSC model to measure

performance. Deploying business intelligence (BI) is a solution for gathering the necessary data to move the business forward and achieve long-term goals and vision. ¹

2- A study (2017, Stephen Chimtengo) entitled: ²

"An evaluation of performance using the balanced scorecard model for the University of Malawi Polytechnic"

The aim of this article is to evaluate the performance of the University of Malawi Polytechnic using the balanced scorecard model. The researcher relied on a deductive approach and used a survey strategy to collect data. Data was collected through 120 questionnaires. Two sets of questionnaires were used: one for internal stakeholders, i.e., university officials, polytechnic administration, deans, department heads, and lecturers, and the other for external stakeholders, i.e., employers. The researcher relied on a 5-point Likert scale and used the nominal, ratio, and ordinal scales for measurement. The study concluded the following:

- Objective decisions must be made in a timely manner, and events must be accurately monitored and evaluated. Resources must also be used economically, and priority must be given to the institution's core business, which is student training. Performance objectives must be identified and improved through the effective application of the balanced scorecard. Once again, the institution must have a robust leverage system. This is used to fund the college's internal operations, innovation, and learning processes.

- Engaging industry and other stakeholders when designing and reviewing curricula will ensure that graduates are employed immediately upon graduation. The institution will also strengthen the monitoring and evaluation of staff to determine whether they are fully covering the curriculum through the type of examination it administers, ideal for the year level. It should be noted that while the study was based on the University of Malawi Polytechnic College, it can be generalized and applied to other higher education institutions in Malawi.

3- A study (2017 by Anil KSHATRIYA) entitled:

"STRATEGIC PERFORMANCE MEASUREMENT USING BALANCED SCORECARD:
A CASE OF MACHINE TOOL INDUSTRY"³

Through this article, the researchers attempted to extract and prepare a balanced scorecard (BSC) for machine tool manufacturing company "X". This was done to examine how the dynamic real-time monitoring of the BSC can help improve the company's performance, leading to a dynamic business model formula for the company to monitor results on a monthly basis at several levels (the overall organizational level, the departmental level, and the individual level). The study concluded the following:

Despite preparing the BSC to measure the performance of the company "X" under review, the role of matrices such as the BL score was also highlighted as an effective control element in measuring medium and large enterprises. This, in turn, led to an improvement in both the company's overall performance (EBITDA) and customer retention and satisfaction. The attrition rate also decreased, and a healthy competitive spirit emerged. The organization's entire operations, across all departments and levels, consistently achieves the highest BL score.

Implementing critical business processes such as Six Sigma, 5S, EJIT, and EJIT inventory monitoring, the current ratio, has helped align the organization with WCM practices and critical financial measures.

4- A study (2019) by Magdalena Bochenek entitled: ⁴

"BALANCED SCORECARD IN STRATEGIC MANAGEMENT PROCESS"

The study, through critical work and literary analysis, develops an original proposal for a balanced scorecard for a non-profit organization or unit, such as a community center in the Polish market. These are organizations whose activities are based on cooperation with the community, particularly at the local level. The researcher relied on formulating a simplified BSC model for the organization, presenting the conditions of the role performed in the economic unit, as well as supporting the

implementation and achievement of strategies in non-profit units. The study concluded the following:

- Proper implementation of the BSC in a community center will allow for the identification of five basic perspectives: recipients, employee engagement, financial processes, internal processes, and development. These are the key areas that community centers should focus on to ensure long-term and effective operation. The financial perspective is considered less important than beneficiaries and employee engagement. However, it must be remembered that without financial resources, community centers cannot exist. Their primary source of funding is state funds, some grants from the European Union, and various types of sponsors. Local investors are often willing supporters of culture and traditions. However, unit managers may seek additional funding sources.

5- A study (Jihan Wanas Abdul Aziz Musa, 2016) entitled:

"The Impact of Implementing the Balanced Scorecard on the Performance of Jordanian Telecom Companies"

The objectives of this study are to highlight the necessity and importance of applying modern methods for measuring the performance of Jordanian telecom companies. This is done by identifying the importance of using the Balanced Scorecard through its four-pronged methodology and mechanism, in order to improve performance indicators and build competitive capabilities.

The research methodology in this study relied on the use of the descriptive analytical approach, which attempts to describe and evaluate the reality of "the application of the balanced scorecard on the performance of Jordanian telecommunications companies" by relying on comparison, interpretation and evaluation in order to obtain meaningful generalizations that increase the knowledge balance on the subject; and the study community represents Jordanian telecommunications companies (Umniah, Zain, Orange), because the telecommunications sector in general is a pioneer in the application of modern technologies in its work; In order to achieve the objectives of the study, two questionnaires were designed and distributed to the study community, which consists of Jordanian telecommunications companies. The number of questionnaires distributed was (60), including (30) questionnaires for employees of Jordanian telecommunications companies, and (30) questionnaires for their customers. (60) questionnaires were returned, i.e. a return rate of (100%), and all of them were subjected to statistical analysis. The statistical program (SPSS) was used to analyze the results of this study, where percentages and frequencies were used to describe the study sample, while Spearman's correlation coefficient was used to examine the relationship between the independent and dependent variables.

The study concluded the following:

- There is a relationship between the implementation of the Balanced Scorecard and the performance of Jordanian telecommunications companies, from the perspectives of both employees and customers. Therefore, it was found that the implementation of the Balanced Scorecard is the most appropriate tool and criterion for measuring the performance of Jordanian telecommunications companies, as it takes into account financial and non-financial metrics such as customer service, internal operations, and growth.

- There is awareness and understanding among employees of Jordanian telecommunications companies regarding the implementation of the Balanced Scorecard, reflecting their desire to... In improving their performance measurement to achieve planned goals, it was also found that sample members, both employees and customers, support the Balanced Scorecard approach. Through a learning and growth perspective, Jordanian telecommunications companies can ensure their ability to innovate, a prerequisite for their long-term sustainability. From this perspective, they examine what they must do to retain and develop the technical knowledge required to understand and satisfy customer needs, while also studying how to maintain the efficiency and productivity necessary for operations.⁵

6- A study (Ariwa Muhad, 2017) entitled: "The Importance of Applying Modern Management Control Tools in Measuring and Evaluating Sustainable Performance in Small and Medium Enterprises - A Case Study of the Balanced Scorecard Model in the Hadnat Haleeb Company in M'Sila." This article aims to develop models of modern management control systems for performance evaluation. This is done by attempting to rebalance the axes of the Balanced Scorecard by integrating environmental and social indicators and linking them to economic indicators, in order to achieve effective, balanced, and sustainable performance. This study examines the nature of the sustainability of small and medium enterprises and how to link its elements to the Balanced Scorecard indicators. This model, the Sustainable Balanced Scorecard (SBSC), was applied to a medium-sized food industry company to measure and evaluate sustainable performance. To achieve the study's objectives, and based on the cause-and-effect relationship, the researcher identified the ultimate strategic goal and how to achieve it through the five dimensions and perspectives of the Sustainable Balanced Scorecard, which are interconnected in an integrated manner from the bottom up. The researcher linked each perspective or dimension to three basic indicators, resulting in a total of 15 to 20 indicators for proper control. Each perspective includes several metrics (weight, objectives, actual achievement, final result). This led to the development of a sustainable scorecard model for the Hadnat Al-Haleeb institution in M'sila over a five-year period, to measure the overall level of the institution's overall performance trend. This was to determine the extent to which the institution achieved its strategic objectives. The study concluded with the following results:

- Despite the financial improvement and increased profitability for small and medium-sized enterprises, the Sustainable Balanced Scorecard yielded the opposite results, showing that overall performance was declining. This is due to institutions' reliance on strategic management principles (in terms of defining the vision, estimating objectives, and attempting to address deviations), and the neglect of the Sustainable Balanced Scorecard methodology as an integrated and comprehensive system for strategic management, i.e., the lack of focus on Financial objectives alone. For example, social indicators—indicators of worker motivation—were initially considered a burden or cost, but in the long term, they will inevitably constitute additional income as a result of increased worker productivity through improved performance.
- Institutions specializing in the production of milk and dairy products do not pay attention to the direct and indirect effects of the surrounding environment (the fifth dimension). This is clearly evident in their consumption of large quantities of water for treatment, most of which is for cleaning, in addition to the high consumption of electricity in the sterilization, distillation, and production processes. The latter results in waste from spoiled raw materials and unusable products, as well as chemicals (acids) that are disposed of in regular sewers, negatively impacting plant and animal wealth outside the institution.
- Dealing with a sustainable balanced scorecard in the long term and on an ongoing basis leads the organization's management to take preventive measures at a lower cost instead of corrective measures and their high cost. This is due to the importance of balance and integration of performance between the five dimensions. Each perspective or dimension serves the other, and any decline in any perspective can lead to a decline in the overall level. The idea lies in the fact that each perspective has its own weight percentage of the total weight of the overall performance in the card.⁶

Theoretical Literature

Institutions, in general, always need to provide information from all their operations in a way that ensures their integration in order to provide accurate and comprehensive performance indicators. It constitutes the most important part of any organizational infrastructure and a key tool for understanding all administrative processes within the organization.

The Concept of Strategic Performance

Performance evaluation is an important link in the comprehensive management process for achieving strategic objectives. It distinguishes and separates good performance from poor performance with the aim of developing and improving the work. Strategic performance has been defined by:

Ansoff & McDonnell defined it as the performance that achieves a balance between the requirements of survival in the short and long term, based on the indicators of the organization's life cycle and its level of profitability.⁷

As for (Wheelen & Hunger): he considered it the final result of the organization's activity and it is a reflection of how the organization uses its material and human resources to achieve its goals.⁸

As for strategic performance evaluation, (Bolcher) described it as: an accounting system used for the purpose of evaluating the performance of institution managers from a strategic point of view. This system is used when responsibilities are delegated to senior management to manage strategic business.⁹

Others define it as performance measurement linked to the evaluation of strategic performance to determine the adequacy of strategies to achieve the organization's objectives, review and improve strategies, and set tactical objectives. The performance measurement process should begin with strategy development and determining how strategic objectives can be linked to the products and services the customer needs¹⁰.

From the above definitions, we can conclude the following:

An organization must possess the basic requirements to perform its work in a manner that achieves the required efficiency and effectiveness and ensures its continuity. This, in turn, depends on the extent to which it implements its established goals and plans.

The importance of strategic performance evaluation

In the private sector, performance measurement helps transform assumptions into well-understood facts and points the way to improvements that lead to more effective business models. This allows an organization to significantly increase its financial performance. It addresses existing problems and opens the way for improved user performance. It helps identify opportunities for improvement in an organization's operations to achieve greater impact on society and can also aid in day-to-day and long-term decision-making¹¹.

In addition to the first and second propositions, the process of measuring strategic performance is of great importance for the following reasons¹²:

- Activating control systems within the organization.
- Providing a quantitative picture of the achievements of each department within the organization and the extent of each individual's, while identifying strengths and weaknesses within it.
- Continuously improving the digital measurement indicators used leads to measuring the organization's adequacy in managing its resources (financial, material, and human) by providing detailed information, which in turn supports decision-making processes.
- Measuring the organization's social and environmental performance, which determines the degree of its social and environmental responsibilities and the extent of its contribution to the development of the community in which it operates.

Strategic performance measurement models:

Thinkers throughout the ages have relied on several traditional models to measure strategic performance, most of which focused on the financial aspect and neglected several other aspects that directly or indirectly affect performance. In 1992, researchers Norton & Kaplan introduced a new model called the "Balanced Scorecard." They consider this card as a new framework for measuring organizational performance used to overcome the limitations resulting from using only financial measures, by using several measures that help generate value through investment. They defined it as "a scorecard with four axes: the financial axis, customers, internal processes, and learning and

growth, providing a balanced picture of operational performance as well as leading the organization's performance into the future.¹³”.

We can explain and summarize other models and the measurement criteria used in them through the table below:

Table No. (01) Strategic Performance Measures

Value added measures		Stakeholder Metrics		Productivity measures	Financial metrics
added value	Performance characteristics	Measurements	Stakeholders		
Value Added Returns	growth	sales growth	customers	Total productivity = output / factor of production	Liquidity ratios
	Efficiency	Cost growth rate	Suppliers	Multifactor productivity = output / specific factor	Leverage ratios
Return on Value Added to Return on Investment (ROI)	Exploitation of assets	The ability to convince the stock market of a return on equity growth strategy	Funders		Activity rates
		Number of promotions from within / Workforce turnover rate	Employees		Profitability ratios

Source: Prepared by the researchers based on SPSS outputs.

Source: Sabila Qas Hash, Ali Razzaq Jiyad Al-Abed, The Impact of Organizational Trust on Strategic Performance Using the Balanced Scorecard Model (An Applied Study at the Southern Cement Company in Kufa), Al-Qadisiyah Journal of Administrative and Economic Sciences, Volume 12, Issue 2, 2010, p. 7.

Strategic Performance Measurement Indicators:

Measurement Indicators from the Perspective of the Balanced Scorecard Axis:

The balanced scorecard translates the organization's goals and strategies into a basic set of performance measures. Therefore, this approach does not focus solely on financial measures, but rather includes different axes, each of which represents a performance driver for those goals. The approach measures the organization's performance through the movement of balance between the four basic dimensions, as it connects the vision and strategy to these dimensions, which are.¹⁴ :

(Financial Perspective)

This dimension tracks and measures the strategies implemented by the organization, which contribute to improving the financial results in any given year.

The financial dimension is considered one of the most important performance measures. The results of this dimension represent the extent to which objectives are achieved and the level of profits achieved for the organization's strategy through cost reductions compared to competitors. This dimension focuses on meeting the needs of shareholders through the organization's appropriate return on investment and the extent to which the organization's value increases in the market, thereby increasing the wealth of shareholders.

The financial measures adopted vary depending on the stages the organization passes through. These stages are: growth, sustainability, and maturity .. (Harvest)¹⁵

(Customer Perspective)

This dimension measures customer satisfaction with the organization's products and services, and tracks their preferences and future behavior. The goal is to increase the organization's sales and thus strengthen its competitive position and control over the markets. Focusing on the customer and paying attention to him means trying to see from his perspective and not from the perspective of the organization's leadership, i.e. penetrating his mind to know how he, and this is done through :¹⁶

- Identifying the customer's true needs and requirements, which they often fail to express or even fully comprehend;
- Identifying customer tendencies and true trends, which can be the right starting point for quality improvement;
- Measuring customer feedback (reactions) to what is offered to them as a measure of their satisfaction;
- Encouraging them to be open and express their opinions about the organization and its outcomes;
- Paying attention to the customer and ensuring that their current and future needs are met before they are even aware of them, enlightening them about them, and encouraging them to reflect on them.

(Internal Business Process Perspective)

This dimension measures the processes that impact customer satisfaction and provides a set of requirements for this. It also focuses on internal processes, such as operational procedures, that enable the organization to excel and thus efficiently and effectively meet customer needs, as well as achieve satisfactory financial results for shareholders. This is achieved through evaluation¹⁷..

- Strengths and weaknesses in the organization's core operations;
- How to rationalize costs;
- Core operations, such as their ability to meet customer requirements.

An organization's overall performance depends on the performance of its value chain, and specifically on the performance of the internal operations responsible for creating value for customers and shareholders. The value chain for internal operations goes through three stages cycles¹⁸:

(Creativity) ,(Operations) ,(After-sales service).

(Learning and Growth Perspective)

This dimension explains how to train and educate users within the organization and work to raise their level of awareness of work requirements, and work to improve them in the future, with the aim of survival and improving the organization's competitive position within the market in which it operates. This dimension also seeks to answer two questions, which are::¹⁹

- Does the organization have the capacity to learn and differentiate?
- How does the organization strengthen its capacity for change and continuous improvement?

To answer these two questions, this dimension must consist of:

- Culture and training of the organization's employees;
- Employee retention;
- Development and motivation.

Table No.: (02) Indicators for each dimension to measure strategic performance

learning and growing	Internal operations	Customers dimension	Financial dimension
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1- Training rate; 2- Employment rates; 3- Employee satisfaction index; 4- Investment in new product support and training; 5- Investment in developing new markets.	1- On-time delivery; 2- Inventory turnover; 3- Improved productivity; 4- Daily worker performance rate (%); 5- Standard time from order to delivery.	1- Number of customers; 2- Customer retention rate; 3- Customer satisfaction index; 4- Number of complaints; 5- Marketing expenses and costs.	1- Total Assets; 2- Revenue/Total Assets (%); 3- Cost Reduction and Productivity Improvement (%); 4- Asset Turnover Ratio; 5- Profit Margin (%).
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Source: Prepared by researchers with the assistance of Ariwa Muhad, The Role of the Balanced Scorecard in Measuring and Evaluating Sustainable Performance, a memorandum submitted as part of the requirements for obtaining a Master's degree within the framework of the Doctoral School in Economics, academic year: 2010/2011, pp. 81-86.

Generational Perspectives of the Balanced Scorecard

Since its inception, the Balanced Scorecard (BSC) has been widely adopted and implemented by thousands of companies worldwide. It has also penetrated non-profit and public sector organizations. When the scorecard was used in the public sector, it revealed several major shortcomings. To find solutions to these shortcomings and answer the question, "How do we view stakeholders?" researchers Lowry and Cobbold (2004) divided the development of the BSC into three generations, as follows²⁰:

The first generation of the Balanced Scorecard (BSC I)

The foundations of which were established in a 1992 article by Norton & Kaplan, as well as follow-up publications by K&N. This generation of the Balanced Scorecard is viewed here as a specific, multidimensional framework for measuring strategic performance that combines financial and non-financial measures (customers, internal processes, learning and growth) with a strategic approach, as illustrated in Figure (02) above.

The second generation of the Balanced Scorecard (BSC II)

As a result of the criticisms directed at the first generation of the Balanced Scorecard, K&N developed and improved the model by linking the organization's objectives to a set of consistent criteria, comparing them to the achieved metrics, and judging the importance of the initiatives implemented. Through this approach, the features of the second generation are defined by three characteristics derived from an attempt to address the criticisms directed at the first generation, namely²¹:

- Replacing the descriptive approach with the specific strategic objectives approach as the basis for selecting appropriate measures for each dimension of the BSC;
- Using strategic maps to display and clarify the links between the four dimensions;
- Designing programmatic reporting systems, where these cards are formulated and operated from an IT infrastructure.

This generation also focused on addressing the card's previous weaknesses in implementation and causality. This category describes the strategic plan using cause-and-effect relationships.

Third Generation Scorecard (BSC III) In (2003), Lawrie & Cobbold described the third generation as an improvement on the second generation design with new features aimed at providing better functionality and strategic importance. This development came as a result of the transition of BSC to a non-profit organization and the public sector in the early 2000s. A non-profit organization without shareholders made the financial perspective useless. The simple choice of "activity" and "outcome" objectives linked to simple causality eliminated the debate over the missing perspectives. The only issues now were whether the right activities were represented and whether the right outcomes from these activities were explained. The activity perspective was replaced by "learning and growth" and "internal process" perspectives, and the outcome perspective was

replaced by “financial” and “customer” perspectives. Despite these developments, the core principles—a combination of financial and non-financial—continued to play a significant role in leadership strategy ²².

In (2003), the researcher (Speckbacher), based on previous generations that also implement the strategy by setting goals and action plans to achieve results, adds to the above the linking of incentives - direct and indirect - to the performance card, i.e. the perspectives and components used (goals, strategic objectives or action plans, and cause-and-effect relationships), and the communication between the BSC with the incentives, and the level of implementation of the card in each of (companies, business unit, factory, management, team, individual), which in turn gives motivation to use the card and gain experience to gain the expected and desired benefits, which contributes to giving priority and importance in the future to balanced scorecard projects and identifying the reasons for not implementing them or stopping them ²³.

In 2003, researcher Paul R. Niven named the third generation of BSC “strategic maps” in his book “The Balanced Scorecard: A Step-by-Step Guide to Government and Inappropriate Agencies.” He defined the map in its simplest terms as something that got you from point A to point B! For many organizations, strategy denotes the organization’s movement from its current position to the desired and unknown future position at the same time. The strategy’s passage from the present to the future requires it to formulate a series of hypotheses linked to the four dimensions of BSC, thus forming what is called a strategic map that works to create relationships and extract results in a clear and stable form ²⁴.

Title: Field Study

Validity and Reliability of the Questionnaire:

We calculated the content validity of the questionnaire using the internal consistency method, by calculating the correlation coefficient of each axis of the questionnaire with the total score of the questionnaire. The Statistical Package for the Social Sciences (SPSS22) was used to calculate the r value for each axis, and we obtained the results recorded in the following table:

Table No. (03) shows the r value.

SIGNIFICANCE LEVEL	CORRELATION COEFFICIENT R VALUE	NUMBER OF SAMPLE MEMBERS	Axes
Statistically significant at 0.01	0.699	30	Financial dimension
Statistically significant at 0.01	0.860	30	Customers dimension
Statistically significant at 0.01	0.710	30	internal operations
Statistically significant at 0.01	0.630	30	learning and growth
Statistically significant at 0.01	0.582	30	Strategic Performance Evaluation

From Table (3), we find that the correlation coefficient r for the axes ranges between (0.582 - 0.860), which is statistically significant at a significance level of 0.01, confirming that the questionnaire is valid in terms of content.

We calculated the reliability of the questionnaire using the internal consistency method for the items (Cronbach's alpha) using the Statistical Package for the Social Sciences (SPSS22). The results are recorded in the following table:

Table (4) shows the value of Cronbach's alpha.

DECISION	CRONBACH'S ALPHA COEFFICIENT VALUE	NUMBER OF ITEMS	
statistically significant	0.753	35	Total score of the questionnaire

From Table No. (4), we find that the Cronbach's alpha value for the questionnaire, i.e., the degree of internal consistency for all questionnaire items, is equal to 0.753, which is a positive relationship between the items. Therefore, it can be said that the questionnaire is reliable.

.2.3 Characteristics of the study sample:

Table No. (5) shows the frequencies and percentages for the gender variable.

%	REPETITION	SEX
% 95	38	MALE
% 05	02	FEMININE
% 100	40	THE TOTAL

We find that the sample taken for our study is unequal in number with respect to the gender variable, as we find the number of males is 38, representing 95%, and the number of females is 02, representing 05%. We find that the percentage of males is higher than that of females, due to the nature of the company's activity, which requires the presence of males more than females.

2..2.3 Age:

Table No. (06) shows the frequencies and percentages for the age variable.

%	REPETITION	The age
% 12.5	05	From 20 to 25 years old
% 10	04	From 26 to 34 years old
% 30	12	From 35 to 44 years old
% 47.5	19	More than 45 years
% 100	40	THE TOTAL

We find that the sample taken for our study is unequal in number with respect to the age variable, as we find the number of those aged between 20 and 25 years old is 0.5, representing 12.5%, the number of those aged between 26 and 34 years is 0.4, representing 10%, the number of those aged between 35 and 44 years is 1.2, representing 30%, and the number of those aged over 45 years is 1.9, representing 47.5%. From these percentages, we conclude that Naftal is rich in a huge human resource of varying ages.

Table No. (7) shows the frequencies and percentages for the position variable.

%	REPETITION	Job
% 00	00	Boss
% 10	04	Sub-managers
% 25	10	Financial auditor
% 05	02	Board Member
% 60	24	Head of Service
% 100	40	THE TOTAL

We find that the sample taken for our study is unequal in number with respect to the job variable, as we find the number of those whose job is head of department 24, representing 60%, the number of those whose job is financial auditor 10, representing 25%, the number of those whose job is sub-manager 04, representing 10%, and the number of those whose job is board member 02, representing 05%. From these percentages, we conclude that Naftal is full of various jobs and administrative levels.

Table No. (08) shows the frequencies and percentages for the educational qualification variable.

%	REPETITION	Academic qualification
00%	00	PhD
17.5%	07	Master's
22.5%	09	Bachelor's degree
55%	22	Higher Technician Certificate
05%	02	Other certificates
100%	40	THE TOTAL

We find that the sample taken for our study is unequal in number with respect to the educational qualification variable, as we find the number of those with a master's degree 07, representing 17.5%, the number of those with a bachelor's degree 09, representing 22.5%, the number of those with a senior technical qualification 22, representing 55%, and the number of those with other certificates 02, representing 05%. From these recorded percentages, we conclude that the institution has various qualifications and their requirements, which indicates the presence of an integrated and diverse group of cadres within the institution.

Table No. (09) shows the frequencies and percentages for the professional experience variable.

%	REPETITION	Professional experience
10%	04	Less than 5 years
15%	06	From 6 to 10 years
60%	24	From 11 to 15 years
7.5%	03	From 16 to 20 years old
7.5%	03	More than 20 years
100%	40	The total

Source: Prepared by the researchers based on SPSS outputs

We find that the sample taken for our study is unequal in number with respect to the variable of professional experience. The number of those with less than 5 years of experience is 4%, representing 10%; the number of those with between 6 and 10 years of experience is 6%, representing 15%; the number of those with between 11 and 15 years of experience is 24%, representing 60%; the number of those with between 16 and 20 years of experience is 3%, representing 7.5%; and the number of those with more than 20 years of experience is 3%, representing 7.5%. From these recorded percentages, we conclude that the organization possesses relevant professional experience.

Discussion of the Hypotheses

Hypothesis 1:

Hypothesis 1 states that: The evaluation of strategic performance at Naftal is generally based on financial performance.

We calculated the simple linear regression test to measure the impact of financial performance on strategic performance evaluation. The Statistical Package for the Social Sciences (SPSS22) was used

to calculate the results of the simple linear regression, and we obtained the results recorded in the following table:

Table No. (10) Simple Linear Regression Results

T significance	T value	β	significance F	value F	value 2R	value R	Independent variable	dependent variable
0.000	20.154	1.430	0.000	406.188	0.914	0.956	Financial performance	Strategic Performance Evaluation

Source: Prepared by the researchers based on SPSS outputs

From Table (10), we note that the regression model is significant, with an F value of 406.188, and a significance level of 0.000 (Sig), which is smaller than the significance level of 0.01. The results indicate that the independent variable explains 91.4% of the variance in the strategic performance evaluation, based on the coefficient of determination (R^2). The β value, which illustrates the relationship between financial performance and strategic performance evaluation, is 1.430, which is statistically significant, as can be inferred from the T value and its associated significance. This means that every time financial performance improves by one unit, the strategic performance evaluation increases by 1.430 units. We can write the regression equation as follows:

Strategic Performance Evaluation (Expected): $Y = 5.242 + 1.430 X + 1.060$

Where:

X = Financial Performance

Y = Strategic Performance Evaluation

From the regression equation, we can conclude that the financial dimension has a significant impact on the strategic performance evaluation. Therefore, we accept the first hypothesis, which states that:

: In general, the assessment of strategic performance at Naftal is based on financial performance.

The second hypothesis:

The second hypothesis states that Naftal relies on non-financial indicators to measure strategic performance.

We calculated a multiple linear regression test to measure the impact of non-financial indicators on measuring strategic performance. The Statistical Package for the Social Sciences (SPSS22) was used to calculate the results of the multiple linear regression, resulting in the results recorded in the following table:

Table No. (11) Multiple Linear Regression Results

Variance inflation factor	significance T	T	β	significance F	value F	value 2R	value R	Independent variable	dependent variable
1.096	0.237	1.202	0.241	0.041	3.043	0.202	0.450	After customers	Strategic Performance Evaluation
1.096	0.143	1.498	0.447					After internal operations	
1.096	0.960	-0.960	-0.011					After learning and growing	

Source: Prepared by the researchers based on SPSS outputs

From Table No. (11), we note that the regression model is significant through the F value, which is equal to 3.043, and the Sig significance level is equal to 0.041, which is less than the significance level of 0.05. The results explain that the independent variables explain 20.2% of the variance in the strategic performance evaluation, considering the coefficient of determination $2R$. The β value, which explains

the relationship between the strategic performance evaluation and the customer dimension, is equal to 0.241, which is not statistically significant, as this can be inferred from the T value and its associated significance. This means that whenever the customer dimension improves by one unit, the level of strategic performance evaluation improves by 0.241 units. The β value, which explains the relationship between the strategic performance evaluation and the internal operations dimension, is equal to 0.447, which is not statistically significant, as this can be inferred from the T value and its associated significance. This means that whenever the internal operations dimension improves by one unit, the level of strategic performance evaluation improves by 0.447 units. The β value, which explains the relationship between the strategic performance evaluation and the education and growth dimension, is equal to 0.447 units. Equal to -0.011, it is not statistically significant, as this can be inferred from the t-value and its associated significance. This means that every time the learning and growth dimension improves by one unit, the strategic performance evaluation level decreases by -0.011 unit. The table also shows the results of multicollinearity, revealing that the variance inflation factor for the model was 1.096, which is less than 3, indicating that there is no multicollinearity problem among the model variables. We can also write the regression equation as follows:

Strategic performance evaluation (expected): $Y = 6.181 + 0.241X + 0.447K - 0.011J + 3.847$

Where:

X = Customer dimension

K = Internal operations dimension

J = Learning and growth dimension

Y = Strategic performance evaluation

From the regression results, we can conclude that the internal operations dimension has a greater impact than the customer dimension and the learning and growth dimension, respectively. Therefore, we accept the second hypothesis, which states that Naftal relies on non-financial indicators to measure strategic performance. Hypothesis 3:

The third hypothesis states that: The successful adoption of the third-generation Balanced Scorecard model in oil companies contributes effectively to improving the performance of these companies.

We calculated the Pearson correlation coefficient between the Balanced Scorecard score and the Strategic Performance Assessment score. The Statistical Package for the Social Sciences (SPSS22) was used to calculate the r value between the two scores. We obtained the results recorded in the following table:

Table No. (12) Pearson's coefficient value and its statistical significance for the relationship between the Balanced Scorecard and the Strategic Performance Assessment.

STATISTICAL DECISION	Sig	CORRELATION COEFFICIENT R VALUE	NUMBER OF SAMPLE MEMBERS	VARIABLES
Statistically significant at 0.01	0.000	0.826	40	Balanced Scorecard
				Strategic Performance Evaluation

Source: Prepared by the researchers based on SPSS outputs

From Table No. (12), we find that the value of the Pearson correlation coefficient between the Balanced Scorecard score and the Strategic Performance Assessment score is 0.826, and the significance level (Sig) is 0.000, which is less than 0.01. Therefore, there is a strong, positive, and statistically significant correlation between the Balanced Scorecard score and the Strategic Performance Assessment score. That is, the more the Balanced Scorecard is applied, the better the

strategic performance assessment will be. Therefore, we accept the third hypothesis, which states: The successful adoption of the Balanced Scorecard model in oil companies contributes effectively to improving the performance level of these companies.

Study Methodology: The study problem revolves around knowing and researching the extent of the impact of applying the Balanced Scorecard model to measure the strategic performance of public petroleum services companies. The researchers want to search for the most important dimensions that contribute to and measure the improvement of the strategic performance of the company using the BSC card. Given that the nature of the problem, its objectives, and hypotheses provided the objective data for selecting the appropriate approach to conduct this study, the methodology of this study comprised two phases:

- The theoretical part of the study: The descriptive approach was used to construct and formulate the theoretical foundations of the performance card, and to examine how the use of the BSC card contributes to measuring and improving the strategic performance of the organization.

- The applied part of the study: In this phase, the descriptive-analytical approach was used to diagnose and analyze the problem, test hypotheses, and collect data to describe the phenomenon and quantitatively measure employee attitudes in the oil companies under study, the extent to which they apply all BSC card modules, and the extent to which they contribute to measuring and improving strategic performance indicators. The goal of this approach is to accurately describe the phenomenon, expressing it qualitatively and quantitatively, as well as to analyze the phenomenon and discover the relationship between its dimensions in order to arrive at conclusions that contribute to addressing the reality. From this perspective, a field study was conducted by distributing a questionnaire, which represented the study sample, who expressed their opinions and attitudes by answering the questions, which also constitute a primary source for collecting such data.

Study population and sample: After conducting a comprehensive survey of previous studies that addressed the study topic, including national and foreign studies and articles, the idea of an applied study began through these studies. The study population represents all employees of the public company Naftal and those who contributed to the formulation of the BSC card factors. The study sample represents the category of managers and end-users of the BSC card employed in Algeria. In order to analyze the BSC card, its factors, and its contribution to measuring and improving strategic performance, a statistical study was resorted to by designing a questionnaire and distributing it to a sample of employees who use the enterprise resource planning system, as a targeted sample, i.e. targeting senior and middle management according to the management hierarchy. This is due to the researcher's belief that this sample has sufficient knowledge of the study topic and can fill out the questionnaire with complete objectivity and high accuracy. Table (07) summarizes the distribution situation of the questionnaire, particularly the target group.

Study Variables: To determine the study variables, the researcher relied on the Balanced Scorecard (BSC) and its four dimensions as independent variables, and the dependent variable as measuring and improving the strategic performance of the organization. This was based on the limited previous research that addressed the impact of applying the Balanced Scorecard model to measure the strategic performance of organizations.

From previous studies, we selected the independent and dependent variables to form the study model variables, which are as follows:

- Independent variable: Financial dimension, Customer dimension, Internal operations dimension, Learning and growth dimension.

- Dependent variable: Strategic performance of oil companies.

Study Tools: To design a measurement tool with acceptable validity and reliability, a questionnaire was developed. The main dimensions of the study, representing the extent of the impact of measuring the four dimensions of the BSC card as sub-independent variables, were identified, as well as the dimensions representing performance indicators as dependent variables. The variables

were summarized in the study model (Tables 10 and 11), and the correlation between the independent and dependent variables was determined. The questionnaire was distributed to the card's end users.

Since the study relies on analyzing the opinions of the study sample members and their responses to the questionnaire items, we obtain qualitative information. In order to convert this qualitative information into quantitative data for the application of various statistical tools and methods, we relied on a three-dimensional Likert scale, which is appropriate for such studies. The Likert scale score was determined in Table 14, followed by the arithmetic mean (weighted average) being calculated, and the trend was determined based on the weighted average values shown in Table 15.

Statistical Processing Methods Used in the Study

To describe and analyze the results of the field study and measure the study sample members' responses to the questionnaire, SPSS v22 was used to analyze the questionnaire data and obtain the required results to serve the study's objectives and hypotheses. This study included the following statistical methods (arithmetic mean, standard deviation, Cronbach's alpha coefficient test, multiple regression analysis, simple linear regression analysis, f-test).

Results and Discussion:

-In this section, we will discuss the results we reached in the applied chapter when testing the hypothesis:

-The first hypothesis concluded that the strategic performance evaluation at Naftal is generally based solely on financial performance. Following the field and applied study that the researcher sought, he concluded that, after calculating the arithmetic means and standard deviations of the study sample members' responses, it became clear that the General Petroleum Services Corporation applies the financial axis as a priority to measure its development and expansion within the market. This was demonstrated by the study, as financial performance improves by one unit. The strategic performance rating increases by 1,430 units.

Thus, the General Petroleum Services Corporation includes within its strategic maps an increase in production and sales, leading to increased profits.

This, in turn, contributes to an increase in the financial axis, which helps raise performance improvement indicators. This is the strategy planned for the beginning of the year. The second hypothesis is that the General Petroleum Services Corporation is interested in improving its performance by focusing on non-financial indicators in measuring strategic performance, represented by the three axes (customers, internal operations, and development and growth.)

After calculating the arithmetic means and standard deviations of the study sample members' responses, it became clear that the General Petroleum Services Corporation relies on non-financial indicators, despite the variance in performance measurement indicators. The study showed that the second dimension of the Balanced Scorecard (BSC) indicates that whenever the customer dimension improves by one unit, the strategic performance evaluation level improves by 0.241 units. The value of β , which illustrates the relationship between strategic performance evaluation and the internal operations dimension, was equal to 0.447. The third dimension of the Balanced Scorecard (BSC) indicates that whenever the internal operations dimension improves by one unit, the strategic performance evaluation level improves by 0.447 units. The fourth dimension of the Balanced Scorecard indicates that whenever the education and growth dimension improves by one unit, the strategic performance evaluation level decreases by 0.011 units.

-Despite the corporation providing high-quality petroleum products, this Due to the lack of competition in the market, the public company Naftal maintained a monopoly on the market until 2014. However, a significant decline has been observed in recent years, evident in the customer focus, further demonstrated by the lack of new entrants despite its loyal customers. This is due to

the company's focus on internal development through strategic plans for its internal operations, which has had a negative impact on its development and growth.

-The third hypothesis stipulated that the successful adoption of a balanced scorecard model in oil companies effectively contributes to improving the performance level of these companies. The results concluded that the Public Company for Petroleum Services (PCPS) set goals and work plans to achieve results and linked these to direct and indirect incentives. This was confirmed by the study, which indicated that the more the balanced scorecard is implemented, the better the assessment of strategic performance, thereby contributing to its improvement. From this, we conclude that the Algerian Company for Petroleum Services (PCPS), the subject of the study, uses the four dimensions of the balanced scorecard (BSC) and links them to the requirements of this model. This is primarily to measure strategic performance, leading to its gradual improvement.

References:

- 1- Mohamed Amal el deen Ahmed, PhD. " Maximizing Strategic Performance Results: Adopting Balanced Scorecards and BI Tools " International Journal of Computer Applications (0975 – 8887) Volume 117 – No.10, May 2015.
<https://www.researchgate.net/publication/277905782> 24/08/2019 .
- 2 - Stephen Chintengo. " An evaluation of performance using the balanced scorecard model for the university of Malawis polytechnic " African Journal of Business Management, ISSN 1993-8233, Vol. 11(4), 28 February, <https://www.researchgate.net/publication/316000254> 27/08/2019
- 3 - Anil KSHATRIYA and Other." STRATEGIC PERFORMANCE MEASUREMENT USING BALANCED SCORECARD: A CASE OF MACHINE TOOL INDUSTRY " Foundations of Management , ISSN 2080-7279 Vol. 9(2017)
<https://www.researchgate.net/search.Search.html?type=publication&query=Balanced> 25/08/2019 .
- 4- Magdalena Bochenek " BALANCED SCORECARD IN STRATEGIC MANAGEMENT PROCESS " ODERN MANAGEMENT REVIEW, MMR, vol. XXIV, 26 (1/2019), March 2019
<https://www.researchgate.net/publication/333507804> 26/08/2019 .
- 5 Jihan Wanas Abdul Aziz Musa, The Impact of Implementing the Balanced Scorecard on the Performance of Jordanian Telecommunications Companies, Baghdad College of Economics Journal, Issue 47, 2016. Website link: <https://www.iasj.net/iasj?func=article&aId=109037>, August 21, 2019.
- 6 Ariwa Muhad, The Importance of Applying Modern Management Control Tools in Measuring and Evaluating Sustainable Performance in Small and Medium Enterprises: A Case Study of the Balanced Scorecard Model in the Hadnat Haleeb Company in M'Sila, Review of Financial Sciences and Accounting Research - Issue 4, 2017. Website link:
<http://dspace.univ-msila.dz:8080/xmlui/handle/123456789/4141> . 2019 /08/23
- 7 Ahmed Suleiman Mohammed Al-Jarjari, Improving the Strategic Performance of Industrial Organizations within the Framework of Implementing the Environmental Manufacturing Strategy: An Analytical Study of the Opinions of a Sample of Managers at the General Company for Ready-Made Garments in Nineveh Governorate, Journal of Administrative Studies, Volume 5, Issue 9, 2012, p. 4.
- 8 Akram Mohsen Al-Yasser and others, The Impact of Knowledge Management Processes on Strategic Performance - Opinions of a Sample of Administrative Leaders in Middle Euphrates Universities - Journal of the University of Babylon, Volume 20, Issue 1, 2012, p. 4.
- 9 Janan Abdul Abbas, Baqir Al-Dulaimi and others, Using the Balanced Scorecard in Evaluating Strategic Performance, Technical Institute, Babylon, no year of publication, p. 177.
- 10- Ali, Syed Imran. " Non-Financial Performance Measurement and Management Practices in Manufacturing Firms: A Comparative International Analysis, Studies in Managerial and Financial Accounting "" , Volume 17, 3–12, Elsevier Ltd, United Kingdom (Britain), First edition, 2007, page 14
- 11 - Andrew Wolk and Anand Dholakia and Kelley Kreitz " building a performance measurement system " , Root Cause, USA, 2009, page 04
- 12 Arqoub and Ali, The Role of the Business Intelligence Dashboard (BSC) in Improving Corporate Performance and Achieving Customer Satisfaction in Light of the Trend towards Corporate Governance - A

-
- Case Study of the Saidal Group - Unpublished PhD Thesis, Management Sciences, Organizational Management Specialization, Bougara, Ahmed University "Boumerdes", 2014/2015, pp. 23-24.
- 13 - Kaplan, R. S. & Norton, D.P. "The Balanced Scorecard- Measures that Drive Performance", Harvard Business Review ,Jan-Feb 1992, page53
- 14 - Chuck Hannabarger and Other " Balanced Scorecard Strategy For Dummies " ,Wiley Publishing, Inc, Canada, 2007. , page31
- 15 - Kaplan, R. S. & Norton, D.P. " Le Tableau de bord prospectif, pilotages stratégique ", Harvard Business Review , 1996, page63
- 16 Quraishi Muhammad, Technological Change and its Impact on the Performance of Economic Institutions from the Perspective of the Balanced Scorecard - A Case Study of the Cable Industry Corporation, General Cable Branch, Biskra - PhD Thesis in Management Sciences, University of Biskra, 2013/2014, pp. 68-69.
- 17 Ali Al-Salmi, Excellence Management, Management Models and Techniques in the Knowledge Age, Dar Gharib, Cairo, Egypt, 1st ed., 2002, p. 13.
- 18 Hussein Salama, Balanced Scorecard, Journal of Financial and Banking Studies, Volume 19, Issue 2, 2011, p. 61
- 19 Muhi Ali Hammadi Al-Moussawi, Using the Balanced Scorecard in Performance Evaluation - An Accounting Study in the Baghdad Soft Drinks Company, an Industrial Establishment, Journal of Accounting and Financial Studies, University of Baghdad, Volume 8, Issue 22, Chapter 1, 2013, p. 249.
- 20 - Petera Petr and Other " Strategic Performance Measurement Systems Implemented in the Biggest Czech Companies with Focus on Balanced Scorecard – An Empirical Study ", Journal of Competitiveness, Vol. 4, Issue 4 December 2012, page 4
- 21 Osama Saeed Abdel Sadek and Osama Hanafi Mahmoud, Governance of Insurance Companies' Performance - An Integrated Approach to Balanced Strategic Performance - Journal of Commerce and Finance, Faculty of Commerce, Tanta University, Egypt, Issue 02, 2009, p. 519.
- 22 - Anil KSHATRIYA and Other ; op cit , page: 77
- 23 - Petera Petr and Other ; op cit , page: 06
- 24 - Paul R. Niven" Balanced Scorecard Step-By- Step For Government and nonprofit Agencies" , John Wiley & Sons, Inc,New York, 2003,P169