

The Use of Sustainable Balanced Scorecard for Strategic Planning and Resource Efficiency Improvement based on Supply Chain Performance Measurement and Productivity

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Abstract- Performance assessment of supply chain management can be helpful in managing. One of the new approaches in this area is the use of a balanced scorecard that addresses the supply chain management strategy as a set of essential goals. Balanced Scorecard has no control role and its criteria do not apply to describing past performance. Rather, these criteria are a tool for explaining the organization's strategy and, by integrating and coordinating activities at its various levels, enables the achievement of organizational goals. In this paper, the supply chain literature and performance evaluation of supply chain management have been investigated first. The aim of this study is to establish a sustainable balanced scorecard for the selected population with the inclusion of resources, objectives, indicators, measures, issues and dimensions of the sustainability of Iraqi universities using the philosophy of strategic planning following a scientific and modern manner. Through the diagnosis of strengths and weaknesses following by a proposed treatment, the card is designed to improve the efficiency of the resources at the Faculty of Management and Economics in University of Mustansiriyah. The study concludes that what is needed to ensure the assessment of the performance and integration of the dimensions of sustainability no longer in accordance with the modern methods and techniques. Also, the most important of the planning process of the College of Management and Economics is to identify the strength and weakness of their positions and by comparing the actual reality of the quality standards of higher education organizations and improve the efficiency of their resources.

Keywords: Performance assessment, supply chain management, Balanced Scorecard, Strategic Planning and Resource Efficiency

1. Introduction

In recent years, the use of the balanced scorecard approach has always been one of the main issues of scientific and management research in developing indexes and evaluating the performance of strategic plans of organizations. In accordance with the modern systems that integrate the financial and non-financial standards together in order to give a more integrated view and clearer picture of the university performance of Iraq, they stand as vital organizations in building the society. The problem of this study emerged from the representation whether the mission, vision or the goals of the college administration is inspired by reality or the mission, vision or the goals can be measured and achieved. The stage of planning is known to be scientific method in the efficient investment and recruitment of the resources. This stage intends to achieve a benefit presents in the service of the internal administrative structures in conjunction with the external interest in comparison with the areas of sustainability. Using the strategic planning philosophy, this study aimed to answer the questions on design and application of sustainable balanced scorecard by incorporating the dimensions and resources of sustainability. The issues surrounding sustainability are addressed in order to improve the efficiency and performance of the College of Management Resources and Economics at the University of Mustansiriyah. The strengths and

weaknesses of the management is diagnosed in order to address the weaknesses by accrediting the quantitative indicators standards and academic quality for the preparation of approved strategic plan on the outcome of the study.

One of the contributions of this study is the important role played by the Iraqi universities in the graduation of specialized professional cadres that have the capacity to meet the need of the community and deal with the change of experience and competencies. The university works towards activating all that lead to educational process at a time at a period when the universities are in competition to upgrade their ranks within the global quality classification. The approach of sustainable strategy to planning allows the integration of sustainability dimensions, issues and resources with the design of a sustainable balanced scorecard and their respective applications to the faculty of Management and Economics at the University of Mustansiriya. The weakness and the strengths of the school are addressed through academic quality and standard accreditation by using a philosophy to prepare a strategic plan and then present the relationship to the people and different sections of the college through the design of the strategic map.

By using the philosophy of strategic planning, the implementation and design of a balanced scorecard (BSC) is sustainable through the integration of dimensions and resources of sustainability. This in turn improves the efficiency of the resources of the Faculty of Management and Economics. The Faculty of Management and Economics at the University of Mustansiriya in Iraq is the selected population of this study. The study explored the data from data from the Faculty of Management and Economics at Mustansiriya University for two academic years within 2014 to 2015.

2. Literature Review

In [1] examined the possibility of implementing balanced scorecard (BSC) to government sectors and the performance measurement in order to create a feasibility of planning and monitoring in governmental organizations. The study also aimed to determine the association between the scorecard and the process of improving the performance of the resources of the government sectors. By formulating the perspectives of the sustainable card and identifying the benchmarking technique, BSC and its application is studied to demonstrate their contribution to the strategy of the organization and

how it contributes to the performance and improvement of the institution [2].

In furtherance, the study aimed on the exploration of the management in advanced literatures and application models in the BSC of the higher education sector. The SWOT Matrix, the BSC Development and the ITIL Strategic Plan are used for the analysis of the business environment of the Institute of International Transport and Services. In another vein, in [3] provided a wide overview of resource consumption management and how it can be implemented by educational institutions through theoretical framework development which can be applied to any institution.

This study contributed to the ocean of knowledge by evaluating how BSC can be applied as a strategic planning tool in implementing and designing a sustainable card with measures and indicators. Also to achieve the objectives that includes the dimension and resources of sustainability with comparison with the criteria; that is how to incorporate and employ accreditation criteria into the scorecard in order to diagnose strengths and weaknesses. The accreditation is carried out by a non-profit government organization in the economic and administrative department of the Mustansiriya University.

2.1 The Concept of Sustainable Balanced Scorecard

In 1950s, a group of GE employees started the Balanced Scorecard in order to develop performance measures. It was recommended by the team that the division should be measured on the scale of one to seven in non-financial measures as follows: the measures of profitability are: Productivity, ethical and legal behavior, overall responsibility, product leadership, residual income and market share are used to measure Profitability while stakeholders responsibility is measured by individual development, shareholders, community, individual employee orientations, distributors, balancing long-term goals with short-terms', and suppliers. The illustrations of the respective contributions to the balanced scorecard are employed from the works of Simon, Drucker and Anthony [4].

However, the evaluation of the cause-and-effect relationship between a set of actions and the desired results is determined by the strategic planning which is in consonance with the strategic concept of the Balanced Scorecard. Anthony states that the

administrative control heavily depends on the financial structure of economic unity with few exceptions. In contrast, the quantitative measures such as the productivity measures and market share are useful for the organization. The operational control which is the third type of systems comprises the non-financial information by taking into account the results of the non-financial and operational performance measures. This is achieved with realistic indicators of the causes of financial and structural performance; these measures are the wider entrances to what is owned by the leading indicators of managing strategic objectives connected to strategic initiatives in moving towards sustainable performance [5].

Anthony explained further that the evaluation of the cause-and-effect relationship between a set of actions and the desired results is determined by the strategic planning. This is in accordance with the strategic concept of the balanced scorecard. Regarding the managerial control, Anthony revealed that the control depends on the financial structure of the economy heavily with few exceptions. In contrast, the quantitative measures such as the productivity measures and market share are useful for the organization. The third type of systems which is the operational control is the control that deals with both financial and non-financial information by taking into account the results of the non-financial and operational performance measures. This is achieved with realistic indicators of the causes of financial and structural performance; these measures are the wider entrances to what is owned by the leading indicators of managing strategic objectives connected to strategic initiatives in moving towards sustainable performance [6].

2.2 Sustainable Balanced Scorecard

The meaning of sustainability should be addressed before going into the concept of SBS. The word "sustainability" refers to as the study and implementation of knowledge on how individuals, society and organizations are controlled in a manner that improve and restore the technological, financial, human and intellectual property in order to generate stakeholder value and contribution to the well-being of present and future generations [7]. Additionally, through the development of markets to promote and support economic prosperity and social and environmental justice, the sustainable growth seeks to gain more people in the world as customers [8].

With the connection of dimensions of sustainability, enhancement or improvement of the BASK model and the sustainable BSC model, organizations can be clearly sustained [9]. In [10] added that BSC is the application of strategy into implementation but due to external effect from sustainability issues such as environmental, social and economic, it is hard to be applied. Therefore, organizations must identify the economic, social and environmental performance indicators.

The proposal of the BSC sustainability was concluded by the Nike and Ford Motor by addition of new perspective and metrics within the four traditional core perspectives. By adding a fifth new dimension (known as environmental and sociological perspective) to the traditional BSC under the heading "Strategies for sustainable management", in [11, 12, 13] proposed the SBSC model.

Recently, the three-tier "triple-bottom line" model comprising economic, environmental and social sustainability has just emerged. The model improves the benefit and understanding of the organization on sustainability on all its challenges which is considered as critical issue to the management of the organization [14].

2.3 Identification of the Sustainable Balanced Scorecard

The Sustainable Balanced Scorecard (SBSC) is derived from the concept of Balanced Scorecard as concept of sustainable strategic management. The model of SBSC can be traditionally traced to [5] as a system, tool and model for effective use of resources present in an organization. For identification and communication, this set of system is the most advanced management techniques, applicable to a clear strategic resource-oriented approach like coordinating the efforts of the employees towards implementation. It can also be referred to as the performance measurement system which measures the performance of an organization at any point of time [13].

2.4 Strategic Planning and Supply chain Performance

According to [5], strategic planning is one of the modern management tools that allow effective and efficient implementation of strategy by an organization. In other word, it is also a management tool to incorporate practices to the mission and

vision of the organization for the development of continuous commitment [6] added that by considering the basis of participation and contribution of staff, the overall strategy and explicit objectives and performance measures of the staff can be determined.

2.5 Sustainable Balanced Scorecard and Higher Education Organizations

Different policies are adopted by higher education organizations in many countries in order to support and promote university and college education and to ensure quality of education and communication between universities and students. Similarly, the policies are set to ensure interaction between universities and society by using the card as a tool to improve and manage the resources of the university [7]. A planning team is needed as strategic planning is part of strategic management and organization and a complex process necessary to plan its two types such as strategic and operational [11]. Strategic planning depends on financial and non-financial information; thus relies on SBSC.

In the ranking of the axes, the difference between the profit-making and non-profit organizations is in the axes of the credit which shall be in accordance with the conditions of the non-profit governmental organization but not in the primary objective of achieving the financial objective [5].

3. Methodology

The Faculty of Management and Economics at University of Mustansiriya is selected as the sample of the study. In 1963, the Faculty of Management and Economics was established at the University of Mustansiriya. The department gives exclusive service to evening studies on business administration, economics and accounting. A decision was made in 1968 during the official launching and establishment of the College of Management and Economics in order to transfer the evening studies to the morning studies by merging the Business Administration Department of the Iraqi Economists Association into two departments namely Economics, Accounting and Business Administration which are the main programs of the college. A diploma study was introduced in agricultural cooperatives in the 1970/71 session of the school calendar in addition to Diploma in Tourism and Hotel Management in the Accounting

and Business Administration Department. The Bachelor's Degree in Agricultural Cooperatives was introduced by the Statistics Department in the following year (1975) of 1971/72 academic year. Therefore, the Diploma in Agricultural Cooperatives was abolished. Also, there was introduction of the study of diplomas in the fields of marketing, warehouse management and accounting in the academic year 1975/1976.

Accounting was introduced in the academic year 1981/1982 while the Department of Tourism and Hotel Management was established in the academic year 1985/1986. The specialization of accounting for business administration was separated in the academic year 1987/1988; then, each became a separate department. The Department of Finance and Banking was introduced in the academic year 2011/2012; while the Tourism Department was separated into the College of Tourism and Hotel Management in the academic year 2013/2014. The introduction of the graduate studies for the departments of Accounting, Business Administration, Statistics, Economics and Tourism is among the important steps that have been accomplished for the college for the granting of a master's degree and doctorate. These great steps towards development are intended to raise the efficiency of performance of the institution and achieve the comprehensive development in all fields of both public and private works. At the long run, the school can adapt to the college and the requirements of new life and keep update to the latest scientific and technological developments in the contemporary world. In general, the college set vision, mission and objectives for the Faculty of Management and Economics at Mustansiriya University in order to achieve its goals. The departments in particular and derived its vision and mission of the mother university, Mustansiriya University.

4 Results and Analysis

4.1 Disclosure of Available Resources

In order to achieve the strategic objectives, this study explored the resources of the Faculty of Management and Economics. With the assistance of 5Ms, the resources available from the university will be used within the domain of SBSC. The 5Ms refer to the five basic resources of any organization as shown in Table 1.

Table (1) Recruiting the resources of the college within the scope of the SBSC

Resource type	Components of the resource	Competent perspective
First: - Human energy	Students Parents, Employees Faculty members, Graduates College	Stakeholders + Operations Stakeholders Stakeholders + Operations + Learning & Growth The perspective of learning and growth
Second: - Materials	Courses, awards, research, documents and records. Magazines, minutes of meetings. Curriculum, Mission and Vision, Institution Law and Regulations, Corporate Plans	The perspective of operations Process perspective + learning and growth Perspective of learning and growth
Third :- Methods		Stakeholders + Learning & Growth + Processes Stakeholders + Operations The perspective of learning and growth Stakeholders
Forth:- Machine	Computers, Generators, Equipment (Dean Office - Leaders - Faculty Members - Students)	The perspective of learning and growth + processes
Fifth:- Money	Voluntary contributions, operating income, financial management and operating expenses	Financial Perspective

4.2 Disclosure of Sustainable Strategy

It implies the process of identifying sustainable issues which are linked with environmental (internal

and external), economic and social growth; it is capable of making a strategic future for the college and has a direct effect on the efficiency and effectiveness of the college in table 2 below:

Table (2) Include sustainable aspects within the SBSC

Sustainable aspects	Competent perspective
Attract high-quality students to programs (bachelor's, master's, master's, doctorate) Development of students of high quality, student satisfaction and retention, community development, academic excellence, improvement of college image, efficiency and effectiveness of graduates.	Owners of interests.
Scientific excellence and academic excellence, excellence in the educational process of providing innovations in modern curricula and teaching methods, improving the physical learning environment and advanced technological capabilities, high quality and excellence in scientific research. , Excellence and innovation in teaching and technology use.	Internal processes.
Adequacy of physical facilities, efficiency of machines, equipment and laboratories.	Learning and growth
Building fund for donations, increasing funding, imports annual tenders, increasing research grants, increasing allocations state financial allocations, increasing student fees, reducing funds and financial costs, covering all educational costs, efficient use of resources, financial success.	Financial

In accordance with the disclosure of sustainability aspects and disclosure of college resources, these aspects that create a bright strategic future for the

college will be included within the SBSC in conjunction with the suggestion made from the research background and the formulation of SBSC.

The previous studies from researchers inspired the survey conducted using the approach from the international universities on the scorecard in accordance with the resources and sustainable aspects of the institution selected.

4.3 Formulation of the Sustainable Balanced Scorecard and Supply Chain Performance Measurement

The following stages are the SBSC formulation process:

- i. Translation of the mission and vision of the organization into strategic objectives;
- ii. Measuring the extent to which the objective is achieved using indicators and benchmarks;
- iii. Inclusion of sustainable aspects and resources on the scorecard; and
- iv. Setting up criteria to determine and compare the actual situation of the identification of strengths and weaknesses. In order to determine the

efficiency of the investment of the resources of the college and improve the status.

To achieve the objectives of the operations of the college, each perspective translates into a set of resources. Through indicators and benchmarks, these objectives can be measured efficiently by either comparing the objectives with academic accreditation criteria or comparing the years using the data acquired from population of the study to show the ability of the scorecard. The scorecard is therefore meant to identify strengths, weaknesses, opportunities and threats; thus, the first hypothesis states that:

“The design of a sustainable balanced scorecard ensures that available resources are integrated into the dimensions of sustainability”.

4.4 The Design of Balanced Scorecard and result of the Analysis

The design of the Balanced Scorecard follows the processes listed below:

Table 7: Sustainable Balanced Scorecard for the Faculty of Management and Economics at Mustansiriya University

- i. The Stakeholder perspective

Resources	strategic objectives	Indicators	Measures	Current situation	Target
1. Students	1- Attract high quality students	Number of students	- Initial student assessments - Initial success rates - High success rates - The role of graduation	Poor (privilege, very good, good) Average Weak good	- Work on increasing ratings for (privilege, very good, good) - Increase the success rate
	2 - Development of high quality students	quality of education	- Qualifications of teachers (primary) - Qualifications of teachers (higher) - Training programs for teachers	- Master's campaign (79) lecturer - Doctoral campaign (105) lecturer - High diploma (1) lecturer The title of professor (2.2) lecturer The title of assistant professor (43) lecturer	- Attention to input quality Increase the success rate of the first round and maintain its level and follow-up. - (21) teaching (Master). - (164) teaching (PhD). - (0)

				Title of teacher (7) teaching	- (36) teaching. - (18) teaching. - (0) teaching. - Work to increase these training programs.
2. Parents and society	Community Development	Community satisfaction and parents	- Activities provided by the college to the community.	-Weak	Increase and follow up.
3. The members of the training body	The success of the educational process	Satisfaction of lecturers	- Number of computers - Projectors (Initial) - Smart Boards (Initial) - Display screens (top) - Smart boards (top) - Number of teaching staff offices A) Joint B) individually Teaching burden	-Very good - (5) display screen. - (0) smart plates. - (0) display screen. - (11) Very good. -Average -weakness -weakness	Maintenance and follow-up. (66) display screen. weakness (66) smart panel. weakness (11) screen. weakness (11) smart panel. Very good Need attention. Need attention. - Need to increase the number of teachers, except for the Department of Statistics.
4. University	1. Academic excellence 2. Improve the overall image	- Quality of teaching staff - University service unit.	- Conferences, seminars and study files. - The percentage of textbooks and the authors and the number of authors to the number of teachers - Number of supervisors	-good -Weak -good -very good -Weak	- Maintenance and follow-up. - Increase financial support with a view to increasing them.

			- Number of researches completed and published Number of posts (exhibitions, seminars, sports activities ... etc)		- Maintenance and follow-up. - Maintenance and follow-up. - Follow-up and interest to increase.
5. Graduates	Efficiency and effectiveness of graduates	- Quality of students graduating and measuring the productivity of graduate students.	- Number of training courses. - Number of students enrolled in these courses.	- Weak. - Weak.	- Lack of financial support needs to increase. - Need to increase.

i. The Internal processes perspective

Resources	strategic objectives	Indicators	Measures	Current situation	Target
1. Academic and educational excellence	- Scientific excellence and academic excellence	- Satisfaction of students and parents.	- Average number of students to teachers (primary). - Average number of students to teaching (higher). - Posts of sections to the number of sections.	-Poor (except statistics department) -good -Weak	- Need to increase the number of teachers (excluding statistics). - Maintenance and follow-up. - Need to increase.
2 - Excellence by means and materials And innovative courses.	- Discrimination and innovation curricula and ways and means of teaching.	- Quality of educational process.	- Number of laboratories (preliminary). - Number of laboratories (top). - Number of students to classrooms (primary). - Number of students to classrooms (higher).	- (5) laboratory (131) computers - (zero) printer - (0) laboratory computer - (0) Higher (Zero) printer - Violent very good - Volatile (weak)	32) Laboratory. (640) computers. (32) Printer. (4) laboratory. (28) computers. (4) printer. - 40 students per room. Maintenance and follow-up. - Needs prior planning.

			- Initial admission plan		
3. Quality of scientific researches	- High quality and recognition of scientific research	- The quality of the educational process	- Number of participants in international conferences and seminars. - Number of scholarships, fellowships and fellowships for teachers. - Number of promotions. - Number of letters and letters	- Weak - Weak - good - very good	- Need financial support to increase it. - Need financial support to increase it. - More attention to increase the number of scientific promotions for teachers. - Maintenance and follow-up

ii. The learning and growth perspective

Resources	strategic objectives	Indicators	Measures	Current situation	Target
1. Staff	Quality of Qualifications	- Number of faculty members	- College Affiliates to Qualifications. - Number of administrative staff to the job title. - Actual number of employees to planned - Number of training courses - Number of scholarships and study leave inside Iraq	- Weak - Good (growth) - drop - Good (learning and growth) - Weak	- Lack of financial support and non-redundant staff. - Conservation and follow-up. - Lack of financial support. - Conservation and follow-up. - The weakness of the faculty and thus increase the interest of these activities.
2. Buildings and facilities: a. Library b. University land: c. Lecture hall	Care and quality of facilities.	- Educational support services	- Library space - Number of library seats - Number of books, periodicals and dates - Sources of information:	- Weakness (740 square meters) - Weak (27) seats - Very good (growth) - Weakness (5) book	- (757) - m 2. - (874) seats. - - - Maintenance and follow-up. -

			<ul style="list-style-type: none"> - Average number of books - Average number of addresses - Number of computers available in the library - Library staff - Number of shelves - Area of the Registration and Admission Division - Number of staff of the Registration and Admission Division - Total area. - Green space. - the number : - Capacity: - Area: - Dean's room: - Dean's office area A - parking of teachers and administrators - Parking space - Parking lot number B - parking for students. - Parking area - Parking number 	<ul style="list-style-type: none"> - Weakness (4) Title - Weakness (5) computers - Good (13) employees - Weak (416) shelf - (180) square meters weakness - (15) employees - weakness (17) employees. - Weakness of (6250 m²) - Weakness of 1340 m² - (2) Hall (growth) - Weak (100) students - (140) m² - (200) m² (very good) - (40 m²) (power) very good - (20 m²) (power) very good -2330 m² strength Position (strength) - (3204 m²) -32 position 	<ul style="list-style-type: none"> - (10) - Book. - (5) - Title. - 17 - computers. - (11) - employees. - - .(724) (322) - .m² (17) - employees. - (112910) m² - (1563) m² - (2) Hall. - (200) students. - (280) m². - (200) m². - (30) m². - (10) m². - (2316 m²) - (193) position - (3972 m²) - (331) position
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iii. The financial resources Perspective

Resources	strategic objectives	Indicators	Measures	Current situation	Target
1. Financial management	<ul style="list-style-type: none"> 1. Rationalize the use of financial resources. 2. The efficient use of non-financial resources. 	<ul style="list-style-type: none"> • Financial financing • Operating expenses • Operating expenses 	<ul style="list-style-type: none"> • The percentage of the transfer to the custom transfer. • Ratio of actual costs to allocated financial resources. 	<ul style="list-style-type: none"> • Reduction. • Reduction. • Reduction. • Weakness. 	<ul style="list-style-type: none"> • Because of the economic situation of the country. • Because of the economic situation of the country.

	3 - Cover all the costs of the required educational process.		<ul style="list-style-type: none"> • Ratio of actual operational costs of beneficiary resources to financial resources allocated to each beneficiary. • Ratio of actual operating costs (section) to total actual operating costs 		<ul style="list-style-type: none"> • Limited funding. • Address the actual cost bottlenecks of the morning study by evening study income.
2. Operating revenues	Achieving financial success	-Financial resources allocated	<ul style="list-style-type: none"> - Comparison of annual revenues at the level of the two studies. • The rate of increase of total annual revenues relative to the total amount of funding. 	- Revenue growth of the evening for the morning	- Follow-up and maintenance.

Furthermore, a Sustainable Balanced Scorecard is a strategic planning tool for improving resource efficiency. The processes followed in improving the efficiency of resources and the implementation of the SBSC are used in determining the strengths and weaknesses of the college of Management and Economics. The study applied quality standards of the academic accreditation of the Arab and Iraqi universities using quantitative and descriptive indicators for the future strategic plan according to the balanced scorecard. For each scale, the level of achievement of the target must be verified to achieve the goal and the identification of the strengths and weaknesses at the level of each perspective to address the weakness. Thus, the second hypothesis is accepted:

“Employing the four benchmarks, metrics and targets for a sustainable card designed to improve the efficiency of the research sample resources”.

5. Conclusion

Based on this, in the balanced scorecard model, the growth and learning landscape and internal processes in the model presented in terms of supply chain coordination have been included and, on the other hand, due to the importance of integrating in the supply chain, this dimension has also been added to the balanced scorecard model. This study

concludes that the adoption of a balanced scorecard as a tool following the philosophy of strategic planning is achieved by formulating a vision, mission and strategic goals. These parameters are incorporated into sustainable dimensions and issues through the comparison of the criteria of actual reality of the academic accreditation with quantitative indicators such as weight. The weights are meant to identify the strengths and weaknesses. Also, the operational goals aimed at achieving the main objective of the success and its sustainability within the colleges, institutions and universities of Iraq. Due to low level of success among students, there is low level of quality for graduates as the number of students with high ratings is low. The development of academic skills is negatively affected by the low level of the number of training courses provided by the college for teachers. This in turn is reflected in the quality of the educational process and the goal of the development of high quality students is not achieved. This study recommended further research on this tool for its ability to integrate the development of a balanced scorecard with aspects and dimensions of sustainability. This combination will enhance efficient utilization of the resources in the Faculty of Management and Economics at University of Mustansiriyah and Iraqi universities in general. Also, as a basis for comparison between the dimensions, the quality standards of academic accreditation can

be applied. The application of the actual data from the College of Management under the University of Mustansiriyah can yield positive results.

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