

# PERFORMANCE MEASUREMENT SYSTEM FRAMEWORK FOR HOSPITALS

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## ABSTRACT

*The goal of this paper is to present a conceptual framework for a performance measurement system (PMS) in Jordanian private hospitals. The performance measurement system is the essential engine used by organizations to determine success, determine whether the hospitals meet the needs of their customers, and realize its processes. The stakeholder theory is used to determine the role of the performance measurement system based on the extent to which managers use the five dimensions; namely financial, efficiency, effectiveness, flexibility, and sustainability. This paper suggested that the proposed framework be examined using advanced statistical analysis methods in order to discover the contingency factors that affect the PMS and provide the results to higher management in order to provide information and support evidence-based strategic decision-making in hospitals.*

**Keyword:** Performance Measurement System, Financial, Efficiency, Effectiveness, Flexibility, Sustainability.

## INTRODUCTION

The hospital sector has received significant attention from scholars in the different areas to enhance hospitals performance (Nuti et al., 2018; Van Elten et al., 2019). It is obvious that hospitals are constantly on the lookout for new paths and processes of development, with the primary goal of improving the healthcare system (Panda & Thakur, 2016). However, Pourmohammadi et al. (2018), highlighted that hospitals are regarded as one of the fastest-growing service sectors of the service economy.

The health sector is considered one of the most vital sectors for any country and an important indicator of its progress because of its great role in providing services and the delivery of high-quality healthcare that guarantee the health and well-being of its citizens (Rodríguez-Labajos et al., 2018; Masoudi & Mekkawi, 2020). However, they faced specific challenges that might hinder the stimulation and present a higher quality of service, such challenges range from weak organizations, underperformance, increasing health costs, and lack of access to finance, weak implementation of cost containment strategies, competitiveness, and sustainability (Smith et al., 2008; World Health Report, 2019).

Researchers and practice have been debating the importance of PMS in hospital performance for a long time (Davis et al., 2013; Van Elten et al., 2019). According to the arguments in support of PMS significant contributions, the need and value of Performance Measurement System Frameworks (PMSF) achieve a wide set of organizational goals for hospitals (Buathong & Bangchokdee, 2017). The argument proceeds by contending that the PMS is considered to be one of the crucial elements for improving hospital performance (Lee & Yang, 2011; Pourmohammadi et al., 2018). However, the need for PMS in the organizations to

determine success, determine whether the hospitals meet the needs of their customers, and realize its processes (Riratanaphong & Van der, 2015). Several previous studies (Simons, 2000; Bhatt et al., 2015) indicate that PMS help hospitals to measure their performance.

Since Kaplan and Johnson published Relevance Lost in 1987, Multiple frameworks for PMSs are developed that include different dimensions or measures; e.g., the Balanced Scorecard (Kaplan & Norton, 1992), Performance Prism (Neely et al., 2005), Results and Determinants Framework (Fitzgerald et al., 1991); to support quality improvement; monitor poorly performing healthcare services, and identify poor performance (Gu & Itoh, 2016). According to the literature review, most of the PMSF developed were focused on the manufacturing sector. Therefore, In an attempt to measure hospital performance, several hospitals have been using a business-like PMSF (Spekle & Verbeeten, 2014). As a result, the underlying assumptions of PMSF designed for manufacturing could be invalid if decided to apply to hospitals (Nudurupati et al., 2011). Hence, there is no consensus regarding the framework for a performance measurement system for the hospital sector (Smith et al., 2008; Davis et al., 2013; Demartini & Trucco, 2017).

Hospitals in Jordan are facing various issues limiting their performance, including financial measures (e.g., low profitability, limited funding from the government), as well as non-financial measures (e.g., misuse and allocation of resources management, patients' dissatisfaction, uncertainty in customer demands, and shortages of natural resources) (Purbey et al., 2007; Al-Saa'da et al., 2013; El-Jardali & Fadlallah, 2017; Chahal et al., 2018). As such, the report of the ministry of healthcare in Jordan (2019) indicated that in Jordanian hospitals, there really is no specific framework for PMSs (Jordan Center for Strategic Studies)

Developing PMSF that includes the identification of relevant measures is critical to coordinating an organization's activities with its strategy; however, despite its importance, many organizations fail to address this field successfully (Purbey et al., 2007). The determining of performance measures was a constant source of consternation for hospital managers (Arah et al., 2006; Davis et al., 2013; Braithwaite et al., 2017). These attempts result in what is known as "*management stress*" and "*information overload*" (Bovier & Perneger, 2003). Traditional performance measurement in hospitals results in lower than assumed performance improvements, as well as greater staff dissatisfaction (Purbey et al., 2007). As a result, PMSs are commonly regarded as ineffective and are considered unacceptable by professionals and hospital managers (Gu & Itoh, 2016). For these reasons, it is important to provide a framework for adopting a suitable PMS for the hospital sector. To achieve this target, different performance measures for measuring the performance of the hospital sector could be suggested from a multi-dimensions point of view, namely financial, efficiency, effectiveness, flexibility, and sustainability.

## LITERATURE REVIEW

### Performance Measurement System

Performance measurement systems are defined as a source and data system that offers economic information to assist decision-making by management (Kaplan, 1984). Neely et al. (2005) indicate that the PMS can really be represented as the collection of performance measures employed to determine the efficiency and effectiveness of activities. In prior literature, studies in the management accounting systems have found that designing PMS is the key to achieving the strategic goals of an organization ( Simons, 1987), and is regarded as one of the crucial elements

for improving organizational performance (Lee & Yang, 2011; Spek & Verbeeten, 2014). It is crucial in addressing improved processes of care (Demartini & Trucco, 2017).

Traditional PMSFs are the conventional and most expansively practiced as well as popular instrument of management accounting (Chenhall & Langfield-Smith, 1998; Otley, 2007). Several studies e.g. Chenhall & Langfield-Smith, (1998) and Odar et al. (2012), have confirmed that financial measures are considered to be the first measures of performance in many countries, and are becoming more important. In addition, financial performance measures are critical to the performance appraisal and competitiveness of organizations and the selection of such measures should be taken into account during evaluation activities (Yalcin et al., 2012).

Traditional PMSFs have been criticized by practitioners and academics in terms of their deficiencies (Johnson & Kaplan, 1987). The performance measurement focus shifted from TPMS to use non-financial measures (Fitzgerald et al., 1991; Kaplan & Norton, 1992). The non-financial performance measures are considered diverse and widely used, covering all aspects of regulatory activities (Lau & Sholihin, 2005). The utilization of non-financial measures is a request to use procedure based on processes that are the origin of management accounting systems (Johnson & Kaplan, 1987). Hence, Upadhaya et al. (2014) indicate that non-financial measures should contain employee motivation level, customer satisfaction, productivity level, market share, and service quality.

Researchers and managers, on the other hand, recognized that the excessive and separate utilization traditional financial and non-financial performance measures should have been a coherent part of a balanced and integrated performance measurement system (Neely et al., 1995). Many studies in management accounting (Chenhall & Langfield-Smith, 1998; Lee & Yang, 2011; Lau, 2011) shows that companies want to include non-financial alongside financial measures in their PMS. As a result, both practitioners and academics have emphasized the significance of implementing PMSs (Chenhall & Langfield-Smith, 2007).

According to the literature, PMSFs must incorporate financial and non-financial measurements, internal and external, long-term and short-term measures, and long-term and short-term measures in order for the organization's performance to be more balanced (Chanhell, 2005; Lau, 2011; Franco-Santos et al., 2012; Micheli & Mura, 2017). The performance indicators should be easy to understand (Neely et al., 1995). According to many academics, integrated framework performance measures should incorporate various areas of the company and integrate the demands of its key stakeholders (Micheli & Mura, 2017; Rodriguez-Labajos, et al., 2018; Naranjo-Gil, 2009).

According to the literature review, most of the performance measurement frameworks developed was focused on the manufacturing sector. Moreover, there is no agreement on what exactly shapes a PMSF for measuring hospital performance, and different dimensions of performance measures were suggested and pointed up over the years with no agreement on which one or set of them represents a PMSF for hospitals (Arah et al., 2006; Davis et al., 2013; Braithwaite et al., 2017). This is due to the lack of a comprehensive and globally accepted framework for measuring the performance of hospitals (Smith et al., 2008; Gu & Itoh, 2016). In this study, the PMSF is measured through its dimensions of financial, efficiency, effectiveness, flexibility, and sustainability measures.

## Stakeholder Theory

Freeman (1984) proposed the stakeholder theory, which stated that companies should address the concerns of all groups they are associated with, not just shareholders (Harrison &

Wicks, 2013). The theory is now common and has taken the formal permission of several professional organizations, and a wide array of disciplines such as health care (Freeman et al., 2010). Customers, employees, communities, suppliers, and financial providers are all considered stakeholders under the stakeholder theory, in addition to shareholders (Freeman et al., 2010; Miles, 2012). In this assumption, Choong (2013) advocated for the stakeholder theory of PMSs, which included determining stakeholders and catering to their specific needs, as well as creating goals, giving performance data, and communicating with them.

Campbell (1997) and Freeman et al. (2010) emphasize that the organizations diligently attempt to help the interests of a wide group of stakeholders will generate more value over time. The underlying assumption of most stakeholder theory researches is that financial measures receive the value created through the good practice of stakeholders (Freeman et al., 2010; Harrison & Wicks, 2013). In fact, stakeholders capture the value that extends beyond financial advantages. However, measures of the benefit generated for stakeholders should consider both financial and other advantages stakeholders seek (Harrison & Wicks, 2013). Consequently, the performance measures dimensions must be associated to appropriate perspectives of the organization and combine the interests of its essential stakeholders (Smith et al., 2008; Micheli & Mura, 2017).

Extant literature on performance measurement systems has highlighted the need to transition from serving the interests of shareholders and achieving shareholder value to serving the concerns of various stakeholders (Neely, 2005; Choong, 2013; Upadhyaya et al., 2014). As a result, according to stakeholder theory, managers need to make recommendations that include the needs of different stakeholders in the company. The assumption underlying that term, which is widely accepted by all researchers, is that a PMS will enable stakeholders to make informed decisions by combining their concerns, as well as to measure the hospital's performance so that customers understand the total amount of money they purchase service (Purbey et al., 2007; Smith et al., 2008; Nuti et al., 2018).

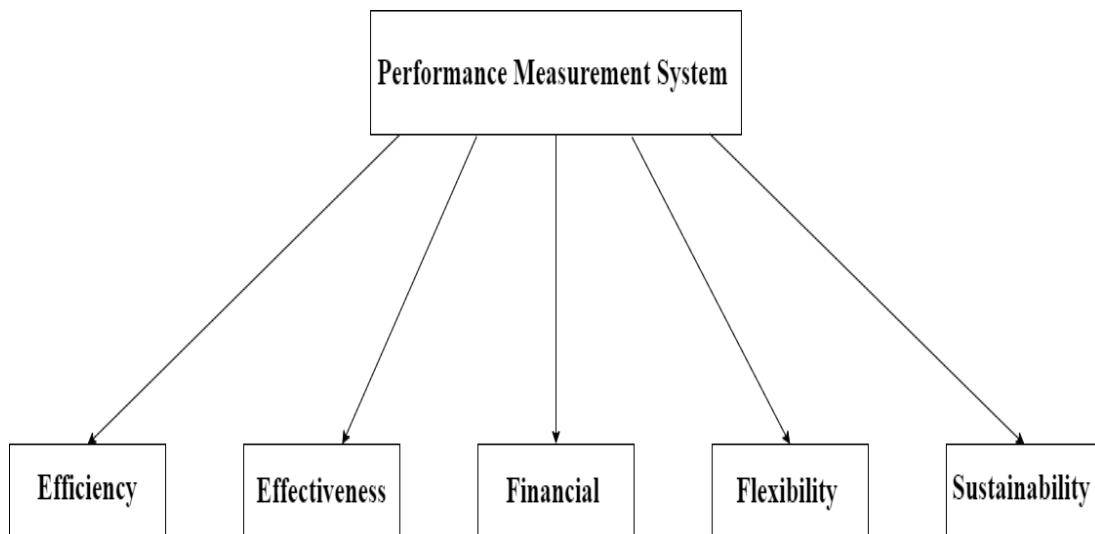
Zeglat et al. (2012) indicated that a good and powerful PMS must be more active, flexible, and satisfy various and various demands and views of stakeholders, not just the shareholders' interests. On the recommendation of several studies by Purbey et al. (2007), and Pourmohammadi et al. (2018b) the proposed PMSF was developed in this study to contain the matters and requirements of hospital sector stakeholders such as owners, patients, suppliers, and service providers. A stakeholder theory PMSF may lead to companies satisfying the needs of the stakeholders in a way that improves the overall performance of the company (Mabhungu, 2017).

## RESEARCH FRAMEWORK

In the beginning, the primary goal of this research is to develop a conceptual framework for a hospital performance measurement system. The literature review is a crucial component of any study, whether theoretical or empirical because it improves the content validity of the key variables for inclusion in the conceptual framework. The literature also emphasizes the significance of developing a rational, widely acceptable, and practical conceptual framework to support the design of performance measures (Smith et al., 2008). Therefore, your thoughts on the study topic, the problem, the research questions, and the literature to be studied, the theories, the approach, the processes, methods, and instruments, the data analysis and findings, recommendations, and conclusions are all included in the conceptual framework (Ravitch & Riggan, 2016).

The proposed framework was based on the conceptual framework of the Report on Government Services (RoGS). The RoGS is employed because it has been effectively tested throughout time as a basic foundation for measuring hospital performance to some extent. Furthermore, Australia considers a leader in developing and provides performance measurement information such as performance measurements for hospitals (OECD 1994; McGuire & O'Neill, 2013), and this framework is considered a prominent performance measurement for review and evaluation and serves as a model for using measures, developing a performance framework, and making its measures and performance framework widely available (Braithwaite et al., 2017). Moreover, is a widely adopted framework in theory and practice and in particular in Australian hospitals (Pourmohammadi et al., 2018).

The Report on Government Services (RoGS) conceptual framework provides information on efficiency, and effectiveness measures (RoGS, 2018). The performance conceptual framework presented in this research includes three performance measurement dimensions, namely the financial performance dimension (Kagioglou et al., 2001); Flexibility performance dimension (Purbey et al., 2007; Chahal et al., 2018), and sustainability measures to indicate the distinguished characteristics of the hospital sector (Wong et al., 2018). The five interrelated performance dimensions are now concisely discussed. Figure 1 presents the proposed performance measurement conceptual framework from the literature review.



**FIGURE 1**  
**FRAMEWORK OF THE STUDY**

## Financial

The financial framework is the oldest model for PMSs and is considered to be the first measure to measure performance and is considered the most expansively practiced as well as popular instrument of management accounting (Kaplan, 1998; Chenhall & Langfield-Smith, 1998; Otley, 2007). This dimension focuses on providing value that enables hospital managers to make the right decisions, create a competitive situation for providing goods and services, and clarify the unit cost of services (Pourmohammadi et al., 2018). According to Akinleye et al. (2019), financially stable hospitals are better equipped to maintain highly reliable systems,

deliver superior medical and surgical care, and give continual resources for improving quality. Financial measures can reveal a lot about the overall effect of operational activity (Otley, 2007).

## **Efficiency**

The efficiency dimension requires the context of hospitals to focus on achieving high efficiency in order to enable the hospital management to utilize resources or funds to make outcomes or outputs (Purbey et al., 2007). This dimension also appears in the study by Fitzgerald et al. (1991) framework in determinants heading as resource utilization. Furthermore, efficiency is one of the critical elements in PMSs (Neely, 2005). Meanwhile, several studies in the healthcare field confirm that efficiency is considered a major performance measure (Arah et al., 2006; Veillard et al., 2005; Davis et al., 2013). In this regard, previous researches have recommended that efficiency measures should be included as one of the main performance measures when choosing a PMS (Purbey et al., 2007; Neely et al., 2007; Pourmohammadi et al., 2018).

## **Effectiveness**

The effectiveness dimension provides reliable information on increased income and reduces hospital costs; it is also a factor for the patient, employee, and community satisfaction (Pourmohammadi et al., 2018). Veillard et al. (2005) and Khalifa & Khalid (2015) indicated the concept of effectiveness in terms of the degree of achieving desirable outcomes; also the intended goals and objectives, given the correct provide services to all who are likely to benefit most. Effectiveness is considered a major performance measurement when designing PMSF used in hospitals (Arah et al., 2006; Purbey et al., 2007). Many studies in the management accounting literature suggested that performance measurement frameworks should include effectiveness measures (Purbey et al., 2007; Neely et al., 2007). Meanwhile, Braithwaite et al. (2017) found the effectiveness dimension was the most frequent within PMSF in hospital systems.

## **Flexibility**

The ability of a hospital system to adjust to variety or change is measured in the flexibility dimension (Slack 1987; Smith Peter et al., 2008). Several scholars have indicated that the flexibility dimension can be used as a lead performance measure (Fitzgerald et al., 1991; Anderson & McAdam, 2004). Thus, there is little research has addressed the flexibility measures in hospitals (Chahal et al., 2018). Meanwhile, the present performance measurement systems lack the flexibility measures to measure hospital performance (Purbey et al., 2007). Alolayyan et al. (2012) suggest that the flexibility in hospitals is considered as part of the healthcare delivery process, due to the necessary response for every patient in the clinical service process. The flexibility assists hospitals to improve their productivity through continuous improvements and improve managerial capabilities, develops and motivating employees, and information flow and technology (Chahal et al., 2018).

## **Sustainability**

Meeting the needs of the current generation without jeopardizing future generations' ability to satisfy their own needs is referred to as sustainability performance (WCED, 1987). Sustainability performance has realized a lot of attention in recent years. Nobanee & Ellili,

(2016) sustainability performance refer to the transparency to stakeholders, the motivation of staff, the enhancement of the corporate reputation, the improvement of the management system, the continuous improvement, and the encouragement of the innovation. Healthcare such as hospitals has been frequently needed to enhance its sustainability performance as has other industries (Pinzone et al., 2012). Furthermore, there are few research published on measuring the hospital sector's sustainability performance (Wong et al., 2018). Consequently, there is the need to incorporate dimensions of sustainability in a performance measurement framework (Shokravi & Kurnia, 2014).

Despite the lack of a specific framework for PMS in Jordanian hospitals, the goal of this article is to present a conceptual framework for PMS for Jordanian private hospitals, which suffer from weak organizations, underperformance, rising health costs, lack of access to finance, and poor implementation of cost containment strategies. Based on the performance measurement dimensions (efficiency, and effectiveness) defined by (RoGS, 2018). The performance conceptual framework suggested in this article includes three performance measures, namely the financial dimension (Kagioglou et al., 2001); Flexibility dimension (Purbey et al., 2007; Chahal et al., 2018), and sustainability (Wong et al., 2018). Stakeholder theory supported the dimensions of the performance measurement system. So, stakeholder theory assumes that achieving performance measures is made easier if one attends to the interests of multiple stakeholders. If a manager believes that the interests of stakeholders as having real worth and aim the interests of multiple stakeholders, then the hospitals will achieve higher performance measures. As a result, the purpose of this study will be to investigate the performance measurement dimensions of Jordanian private hospitals in order to establish a conceptual framework for a PMS based on critical and comprehensive reviewed literature and empirical literature. Jordanian private hospitals will be able to more effectively review and assess their performance according to the proposed framework. The paper highlights some of the key dimensions of the performance measurement framework in order to encourage greater future research into the factors that influence the PMS, to provide a broad overview of what hospitals require in order to identify difficulties with PMSs. Furthermore, future research should explore the suggested framework utilizing advanced statistical approaches to present information that would support hospital decision-makers (Pai & Chary, 2013; Pourmohammadi et al., 2018).

## CONCLUSION

The suggested research framework intends to give guidance for Jordanian private hospitals. The framework can be utilized to close the empirical gap in this paper. As a result, the empirical findings emerging from the implementation of the suggested framework will add to the current literature on performance measurement system design for hospitals. Particularly which is one of the fastest-growing and most important industries in many countries.

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