Improving the Performance of Healthcare Institutions under Covid-19 by Using Balanced Scorecards: A Comparative Study

Osama Wagdi[1*] and Walid Abouzeid[2]

[1]Facultyof Economics and International Trade, Egyptian Chinese University(ECU), Cairo, Egypt.
[2] International Academy for Engineering and Media Science – IAEMS.
* Correspondence: Osama Wagdi, ORCID 0000-0003-0451-9726; ResearcherID: D-4898-2019; Scopus Author ID: 57212470180; E-mail: osamawagdi_ta@yahoo.com

ABSTRACT

The study investigated balanced scorecards (BSC) in regards to the Covid-19 pandemic, and it was revealed through the analysis of the conceptual framework that balanced scorecards are deficient in providing a comprehensive framework for evaluating healthcare institutions' performance, as they lack measuring the risks faced by healthcare institutions, whether financial risks (liquidity risks) or non-financial (hazardous waste risk). Therefore, the study suggests that the BSC dimensions should include five dimensions instead of four dimensions, which are the usual in managerial literature. This requires providing adding risk. Through utilizing a sample of 414 individual workers in Healthcare institutions in developed and developing countries, the study concluded that the extent of need, readiness and practices in favor of implementing balanced scorecards varies between Healthcare institutions in developed and developing countries during the Corona pandemic.

1. The Methodological Framework

Healthcare institutions have been subjected to many pressures with the emerging covid-19 pandemic, especially since March 2020 with the first wave of the pandemic, and with the entry of winter 2021, the second wave introduced unconventional challenges for Healthcare institutions despite access to many medicines and obtaining permits for vaccinations in many countries of the year, whether developed or developing. Many Healthcare institutions have faced numerous challenges, whether in the first wave, such as the case of Italy, or the second wave, such as the case of India.

All world governments paid great attention to establishing and defining the features of Healthcare services for many reasons, perhaps the most important of which is that Healthcare services expenditures represent a huge amount of money and constitute a burden on public spending, in terms of both financing Healthcare services in addition to the applied treatment methods which are now being imposed on Healthcare facilities to develop measurement and performance evaluation systems. This is achieved to keep pace with developments in the contemporary environment, especially during the challenges that the pandemic poses to these institutions.

Therefore, the study finds that Healthcare facilities face non-traditional challenges, in both developing or developed countries alike, in terms of changing the environment of Healthcare services, relying on advanced technology in Healthcare work with the development and introduction of new Healthcare services, which would transform into global trends and lead to increasing competition between hospitals, for the continuation of survival, competition and consequently growth,

The competition has moved from the local level to the regional and global level. This is evident in the competition for vaccines; whether in obtaining a permit, or the rights to manufacture, or to provide vaccines and means of treatment for patients. Some countries have become a center for providing vaccines to non-residents. Therefore, there is a need for Healthcare measurement and control systems to be effective and efficient, and therefore the new confrontation between Healthcare facilities, whether public or private, is necessary to develop performance measurement systems that help hospitals to continuously develop their performance to face the new repercussions in the world of Healthcare services.

Whereas the financial measures are insufficient until a complete vision is formed about the efficiency of performance in hospitals. This is because they do not include the many operational activities of the hospitals, and the deficiency in expressing these activities due to the lack of an actual relationship between the outputs of the measurement system and the non-financial performance measures leads to an imbalance in the use of these measures, which results in making decisions based on relative indicators in revealing the actual performance of the hospital, which impacts its survival in competition within the framework of the operating philosophy.

2. Literature Review:

Kaplan and Norton are credited with introducing the Balanced Scorecard (BSC), which provides a measure of performance evaluation by linking operating performance on one side, with the strategic vision and goals of the enterprise on the other hand, as all members of the organization must strive to achieving that vision and the associated strategic goals, through a number of financial and non-financial indicators that represent a reflection of the effectiveness and efficiency of the

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organization's operations, as well as measures of outputs and performance drivers for these outputs, which are related together in a series of causal relationships. This enables stakeholders to evaluate the financial and strategic operational performance of the facility within an integrated framework of financial and non-financial measures in a neutral manner and provides complete information on its performance (Kaplan and Norton, 1992; Epstein and Wisner, 2001; Tseng 2010). Moreover, trends have emerged to develop these cards with the aim of measuring the impact of business activities on sustainable development (Hakkak and Ghodsi, 2015), and the extent to which they follow environmental requirements (Staš et al., 2015).

Where the study (Kaplan & Norton, 1992) represents the basis for building the Balanced Scorecard (BSC), as it is the first study that works on combining financial and non-financial dimensions in the field of evaluating enterprises' performance. This study included selecting twelve banks operating in the United States. This study found a new system called the Balanced-Scorecard System (BSC).It consists of a number of financial and operational accounting measures presented to managers that reflect a clear and comprehensive picture of the performance of business enterprises and is considered one of the modern methods in the field of cost accounting and management accounting. The study has identified four dimensions of the model: (the financial dimension, the customer dimension, the operations dimension Interior, the dimension of learning and growth, and this study analyzed each dimension into its component parts.

While the study (Zairi-Mohamed et al., 1994) discussed the process of measuring performance considering the modern view of business trends. The study highlighted the extent of need to use new metrics that would be able to distinguish between activities that add value to the customer and the enterprise, and activities that do not add Value, as the research discussed performance measures based on the concept of total quality and the extent of applicability.

As for the study (Davis and Albright, 2002), it was concluded that the use of the balanced scorecard (BSC) would lead to an improvement in financial performance. Thus the benefits of using the balanced scorecard are greater than those of the traditional measurement systems that are concerned with financial performance only.
This corresponds with what was indicated by the study (Hilton, 2002): that the US commercial bank administration applies ten performance standards that express the four dimensions of the balanced performance measurement model, the financial dimension that includes: the standard for the effective use and efficiency of assets. Return on assets, a measure of the difference between costs and revenues for funding sources, measured by net interest margin, deposit growth measure, and a deposit growth index.

As for the customer dimension, it was expressed through the customer satisfaction criterion measured by the numbers of customer responses with satisfaction. The customer retention standard, which is expressed by the annual customer retention percentage. The growth criterion in the bank's market share, and it is measured as a percentage of the bank's market share. The internal and external processes, and the level of performance is measured by the two criteria, namely the criterion of the estimated value of employee suggestions in addition to the criterion of productivity of internal processes, and finally the dimension of learning and growth: it is expressed in two criteria, namely the employee retention standard measured by the percentage of employees who leave the bank each year. Highly skilled trained employees, measured by the percentage of hours an employee spends on training.

In contrast to the previous, according to Jakobsen(2008) that worked on applying the Balanced Scorecard to engineering consulting firms, with the aim of achieving efficiency and effectiveness and developing the competitive position of these companies. This study concluded that the application of the Balanced Scorecard leads to a fundamental improvement in internal operations and the engineering consultancy firms follow the task-oriented management method. There is also a conviction that there is a compatibility between the performance-balanced scorecard and the rewards system.

The study (Cardinaels et., Al, 2010) indicates that the adoption of BSC Balanced Scorecards continues to increase at the global level and business establishments will continue to apply it with the adoption of the performance measure since it helps the facility management to improve their own operations and increase the growth of these operations.
In a qualitative development of studies, according to Herath et al., (2010) sought to search for how to accurately determine the relative weights of performance measures used in the balanced performance measurement method. It concluded that the optimal weight of the target values for performance measures is through cooperation between Senior management and department managers in the decision-making process called the Collaborative Decision-Making Model.

In another development of the scorecards, the study (Lueg, 2015) indicated an evolution in the methods of balanced scorecards BSC through the use of strategic maps, as the study indicated that these maps work to gain the support of employees to achieve the strategic objectives of the facility, in addition to the information it provides which works to enhance coordination between responsibility centers, instead of supporting managers' evaluation, which is consistent with the results of the study (Hu et al., 2017), which indicated the ability of strategic maps to provide information and clarification of the implementation tasks by members of the business establishment.

BSC has seen another development through integration with Enterprise resource planning: ERP, through what is known as

Hierarchical Balanced Scorecard (HBSC). et al., 2016) noted the positive effects of applying this evolving style of balanced scorecards.

As for the study (Al-Awadhi, Anwar, et al, 2017), it aimed to analyze the behavior of nursing staff in public hospitals towards patients suffering from mental illness, and a questionnaire of community behavior towards these patients with mental illness (CAMI) was presented to the nursing staff working in a government hospital in the State of Kuwait to determine the viewpoint of the nursing staff towards these patients, whether it is inferior, sympathetic, or threatening to society, or it is an outlook that accepts their presence in the vicinity of societyHealthcare institutions have been subjected to many pressures with the emerging covid-19 pandemicSince December 2019, an outbreak of unexplained pneumonia in Wuhan has drawn tremendous attention around the world(Abbas et.al ,2020).

Through a review of previous studies, the study concluded with a set of observations and conclusions that can be summarized as follows:
> A. Balanced Scorecards are the cognitive value added from the study (Kaplan & Norton, 1992).
> B. The greatest aspect of the scope of application has been to the banking sector.
> C. Broadening international acceptance of the application of Balanced Scorecards (BSC) among businesses.
> D. There is an evolution in the intellectual trends of balanced scorecards, and these developments are continuing.
> E. There is a positive impact of implementing Balanced Scorecards (BSC) performance installations.
> F. There is a scarcity of previous studies that dealt with Balanced scorecards in Healthcare institutions.

3. Research problem:

The departments of Healthcare institutions have faced many severe criticisms in the recent period especially in developing countries due to the low levels of Healthcare services provided. These criticisms make the administration accused from the perspective of some stakeholder groups (doctors / nurses), due to prioritizing their self-interests. This leads to the loss of the interests of some other parties (Healthcare service seekers), in addition to weak financial resources (funding and financial allocations) and human resources (medical staff including doctors and nursing staff).

Considering the development witnessed by the managerial thought in the field of performance evaluation, with the aim of ensuring that the management adheres to the new trend of balanced interest in the stakeholders of the enterprise, and not paying attention to the interests of some without others, as there was a development of performance measures known as non-financial measures of performance, in what was known as a term Balanced Scorecard (BSC).

The study revealed the prevalence and acceptance of the Balanced Scorecard (BSC) at the theoretical level in many studies, which makes those who use it in the field of Healthcare services work on preparing Healthcare facilities to meet the requirements of interest groups in regards of the Covid-19 pandemic.

According to the previous, the study can formulate the following research questions:
> • Is there a difference in the extent of the need to apply a balanced scorecard method between Healthcare institutions in developed and developing countries?
> • Is there a difference in the readiness of Healthcare facilities to implement balanced scorecards between Healthcare institutions in developed and developing countries?
> • Is there a difference in the practices of Healthcare facilities that support the application of balanced scorecards between Healthcare institutions in developed and developing countries?

4. Research hypotheses:

In regards of both the problem and the objectives of the research, the hypotheses can be formulated in the form of null hypotheses as follows:

The first hypothesis: There is no significant difference to the extent of the need to apply the balanced scorecards method between Healthcare institutions in developed and developing countries.

The second hypothesis: There is no significant difference in the readiness of Healthcare facilities to implement balanced scorecards between Healthcare institutions in developed and developing countries.

The third hypothesis: There is no significant difference in the practices of Healthcare facilities that support the implementation of balanced scorecards between Healthcare institutions in developed and developing countries.

5. Study methodology and design:

The study of the extent to which Healthcare institutions in both developed and developing countries implement the balanced performance measure is prepared in addition to their willingness to implement the two objectives of this study. The survey data were collected using Google Forms that includes three sections related to the ability of Healthcare institutions to meet

the requirements of balanced scorecards in addition to the need for applying it.

6. Study Population and Sample:

The study population is represented by a group of employees working at different administrative levels, without the executive tasks in Healthcare facilities in developed and developing countries, and given the inability to conduct a comprehensive survey of the study community, a representative sample of this community was sufficed. The administrators of those institutions, and the product of the distribution process was shown in Table (1):

Table 1. Distribution of the study sample to Egyptian hospitals

No.	Distribution		Sample		
1	Doctor		37		
2	Nursing		138		
3	Pharmacist	Developed Countries	8	214	51.69%
4	Researcher		14		
5	Administrative		17		
6	Doctor		88		
7	Nursing		69		
8	Pharmacist	Developing Countries	16	210	48.31%
9	Researcher		22		
10	Administrative		25		

Source: Study based on distribution, compilation and unloading of survey lists through Google Form.

7. Descriptive statistics

Through the descriptive analysis of the response of the sample vocabulary to the survey list, the most important statistical parameters can be reviewed through the following table:

Table 2. Descriptive statistics features for the inspection lists

	N	Minimum	Maximum	Mean	Std. Deviation	Variance
D1	414	1.77	4.73	3.2698	.7496	.562
D2	414	1.54	4.82	3.3546	1.2881	1.659
D3	414	1.14	4.79	3.0052	1.5700	2.465
Valid N (listwise)	414					

Source: SPSS output.

Through the previous table, the study finds the high level of dispersion in the third axis of the survey list axes, which is the axis that deals with the practices of Healthcare facilities supporting the application of balanced scorecards, and it is also found that the same axis is the has the lowest average which indicates the divergence of trends in the vocabulary of the study sample. Thus, the third axis is the lowest of the survey list axes agreement between the study sample items at a rate of (47.75%) compared to (77.1%) and (66.6%) for the first and second axes, respectively. The low agreement coefficient can be traced back to the third axis for the variation in practices and available resources, which is reflected in the levels of performance among the countries under study.

8. Statistical Inference

8.1 First hypothesis test:
The Null hypothesis can be presented as follows:
> ***There is no significant difference to the extent of the need to apply a balanced scorecard method between Healthcare institutions in developed and developing countries.***

In order to test this hypothesis and based on data collection processes from Healthcare institutions in developed and developing countries using the one-way ANOVA test, the following table appears:

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Table 3. Outputs of the first hypothesis test

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
D1	Between Groups	83.739	1	83.739	232.589	.000
	Within Groups	148.333	412	.360		
	Total	232.072	413			

Source: SPSS output.

Through the outputs of the inferential analysis, it becomes clear that the calculated value of (F) is (232,589), and by searching for degrees of freedom (1), the study finds that this value is significant at the level of 1%, which indicates the existence of significant differences in the opinions of the individuals of the study sample, and the extent of The need to apply the method of balanced scorecards between Healthcare institutions in developed and developing countries, so that the study can reject the null hypothesis and accept the alternative hypothesis that says:

There is a significant difference in the extent of the need to apply the balanced scorecards method between Healthcare institutions in developed and developing countries.

8.2 Second Hypothesis Test:

The Null hypothesis can be presented as follows:

There is no significant difference in the readiness of Healthcare facilities to implement balanced scorecards between Healthcare institutions in developed and developing countries.

In order to test this hypothesis based on data collection processes from Healthcare institutions in developed and developing countries, and using the one-way ANOVA test, the following table appears:

Table 4. Outputs of the second hypothesis test

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
D2	Between Groups	438.158	1	438.158	730.671	.000
	Within Groups	247.062	412	.600		
	Total	685.220	413			

Source: SPSS output.

Through the outputs of the inferential analysis, it becomes clear that the calculated value of (F) is (730,671). By looking at degrees of freedom (1), the study finds that this value is significant at the level of 1%, which indicates the existence of significant differences in the views of individuals of the study sample towards readiness of Healthcare facilities to apply balanced scorecards between Healthcare institutions in developed and developing countries. Therefore, the study can reject the null hypothesis and accept the alternative hypothesis that says:

There is a significant difference in the readiness of Healthcare facilities to implement balanced scorecards between Healthcare institutions in developed and developing countries.

8.3 The third hypothesis test:

The Null hypothesis can be presented as follows:

There is no significant difference in the practices of Healthcare facilities that support the implementation of balanced scorecards between Healthcare institutions in developed and developing countries.

In order to test this hypothesis, and based on data collection processes from Healthcare institutions in developed and developing countries using the one-way ANOVA test, the following table appears:

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Table 5. Outputs of the third hypothesis test

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
D3	Between Groups	948.018	1	948.018	5576.203	.000
	Within Groups	70.045	412	.170		
	Total	1018.062	413			

Source: SPSS output.

Through the outputs of the inferential analysis, it becomes clear that the calculated value of (F) is (5576,203) by looking at degrees of freedom (1), the study finds this value is significant at the level of 1%, which indicates the existence of significant differences in the opinions of the vocabulary of the study sample Towards the practices of Healthcare facilities that support the application of balanced scorecards between Healthcare institutions in developed and developing countries. Thus, the study can reject the null hypothesis and accept the alternative hypothesis which says:

There is a significant difference in the practices of Healthcare facilities that support the implementation of balanced scorecards between Healthcare institutions in developed and developing countries.

9. Conclusion

9.1 Performance Measure processes are one of the intellectual aspects of enriching management thought, as there is a difficulty in finding an accurate and general model for measuring performance considering different circumstances and factors that business enterprises are exposed to. Therefore, different establishments follow varying goals and strategies, face a business environment that also varies rather than what these establishments include in terms of work and manufacturing systems, which also vary, meaning that business establishments need a performance measurement system compatible with their characteristics (Otely, 1999).

9.2 On the other hand, the Balanced Scorecard witnessed unlimited development from its inception through three phases, after business enterprises concluded that there are reasons for unsatisfactory performance under the applied pattern, so they began to use it as a management system and not only as a performance development system, then it evolved to add It aims to use it as a framework for organizational change, with the aim of achieving a qualitative leap in the level of performance.

9.3 This requires changing the basis of the performance evaluation of the business, considering the successive changes witnessed by the contemporary business environment in general and in regards of the Covid-19 pandemic in particular, through the abandonment of financial performance indicators only, as the non-financial indicators are a comprehensive framework that reflects the activity of The entire establishment, and it gives a complete picture of the extent to which the strategic objectives are achieved and the competitive situation, as the Balanced Scorecard expresses a management philosophy that leads to achieving the objectives of the establishments, by evaluating the financial, operational and strategic performance, according to an integrated framework of measures.

9.4 The BSC Balanced Scorecard evaluates financial and operational performance, as it includes sub-indicators (the financial dimension, the dimension of learning and growth, the dimension of internal operations, the social and environmental dimension). Thus, it includes a number of financial and non-financial indicators, which is what the current study finds in support of the establishment's decision-making processes to serve the stakeholders and supports the value of the establishment from the stakeholders' perspective and it also reduces agency costs.

9.5 In this regard, the study finds deficiencies in the dimensions of balanced performance measurement due to what it lacks in terms of measuring the risks facing the facility, whether financial risks (exchange rate risk, for example) or non-financial (hazardous waste risk, for example). Therefore, the study suggested that it be The BSC dimensions are the financial dimension, the learning and growth dimension, the internal operations dimension, the risk dimension in addition to the social and environmental dimension.
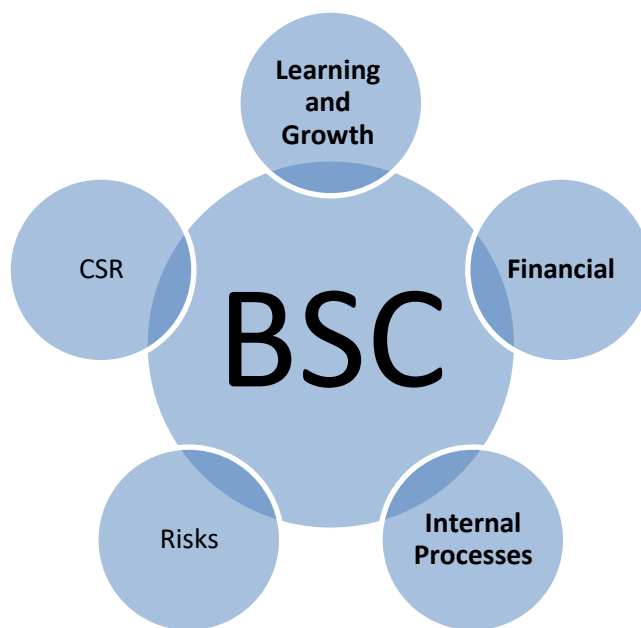
Figure 1. Balanced Scorecards Dimensions

9.6 Considering the results of the inferential analysis of the first hypothesis, the study concluded that there is a significant difference in the extent of the need to apply the Balanced Scorecards method between Healthcare institutions in developed and developing countries, where the calculated value of (F) is (232,589). The study showed that this value is significant at the level of 1%, which indicates the presence of significant differences in the views of individuals of the study sample of the extent of the need to apply the method of balanced scorecards among members of Healthcare institutions in developed and developing countries.

9.7 In regards of the results of the inferential analysis of the second hypothesis, the study concluded that there is a significant difference in the readiness of Healthcare facilities to implement balanced scorecards between Healthcare institutions in developed and developing countries, where the calculated value of (F) is (730,671). The study showed that this value is significant at the level of 1%, which indicates the existence of significant differences in the opinions of the study sample individuals towards the readiness of Healthcare facilities to apply balanced scorecards among members of Healthcare institutions in developed and developing countries.

9.8 Considering the results of the inferential analysis of the third hypothesis, the study concluded that there is a significant difference in the practices of Healthcare facilities that support the application of balanced scorecards between Healthcare institutions in developed and developing countries, where the calculated value of (F) is (5576,203) and by researching degrees of freedom (1). The study finds that this value is significant at the level of 1%, which indicates the existence of significant differences in the opinions of the study sample individuals towards the practices of Healthcare facilities that support the application of balanced scorecards between public and private hospitals.

10.   Recommendations:

10.1 The study recommends the development of performance management systems for Healthcare institutions, whether in developing or developed countries, depending on the balanced scorecards as they provide financial and non-financial performance measures that give these institutions the ability to improve performance in general and during the Corona pandemic.

10.2 Developing and supporting behavioural aspects of Healthcare institutions workers, whether in developing or developed countries, to support the effectiveness of the performance management system by increasing the awareness of workers and objectives of Healthcare institutions, in addition to supporting employees' positive attitudes towards performance management, while supporting and strengthening the culture of the facility, which is what corresponds to the study of (de Waal, AA, &Counet, 2009).

10.3 The study recommends relying on performance management systems to raise the level of service provided in public and private hospitals, which corresponds with the findings of the study (Hyder and Hebl; 2015).

10.4 Carefully choose performance measures in Healthcare institutions, given that performance measurement tools must

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reflect the hospital's strategy, which is consistent with the results of the study (Chan, 2006).

10.5 The crisis of covid-19 provides opportunities instead of being a constraint for Healthcare institutions not only at Developing Countries, but also for all countries of the world. In addition to increasing the scope of entrepreneurship opportunities according to Wagdi and Hasaneen (2019) this requires providing adding value to the society.

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