Operational use, Responsibility and Performance Measurement (case study: Mashhad Municipality)

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Abstract: Today, the performance measurement system (PMS) is critical in organizational activities to improve performance. Thus, this study aims to examine the operational use of PMS in Mashhad Municipality further. To achieve this, research data were collected through a questionnaire, and research hypotheses were tested using structural equation modeling and Smart PLS3 software. The results of the first hypothesis indicate that the operational use of PMSs positively and significantly impacts performance. Additionally, the results of testing the second hypothesis demonstrate that operational use positively and significantly affects organizational responsibility. However, the third hypothesis did not confirm the mediating role of responsibility in the relationship between operational use and performance. These findings offer organizations an opportunity to consider the identification and prioritization of performance indicators during the design phase of PMSs. It is worth noting that no previous research has focused on the role of performance measurement systems and investigated this relationship.

Keywords: Responsibility, Operational Use, Performance Measurement

JEL Classification: H83, M41, Q56

1. Introduction

In order to survive in the competitive environment, the organization must be aware of the factors that affect organizational performance and take steps to improve them. Furthermore, organizational responsibility is a key indicator of an organization's superiority, providing the foundation for growth and development. It is also important for the organization to recognize the need for an optimal performance measurement system (PMS) to gauge the extent to which its goals and strategies are being realized. Managers of the organization are well aware of the significance of this fact. Achieving this optimization requires continuous monitoring, establishing performance measurement criteria, and prioritizing these criteria (Berkelman and Le Duc, 2014).

Today, the PMS plays a vital role in organizations as a management tool to accomplish organizational strategies and predetermined goals. Without a doubt, the outcomes of this system significantly impact the decision-making of both public and private sector managers. It also provides valuable information regarding the current state of the organization and its proximity to the desired level for internal stakeholders and even external shareholders. In essence, the system's output serves as the organization's executive arm of strategic management. Furthermore, the feedback from this system serves as the primary tool for enhancing organizational productivity and promoting the organization's policies (Saadat, 2015). Ultimately, the establishment of a PMS aims to improve accountability. The output components of the PMS consist of performance feedback, which improves internal performance and ensures transparency in external performance. This serves as a means to enhance the organization's transparency on a global scale (Pourreza and Moulai, 2019).

The significance of performance measurement arises from the mechanisms for achieving organizational goals relying on management efficiency. It is crucial in effective management, continuous control, and monitoring. To achieve efficient management, it is essential to implement a PMS with the objective of accountability. As crucial participants in urban management, municipalities hold key accountability in implementing a system for monitoring and measuring process performance. This helps to identify and strengthen the organization's weaknesses and respond to society's needs (Shieh, 2003).

2. Literature Review

The control mechanism is part of the organizational structure. It shows the process through which it checks whether the organizational goals are consistent with the ongoing plans. This process compares the actual performance with the expected standards or goals. Finally, according to the system feedback, corrective actions are taken (Tessier & Otley, 2012).

In this paper, we emphasize the dual role of controls, which refers to the distinction between facilitating and influencing the decision in PMSs (Ahrens & Chapman, 2004). The influencing role of the decision refers to using information to motivate and control managers and employees (incentive-oriented use). In contrast, the facilitating role emphasizes providing information to guide decision-making and managerial actions (Grafton & et al., 2010). In this research, we follow Hansen & Van der Stede's (2004) focus on the role of decision facilitator and distinguish between single-loop learning (operational use) and double-loop learning (exploratory use). Given that the scope of this research focuses on the operational use of PMSs, we have omitted the description of other roles.

2.1. Performance

Organizational performance relates to the actions and activities undertaken by an organization to achieve its goals. Additionally, the performance measurement within the organization determines the extent to which these goals are accomplished (Hoffer, 2017).

Organizational performance is interpreted as an extensive concept. The most comprehensive concept can be considered as the set of activities of the organization in order to achieve organizational goals. For this reason, the extent to which an organization reaches its goals highlights the need to measure and evaluate performance (Hamidizadeh et al., 2016). Typically, managers are personally responsible for the actions taken to achieve goals. However, they also possess the ability to prevent deviations within their organizational units. This is crucial because distortions can hinder the achievement of performance goals and contradict performance enhancement (Feltham & Xie, 1994).

On the other hand, there is no universally accepted definition or criteria for organizational performance due to its multidimensional nature. Aside from financial and quantitative indicators, organizational performance can be assessed using commitment, productivity, quality, efficiency, and customer satisfaction indicators. Generally, performance encompasses both quantitative and qualitative aspects. This research focuses on qualitative performance, including concepts like achieving service and efficiency goals, maintaining accurate and high-quality work, providing a certain number of services, and ensuring efficiency within the organizational unit, as Speklé & Verbeeten (2014) proposed.

When organizational performance aligns with specific requirements such as organizational goals, it enables quick identification of many issues the organization faces. This level of alignment necessitates a robust control system to identify weaknesses and offer practical solutions. Therefore, an organization that prioritizes performance management systems and maintains a holistic approach to organizational performance fosters synergy between individuals and the organization (Ghafari, 2018).

A questionnaire developed by Van de Ven & Ferry (1980) has been employed to measure performance in this research. This tool has been specifically designed and utilized by Verbeeten (2008), Speklé & Verbeeten (2014), and Mahmoudi & et al. (2021) to assess performance in public sector organizations.

2.2. Performance Measurement System (PMS)

Performance measurement is one of the complex issues. Its concepts are examined in at least three areas: economics, management and accounting. For this reason, to design an efficient PMS, many factors should be considered, such as the purpose of measurement, the time required for measurement, the cost of measurement, the availability of data and the level of detail required (Tangen, 2004). According to Fisher (1990), when the PMS or control feedback of deviations can be discussed and measured using numbers, the organization's awareness of progress and continuous improvement becomes significant. Without this measurement, deviations cannot be controlled and managed effectively.

First and foremost, it is important to consider that performance measurement is proposed at both individual and organizational levels within the definition of PMS. The items presented as the output of the performance measurement at the individual level lead to improving the individual performance and determining the reward criteria. This research specifically focuses on organizational performance. The criteria for performance measurement indicators determine the PMS's purpose and type of use; thus, an overview of the PMS is necessary.

A comprehensive definition of performance measurement includes implicit management tools that aim to increase accountability and transparency, improve organizational performance, and enhance efficiency and effectiveness in service provision (Raboca, 2021). The most important goals of measuring performance at the organization level include continuous control of activities, identification of strengths and weaknesses of the organization, efforts to increase capabilities and improve activities, decision-making, and organizational performance and strength. Finally, productivity in the organization will increase (Haghighi Kafash & Sadeghi, 2008).

Nudurupati (2011) identified four components of PMS in an organization: design (what should be measured), implementation (how the system works), use (how the system is used), and review (what needs to be changed). However, Maestrini (2021) argues that determining the type of PMSs used before designing the system significantly impacts performance.

Tangen (2004) suggests that an optimal PMS should possess several general characteristics. Firstly, it should be aligned with the organization's strategic goals to ensure that it supports activities aligning with its strategies. Additionally, strategies may evolve over time, necessitating the transformation of certain performance measures. Therefore, the system should have the ability for temporal visualization to continuously align the PMS with the company's goals. Secondly, it should achieve a proper balance by covering critical indicators agreed upon as success criteria of the organization with different performance criteria. However, defining balance precisely is challenging as it involves various interdependent dimensions. For instance, it involves balancing short-term and long-term goals, different performance factors such as cost and quality, and perspectives from stakeholders, shareholders, competitors, and the organization at various levels.

Third, a PMS should prevent sub-optimization by selecting appropriate performance criteria that influence employees' behavior positively. Inappropriate criteria can lead to inefficient or unpredictable behavior, as employees may focus on improving their performance in ways that conflict with management's wishes (Fry, 1995). In other words, often, employees who seek to improve their performance make decisions contrary to management's wishes. Skinner (1986) called this phenomenon the "productivity paradox", where weak consequences of performance indicators cause inefficient behavior. Therefore, a PMS should protect against sub-optimization by creating a strong connection from the main layers to the sub-layers to ensure that employees' behavior is consistent with the organization's goals.

Fourth, for continuous improvement, it is necessary to use a limited number of performance indicators (Jackson, 2000). More measurements require more analysis time, and unnecessary data wastes time and resources. Therefore, paying attention to the details is important, as is avoiding repetition of required data and evaluating whether the data is necessary for the intended purpose or if the cost of collecting them exceeds the expected benefit (Bernolak, 1997). Conversely, many performance criteria increase the risk of excessive information accumulation and make it challenging to prioritize which performance criteria should be focused on. This is also a valid reason to eliminate outdated activities that are no longer prioritized in the current PMS.

Lastly, accessibility and comprehensibility are important characteristics of PMSs. The primary goal is to provide relevant information to the appropriate individuals at the right time. Therefore, performance measurement criteria should have a specific purpose, and defining who will use each criterion is necessary. Additionally, setting clear goals and timeframes for achieving those goals for each performance measure is essential (Tangen, 2004).

In the urban management system, measuring performance serves the purpose of reviewing and evaluating performance and delivering public services effectively. Performance indicators encompass the quantity and quality of service effectiveness. By utilizing the information from the PMS, the municipality, as the custodian of urban management, can identify weaknesses, allocate resources and capacities optimally, improve accountability, and ultimately provide high-quality urban services. Decentralization of decisions at lower levels of government institutions involves many organizations. For this reason, municipalities have considerable independence in designing and using their PMSs (Mousavi, 2016).

Previous studies have highlighted various purposes for using PMSs. For example, Franco-Santos (2007), Hansen & Van der Stede (2004), Simons (1995), and Henri (2006) categorized PMS roles in their research. These roles depend on the classification used to define and operationalize PMSs. In the context of public administration, the focus is often limited to the operational and incentive-oriented roles of PMSs, which are considered the conventional classification of these systems (Cavalluzzo & Ittner, 2004). This research primarily concentrates on the operational use of PMSs.

2.3. Operational use

Performance measurement has become common in many public sector organizations. It has largely replaced the procedural management control that public sector organizations traditionally relied upon. One of the main reasons for this replacement has been to increase efficiency and effectiveness at the service level (Hood, 1995; Bouckaert & Kuhlmann, 2016; Kuhlmann & Heuberger 2023).

In performance measurement research, a distinction has been made between the design and use of PMSs. The design involves aspects related to performance indicators' types, numbers, and goals. Although decisions about the design of PMSs are often made at higher levels of the organization. Unit managers often decide how to use PMS at lower levels of the organization. Therefore, understanding organizational levels and their relationships is essential (van Elten, 2021; van der Kolk, 2022).

Simons (1995) classifies the use of PMSs as interactive or diagnostic, arguing that these different uses work together to manage organizational tensions, such as the tension between creativity and control. Interactive use is seen as exploratory, aiming for organizational learning. Diagnostic use is further divided into operational and incentive-oriented use, which tracks operational efficiency and aligns employee motivation with organizational goals. This classification results in three types of PMS used in the public sector: exploratory use, operational use, and incentive-oriented use (Speklé & et al., 2017). Operational use with a managerial approach involves measuring performance for operational planning, budget allocation, and process monitoring (van Elten, 2021). However, combining diagnostic and interactive approaches significantly impacts performance improvement (Maestrini & et al., 2021).

Unlike traditional budgeting, unrelated to strategic planning, operational budgeting is used for planning and strategy formation in organizations. Previous research has shown that performance measurement is a key reason for budgeting. However, the organization's approach to aligning budgeting with performance measurement is not consistent. This inconsistency stems from prioritizing budgeting goals (Garrison & Noreen, 2003). In their research, Hansen & Van der Stede (2004) state that budget allocation, operational planning, and process control are common dimensions of operational PMS use across organizations. These dimensions are fundamental regardless of the organization's design and structure. Thus, budget allocation, operational planning, and process control are the main concepts used to distinguish operational PMS use from other forms (exploratory use and incentive-oriented use).

In our research, we utilize the three concepts identified by Hansen & Van der Stede (2004) and Speklé & Verbeeten (2014) for operational PMS use, arguing that PMSs in organizations pursue diverse goals. It is this diversity that leads to different uses of the system. Additionally, the type of functional indicators chosen

during the system design stage determines the type of system used. In other words, our first hypothesis proposes that the operational use of PMSs, focusing on process control, operational planning, and budget allocation, significantly impacts organizational performance. Thus, the purpose of our research is to investigate the operational use of PMSs and its effect on organizational performance, leading to the formulation of the following hypothesis:

H1: The operational use of PMSs significantly affects organizational performance.

2.4. Responsibility

Expressing a single concept of responsibility among managers is particularly important to develop multi-management systems. A clear and explicit definition of the scope of responsibility provides guidelines for designing management systems by measuring assigned responsibility among various factors (Wooldridge et al., 2000).

Many researchers, including Selznick (1948) and Giddens (1987), have referred to organizational and social theories in their research. As a common opinion, they have raised the issue that the structure of organizations is not unidimensional but rather multidimensional. They have considered at least three power, coordination, and control dimensions for the organizational structure (Fararo, 1997; Sorensen, 1978). These dimensions are related to many activities of organizational units, called organizational activities, which involve managing interrelationships between organizational functions. In other words, they guarantee that activities are carried out organizationally. Delegation of authority, information, and supervision are activities related to the structural dimensions of the organization (Grossi, 2007).

Additionally, accountability has a multilateral interaction with organizational structure dimensions (power, coordination, and control) and delegation activity. Therefore, accountability as one of the consequences of responsibility requires a PMS. However, responsibility at the organizational level has other consequences. People working in an organizational unit may consider each other as the reason for not fulfilling their duties. This is not the sole challenge that responsibility at the organizational level faces. A manager can be responsible for a failure without actually being at fault if they were not informed about the task they were supposed to perform and did not have enough information (Smith, 2015). In support of this, deontology theory states that the correctness of tasks should be measured regardless of their results and consequences (ten Have & Neves, 2021). This theory claims that although the consequences of activities cannot be ignored, another feature distinguishes the rightness and wrongness of tasks, and that feature is the scope of tasks (Movahedi, 2009).

To confirm this gap, it is necessary to differentiate the meaning of the concept of responsibility at the organizational level from the individual level. In this research, the organizational level is examined, and the concept of accountability to the beneficiary of the activities performed is one of the reasons for establishing the PMS and the organizational activities. This research considers three dimensions of responsibility: the existence of activities beyond the results of the organizational unit, the alignment of activities with public interests, and the performance of the organizational unit (efficiency and effectiveness) in line with public interests (Grossi, 2007).

The section related to operational use defines budget allocation, operational planning, and process control as the three main dimensions of the operational use variable. Ekhlom and Wallin (2000) researched the consequences of the annual budget and the goals and reasons for budgeting. According to them, budget allocation is one of the reasons for using the PMS, which leads to the creation of specified tasks in the system. These tasks are defined for organizational units, creating the expectation of responsibility and implementing a set of actions in line with operational planning. Therefore, in this research, the operational use of PMSs is expected to impact the organizational unit's responsibility. Hence, the second hypothesis of the research is proposed as follows:

H2: Operational use affects organizational responsibility.

Generally, each organization has a predetermined operational goal. The operational use section mentioned that if there is a gap in reaching these goals, can the organizational unit be held responsible for implementing the work? In other words, can organizational responsibility mediate the relationship between the operational use of the PMS and the organization's performance? The third hypothesis of this research is based on the answers to these questions. Therefore, by closely examining what is called organizational activities, the relationship between operational use and organizational performance can be examined in the presence of the variable of responsibility. The third hypothesis of the research is stated as follows:

H3: Responsibility has a mediating role in the relationship between operational use and performance.

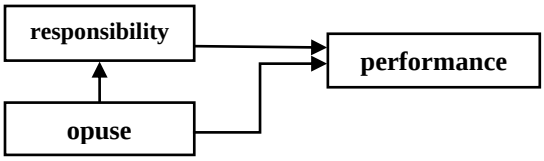

Figure 1. Conceptual framework of research

3. Research Methodology

The analysis of the research model has been conducted using structural equation modeling with the partial least squares (PLS) method. Structural equation modeling involves two stages of model analysis. The first stage involves fitting the measurement model (external model) to conduct reliability, validity, and model quality tests. In the second stage, the research hypotheses of the structural model are tested. In this study, the measurement model for each variable is developed and the model's overall fit is assessed using Smart PLS3 software alongside the structural model.

3.1. Statistical population and research sample

Considering that the purpose of the research is to investigate the operational use of PMSs (which is the most common type of use in any organizational unit), an effort has been made to include individuals in the statistical population who are part of the organizational unit and are partially involved in performance measurement. The organizational unit, as an executive entity within a larger organization, is overseen by a manager who has a certain level of authority over the tasks and processes of the unit (Cavalluzzo & Ittner, 2004; Mahmoudi et al., 2021). The reason for selecting the organizational unit as the desired level for collecting information is that criteria for internal PMSs and the organization's responsibilities may vary in larger categories beyond the organization itself. The individuals included in the sampling pool are municipal staff managers, CEOs of organizations, deputy heads of organizations and regions, heads of departments, and experts in the financial and executive fields (with a minimum of 5 years of work experience) in Mashhad Municipality in 2021.

For sampling, the statistical population is first divided into classes, including headquarters (central), regions (14 regions), organizations (e.g., transportation and freight within the city and suburbs, passenger terminals, civil organizations, parks and green spaces), management (program, budget, and performance measurement office, investment and participation, administrative and financial support, etc.), vice-chairs (health and sports, social and cultural organization, tourism and pilgrimage, etc.). The research samples are then selected using simple random sampling. Additionally, Cochran's formula was used to determine the minimum required sample size, and a total of 144 questionnaires were collected.

The data collection tool used a questionnaire based on the Likert scale (5 points). The PMSs were examined in 5 sections: input, process, quantitative output, qualitative output, and result (effect), with 10 specific goals. To determine the use of PMSs, respondents were asked to indicate the extent to which they use performance measures according to the goals. These goals include input criteria (cost ceiling, budget

realization, prohibition of changing cost classes), process criteria (capacity, cost control, efficiency, staff criteria, and project criteria), quantitative output criteria (quantitative indicators, turnover, unit result), qualitative output criteria (people's satisfaction, people's complaints), and effect or result criteria (social effects and realization of political goals). Based on the information gathered from respondents' answers about the goals and criteria, the type of PMS use was identified within each of the 5 classifications. The questionnaire also includes questions related to performance measurement indicators in the 5 categories mentioned above (input, process, quantitative output, qualitative output, and result).

4. Resault

4.1. Descriptive Statistics

The results of the descriptive statistics of the samples, which aim to obtain demographic information for the research, are as follows:

Table 1: Demographic information

Description		Number	Percent
gender	women	12	91%
	men	132	9%
degrees	diploma or less	1	0%
	bachelor's	41	28%
	master's	95	66%
	Ph.Ds	7	6%
years of managerial work experience	<5	45	32%
	5-10	42	29%
	10-20	45	31%
	20>	12	8%
position	general manager	37	26%
	deputies	44	31%
	heads of departments	53	36%
	experts	10	7%

Out of the 144 questionnaires collected from the statistical population, there were 7 people (4%) with less than 5 years of work experience (3 of whom were general managers, 3 were heads of departments, and 1 was a deputy), 15 people (10%) with 5 to 10 years of work experience (2 were general managers, 2 were deputy directors, 9 were heads of departments, and 2 were experts), 71 people (49%) with 10 to 20 years of work experience (22 were deputy directors, 15 were general managers, and 34 were heads of departments), and finally, there were 51 people (35%) with more than 20 years of experience (17 were general managers, 19 were deputy directors, 12 were heads of departments, and 3 were experts).

4.2. Analysis of results

In order to ensure validity in this research, both content validity (expert opinion) and construct validity have been utilized. The significance criterion for factor loadings is set at 0.4 or higher. For Cronbach's alpha and composite reliability (CR), a value of at least 0.7 is considered acceptable, while for average variance extracted (AVE), values above 0.5 are deemed acceptable. The average variance extracted serves as a test for both convergent and divergent validity (Fornell & Larcker, 1981). Questions 36, 96, 45, 30, 31, and 97, which are related to the variable but do not contribute to its concept, have been removed to increase the average variance of the extracted variable of operational use. The fit of the measurement model after these adjustments is shown in Figure 2.

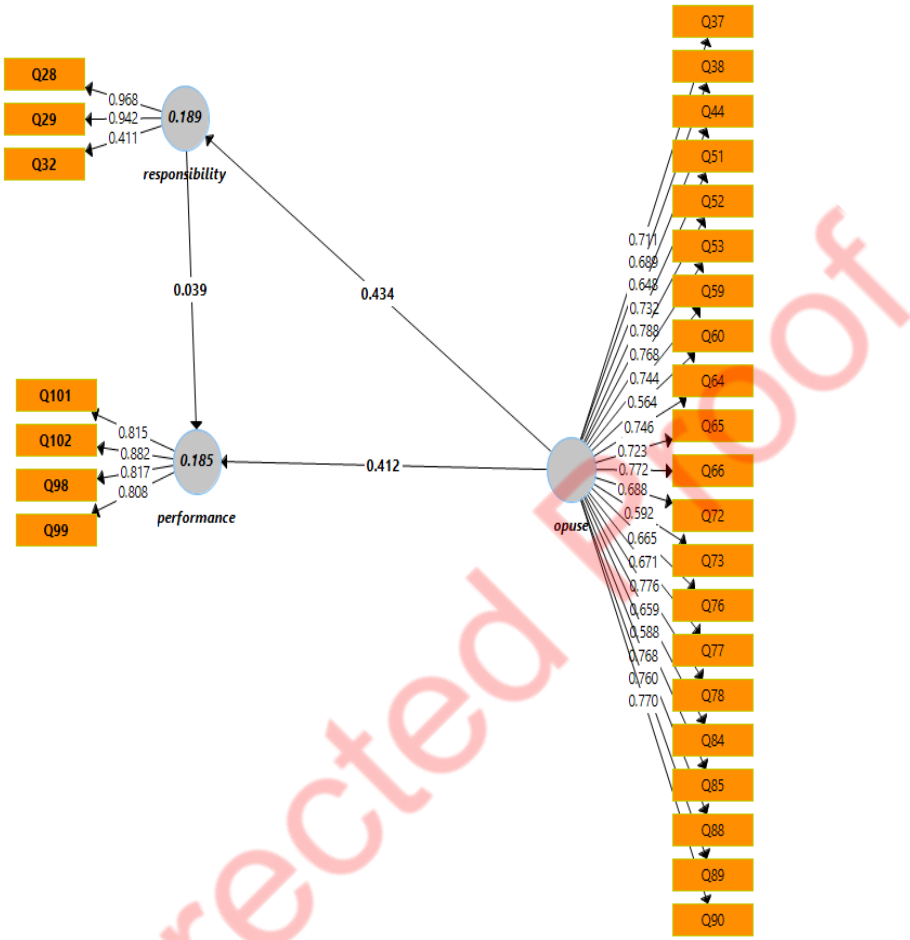

Figure 2: Fit of measurement model and factor loadings

According to the results summarized in Figure 1, all factor loadings of observable variables are greater than 0.4, which is considered suitable for constructing the model. Additionally, the t-values of the indicators exceed 2.58. Analysis of the explained variance (R2) reveals that the variable of operational use accounts for 0.18 of the variance in the performance variable and 0.18 of the variance in the responsibility variable, serving as an estimate for the internal model. The values of the factor loadings and coefficient of determination can be found in Figure 1, so a separate table is not provided. Table 2 displays the factor loadings of the operational use variable, demonstrating the extent to which each dimension corresponds to our hidden variables.

Table 2: Factor loadings of the operational use variable

Classification	Item number	Dimension	Factor loading
Input	Q37	Budget allocation	0.71
	Q38	Process monitoring	0.68
	Q44	Reporting to senior management	0.64
	Q51	Operational planning (capacity allocation)	0.73
	Q52	Budget allocation	0.78

Classification	Item number	Dimension	Factor loading
Process	Q53	Process monitoring	0.76
	Q59	Reporting to senior management	0.74
	Q60	Reporting to stakeholders outside of the organization	0.56
Quantitative output	Q64	Operational planning (capacity allocation)	0.74
	Q65	Budget allocation	0.72
	Q66	Process monitoring	0.77
	Q72	Reporting to senior management	0.68
	Q73	Reporting to stakeholders outside of the organization	0.59
Qualitative output	Q76	Operational planning (capacity allocation)	0.66
	Q77	Budget allocation	0.67
	Q78	Process monitoring	0.77
	Q84	Reporting to senior management	0.65
	Q85	Reporting to stakeholders outside of the organization	0.58
Result/Effect	Q88	Operational planning (capacity allocation)	0.76
	Q89	Budget allocation	0.76
	Q90	Process monitoring	0.77

As shown in Table No. 2, the variable related to operational use at the input level is best explained by the dimension of budget allocation with the highest operational load, giving it priority. At the process level, the dimension of budget allocation has the greatest impact in explaining this variable. Additionally, at both the quantitative and qualitative output levels, the dimension of process monitoring takes priority over other dimensions. Lastly, at the result level, the dimension of process monitoring has been given the highest priority.

Table 3: Factor loadings of performance and responsibility variables

Variable	Item number	Dimension	Factor loading
performance	Q98	The number of services provided in the unit	0.81
	Q99	The accuracy of the work provided	0.80
	Q101	Achieving goals in the levels of services provided	0.81
	Q102	Efficiency of operations within the organizational unit	0.88
responsibility	Q28	Unit activities in line with public interests	0.96
	Q29	The performance (efficiency and effectiveness) of the organizational unit in line with the public interest	0.94
	Q32	Existence of activities in excess of the results and performance of the organizational unit	0.41

The statistical output for the performance variable in Table 3 indicates that the dimension "operational efficiency within the organizational unit" with the highest factor loading has the greatest significance in explaining this variable. In regards to the responsibility variable, the dimension "in line with the public interest" of the organizational unit's activities holds greater priority and importance.

Table 4: Convergent reliability and validity of the measurement model

Variable	Cronbach's alpha	Composite reliability (CR)	Average Variance Extracted (AVE)
Operational use	0.95	0.95	0.50
Performance	0.85	0.89	0.69
Responsibility	0.70	0.84	0.66

The observations reported in Table 4 indicate that the measurement model has adequate reliability, with Cronbach's alpha and composite reliability above 0.7. The validity of the model has been measured using two methods: convergent and divergent validity. Values above 0.5 in the average variance extracted, as shown in Table 4 (Chin & et al., 2010), indicate the model's appropriate convergence validity. For proper divergent validity (using the Forner-Larker method), the square root of AVE values on the main diameter in the correlation matrix for each construct should be greater than its correlation values in the lower and left houses of the main diameter. This can also be observed in Table 5. Therefore, it can be concluded that the hidden variables in the model have more interaction with their indicators than with other structures in the model.

Table 5: Divergent validity of the measurement model

Variable	Operational use	Performance	Responsibility
Operational use	**0.70**		
Performance	0.42	**0.83**	
Responsibility	0.43	0.21	**0.81**

The results of the research hypotheses test based on structural equations using the partial least squares method are shown in Figure 1. When the t-value is greater than 1.96 or less than -1.96, it confirms the research hypotheses. According to Figure 1, the test results confirm the first hypothesis, which states that operational use directly and positively affects performance at a significance level of 0.01 (with a path coefficient of 0.41 and a t-value of 4.36). The second research hypothesis is also confirmed at a significance level of 1% (with a t-value of 6.14 and a path coefficient of 0.43). Therefore, the operational use of PMSs positively and significantly affects organizational responsibility.

The third hypothesis, which examines the mediating role of the responsibility variable in the relationship between operational use and performance, is rejected based on the Sobel test. Contrary to expectations, the responsibility variable does not act as a mediator. The calculated Sobel test value is 0.29, lower than the required value of 1.96. Thus, the third hypothesis is not confirmed.

After examining the measurement fit, the goodness of fit of the structural model is assessed. As shown in Table 6, the model has a strong predictive power based on the optimal Q2 index (0.02 is low, 0.15 and above 0.35 is strong) for endogenous structures. The standardized root mean square residual (SRMR) is also used as an approximate measure for the goodness of fit of the structural model. In this research, the SRMR is 0.08, below the significance level of 0.08.

Table 6 provides information about the quality of the measurement model. The SSO index represents the sum of squared observations for each hidden variable block, while SSE shows the sum of the squared prediction error for each hidden variable block. The Q2 index indicates the validity of the sharing of variables. Based on this index, the measurement model has a suitable quality.

Table 6: Quality of measurement model

Variable	Q^2(=1-SSE/SSO)	SSE	SSO
Operational use	0.45	1658.93	3024.00
Performance	0.46	306.79	576.00
Responsibility	0.42	247.22	432.00

5. Conclusion and Recommendations

As mentioned in the theoretical foundations, Performance measurement is a continuous thing that requires development. Therefore, the research in the field of performance measurement and the expansion of its concepts towards organizational variables such as organizational responsibility gives the designers of PMSs a more comprehensive attitude towards the indicators in the review stage and creates balance in the definition of criteria. In this regard, the current research aims to investigate the relationship between operational use with organizational performance and operational use with responsibility (as mentioned earlier, we have envisioned three uses for PMSs: exploratory, incentive-oriented, and operational use) and also the mediating role of responsibility has been investigated as part of the complex concepts of organizational structure and PMSs. The results of the first hypothesis based on the effect of operational use on performance at a significance level of 0.01 align with the research of Speklé and Verbeeten (2008) and Verbeeten (2008). Their research named the operational use variable as the most common role of PMSs and confirmed that performance measurement is purposeful and valuable. These are the goals that determine the values. For this reason, the three concepts of operational planning, budget allocation, process monitoring, reporting to senior management and reporting to stakeholders outside the organization as the dimensions of this variable in 5 areas of input, quantitative output, process, qualitative output and result and effect, was considered according to the purpose of using the PMS. The results of confirmatory factor loadings on this variable indicate that the dimension of budget allocation in the process area has the highest factor loading. Therefore, the concept of budget allocation, similar to what is seen in traditional PMSs, holds a high priority in the implementation phase, meaning the process in modern PMSs (Currently, Mashhad Municipality's PMS is based on a balanced scorecard). Vosselman & De Loo (2023) stated that in many PMSs, the motivation to access important resources such as budget or the desire to maintain competition prevents innovation in performance measurement. This is called “reactive conformance”. This means that access to funds is still the most important goal of an organization in practice. Additionally, monitoring the process in the quantitative output stage, the process in the result stage, and the process in the qualitative output stage also have the greatest impact on the operational use variable. In fact, the process monitoring aspect of the operational use has the greatest impact in explaining this variable. Thus, it is possible to consider the importance of these dimensions in the policies of determining operational indicators in the design stage of the PMS.

Accurate selection of performance measurement criteria at the process level enhances consistency with the PMS. On the other hand, weaker aspects can also be examined when reviewing the measurement criteria. In clearer terms, the weak dimension of responsibility can be strengthened through a clear description of the duties of the organizational unit and providing a framework for the separation of duties based on the results of the activities of that organizational unit. The most significant concern in performance measurement in the public sector is the division of limited tasks among organizational units, and even a comprehensive PMS can measure limited performance dimensions. Neglecting dimensions of performance that cannot be measured undermines organizational values. Performance should be measured within defined tasks and specific responsibilities (Van der Kolk & Kaufmann, 2018).

Considering the rejection of the third hypothesis regarding the mediating role of responsibility in the relationship between operational use and performance, it is possible to suggest that the definition of organizational activities in the studied society still requires more focus and analysis. This may stem from the lack of coordination between the levels of organizational duties, both individual and organizational.

Sometimes, the boundaries between the concepts of individual and organizational responsibility are so intertwined that separating them becomes challenging for the responsible person. Additionally, organizations establish performance measurement criteria based on their intrinsic and essential characteristics, and Mashhad Municipality is no exception. In his research, Mousavi (2016) pointed out the diversity and heterogeneity of mission statements in the activities of municipal subordinate organizations and called for a degree of caution in generalizing her results to other parts of the PMS. Suri and Karami (2013) also highlighted in their research that responsibility is one of the indicators of organizational excellence. The existence of a responsible force provides the groundwork for the growth and development of the organization, and this happens alongside performance improvement. However, their findings indicate no significant relationship between responsibility (with the concepts of sufficiency and self-control) and performance. They supported their hypothesis by pointing out that differences in environmental conditions and characteristics affect performance.

On the other hand, the central issue in measuring the performance of public sector organizations is the outcome and consequences. Despite the importance of this issue, the performance management system of Mashhad Municipality does not define the area of result and effect (political and social effects) and lacks result and effect indicators in performance measurement. However, Osborn and Golberg emphasized the use of indicators based on results and consequences in the performance measurement system (Rostami et al., 2014). In the research of Hermansyah (2023), it is stated that the analysis of performance effects and conversion into real financial value can help organizations understand an activity's social, environmental and economic benefits more comprehensively. Therefore, organizations can make better and more sustainable decisions. In addition to measuring the impact of outcomes, this framework aims to provide assurance. Ensuring that the community can still feel the results and effects of an action. Therefore, considering the political and social effects of Mashhad Municipality's performance in the field of urban management, it is suggested that in addition to determining and identifying performance measurement indicators in the field of input, output, and process, special attention should be given to the field of social and political results and consequences, and political and social criteria should be identified and defined accordingly.

As a research limitation, similar to the opinion of Ittner and Larcker (2001), the indicators may not cover some key concepts in the analysis due to the selection of inappropriate criteria or insufficient interpretation of the indicators. For example, we rely solely on the research's reported performance and do not examine whether the public is satisfied with the organizational unit's results. Additionally, the model used is relatively simple, and other factors that impact PMSs, such as differences in behavioral, cultural, and organizational controls, common trust among stakeholders and managers, etc., have not been investigated. Ultimately, due to the distinct characteristics of public sector organizations and the design of PMSs, it is crucial to exercise caution when generalizing the research results.

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