

ASSESSING MEASUREMENT MODEL OF PERFORMANCE MANAGEMENT IN GOVERNMENT AGENCIES USING SEM-PLS ANALYSIS

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Abstract

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The government has formed various formulations of national development objectives. The problem formulation has pushed the government to evaluate every existing work program. Performance assessment is carried out on various existing development on public sectors to optimize performance management. This paper explains the government performance measurement model using the structural equation modeling based on partial least squares (SEM-PLS) method. Measurement of performance management is based on three factors: 1) institutional dimension; 2) operational dimensions; 3) value-added dimension (Alawaqleh, 2021; Kasannudin, 2021; Muizu & Sari, 2019). This research was conducted by distributing questionnaires to local governments in Yogyakarta, West Java, and South Sumatra. As a result of this study, the significant impact of operational measurement, value-added measurement and institutional policy on improving the performance of the organization was confirmed. The study found that the first factor in establishing sustainable performance management is the operational dimension which is one of the keys to sustainable performance management through government evaluation systems. This study is expected to be an important input for policymakers and practitioners in the development and implementation of sound and sustainable performance management systems.

Keywords: Performance Management, Operational Dimension, Value-Added Dimension, Institutional Dimension, SEM-PLS

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1. INTRODUCTION

In a broader context of public organization, the proper role and function should be well managed by the right structure and configuration. In some cases, the large structure with a complex agency's role might be resulting substantial performance (Aristovnik et al., 2018). However, the rest of management models may lead to an overweight structure with wasteful resources (Aristovnik et al., 2018). It is still becoming a challenge for public sector scholars and practitioners to discover the suitable composition of government framework, including formal agency, sub-ministerial institutions, or any local institutions with their various bureaucratic models (Yusriadi & Farida, 2019).

In a developing country like Indonesia, the journey to find the suitable configuration of government structure still becomes a particular assignment to maximize the bureaucrat's performance. Rohayatin et al. (2017) also confirm this phenomenon through their research, which conveys that various factors influence the bureaucratic gap to maximize public sector performance in terms of public services, resource management, or other latent maladministration problems. Besides this statement, Wong et al. (2018) also verify a similar finding that this study points out that many people are starting to look for the benefits they get from public service delivery. Dewi and Riantoputra (2019) also toughen that internal and external factors contribute to institutions' decision-making. In addition, Indonesia's governance has published a system that could gauge the indicator performance, recognized as Government Agency Performance Accountability System (*Sistem Akuntabilitas Kinerja Instansi Pemerintah, SAKIP*). This system has been applied in each region to conduct agencies' performance management. Wistfully, the indicator does not always show the valuable index.

The application of the performance management system is a compelling alternative. Moynihan and Pandey (2010) have declared that the implementation of performance management causes organizational performance to be accessible. Roh (2018) stated that performance management needs to be improved for responsively and adaptability. Therefore, Roh (2018) has divided performance management into three dimensions: *value-added*, *operational*, and *institutional*, which can support the course of management performance. The three dimensions specified by Roh (2018) are mutually complementary: 1) the value-added dimension is related to the leadership conditions in public agencies; 2) the institutional dimension discusses legal documentation that can become a pioneer for performance management; and 3) the operational dimension emphasizes the operational technicalities of current performance management. Following Roh (2018), it is necessary to conduct future research to improve the existing management strategy. Thus, the main objective of the study is to address the issue of sustainable performance management in provincial governments. Existing literature deliberates more on improving, implementing, and evaluating performance management (Ateh et al., 2020; Choi & Moynihan, 2019; Agasisti et al., 2019).

This reason has led the author to conduct further research and generate viable performance management that remains sustainable and resilient.

The research aims to assess the measurement model of performance management in Indonesian government agencies using the structural equation modeling based on partial least squares (SEM-PLS) analysis. The study seeks to identify the most significant dimensions of performance management, including value-added, operational, and institutional dimensions, and their respective indicators. Furthermore, this study evaluates the relationships between these dimensions and their indicators to determine the effectiveness and efficiency of the performance management system. Thus, the research question is formulated:

RQ: What are the most significant dimensions and indicators of performance management in Indonesian government agencies, and how do they relate to each other?

This study's relevance and significance lie in its potential to contribute to the improvement of performance management in Indonesian government agencies. By assessing the measurement model and identifying the most significant dimensions and indicators of performance management, this research can provide insights and recommendations to enhance the effectiveness and efficiency of the current system. These findings could help policymakers and practitioners in designing and implementing sustainable and resilient performance management systems that can contribute to better public services and resource management.

The remainder of the paper is organized as follows. A review of the literature is presented in Section 2. The research methodology is provided in Section 3. Section 4 relates to results and discussion; and Section 5 highlights the study's conclusion.

2. LITERATURE REVIEW

2.1. New public management

The complexity of public demands on the government bureaucracy performance tends to be destitute in giving public services due to the conventional design of the bureaucratic performance that causes the government's inability to oblige the environmental changes. If the public sector still focuses on an administrative approach, thus it is considered to have failed in responding to these challenges. Subsequently, the public sector has to embrace the standards of managerialism. This situation along these lines gave rise to a paradigm related to public sector management reform through new public management (NPM) (Hood, 1991). The NPM emerged as a response to improving the quality of public services. It is presumed that the public service recipients must be treated as customers in market institutions (private). Another reason is the belief that market mechanism is much better when compared with political mechanisms in allocating goods and services in society (Minogue, 1998).

The NPM concept requires: 1) a change in the public management model from the traditional public administration model to a modern public management system by paying attention to the achievement of public performance and accountability; 2) a change from the classical

bureaucratic model to a more flexible modern organizational model; 3) the importance of making organizational goals to be clear on the need to measure the achievements of the public sector through performance indicators and program evaluations systematically; 4) the neutrality of members of the public sector in running the government; 5) government participation is not always facilitated by bureaucratic means; and 6) the tendency to reduce government functions through privatization of the public sector and other forms of marketization (Mascarenhas, 1993; Hughes, 1998; Guy Peters, 2001; Singh & Slack, 2022; Istianto & Wahyurudhanto, 2022).

Implementing NPM has led to a massive change in public sector management from a rigid, bureaucratic, hierarchical traditional management system to a flexible public sector management model. It has also changed the role of government, especially in the relationship between government and society (Hughes, 1998). Thus, the principle of NPM directs public sector to be more adaptive, competitive, productive, effective, and dynamic (Kaboolian, 1998; Barzelay, 2001; Pollit & Bouckaert, 2011). Implementing the NPM concept in Indonesia can be seen as a form of modernization or bureaucratic reform in public administration. Indonesia's NPM phenomenon in bureaucratic reform through the SAKIP has begun to be implemented in the central and local governments. Then it becomes a benchmark for the Indonesian government's performance and accountability.

2.2. Performance management

The conception of performance management concerning public sector performance is increasingly developing. The first idea of Hood (1991) defines that public sector performance management emphasizes the process of achieving goals. Deepening this idea, Armstrong and Baron (1998) define performance management as a strategy and approach to providing organizational success through improving employee performance and increasing individual and group capabilities. Furthermore, Armstrong (2006) updated his thinking that performance management refers to efforts to improve work results to obtain better results, namely by understanding and managing the performance of each sector, which includes a mutually agreed framework of objectives, standards, and requirements. In line with this, Gheorghe and Hack (2017) conclude that performance management activities are like running several businesses in different scopes. Performance management is considered a continuous activity starting from planning, implementation, measurement of results, and action plans.

The continuity of the performance management process, from planning to action plans, forms a performance management system. The system is designed to ensure easy implementation of comprehensive performance management. The availability of performance management systems will serve as a strategic bridge to manage various systems that connect the needs and expectations of various interest groups (Abad et al., 2016). Furthermore, Lee (2005) argues that

a performance management system consists of three benefits: 1) correcting insignificant performance, 2) continuously creating good performance, and 3) improving performance. Roh (2018) concluded that there is a need to improve the implementation of performance management.

In the context of Indonesia, as a unitary state, the role of the central government and local governments is crucial in governance, including in building sustainable performance management. Strengthening this statement, Ateh et al. (2020) and Mamun (2022) stated the vital role of the relationship between the central government and local governments in supporting performance management in Indonesia. In this case, the provincial (regional) government, as the central government's representative, has two roles, namely: 1) carrying out performance management within the scope of the province; and 2) providing performance management support to all regencies and cities in the province. Performance management assistance, as referred into this case, is the document of the performance accountability system of a government institution or SAKIP. Accountability is a value in performance management that indicates responsiveness to the various needs of stakeholders.

Referring to several previous studies, only a small amount of literature discusses sustainable performance management, which leads to economic, social, and environmental development (Park & Krause, 2021; Bouloiz, 2020; Cavicchi & Vagnoni, 2018; Adams et al., 2014). However, the researchers cite the division of Tjahjadi et al.'s (2022) dimension, even though it does not lead to sustainable performance management. Then packaged the performance management dimension of Roh (2018) by elaborating on several previous studies related to sustainable performance management. Additionally, Roh (2018) identified several developments and improvements in the performance management dimension, including the institutional dimension, operational dimension, and value-added dimension.

2.3. Institutional dimension

The dimensions consist of *internal* policies and *national* policies. Internal policies are needed to control the organization's strategy by establishing applicable management procedures and procedures. Internal policies increase the efficiency of employee performance. Based on Alawaqleh (2021), internal control can maximize performance effectively and efficiently with well management policies. According to open system theory, an outstanding organization's success is determined by internal and external factors. The ability of an organization to cope with the pressures of external factors such as economic conditions, politics, culture, technology and competition allows it to perform well. Furthermore, Armstrong (2006) applies a rating based on commendable nature (merit rating). This assessment explicitly assesses employees' personalities, such as integrity, leadership qualities, and cooperation.

Based on Soegoto (2016) findings on performance management using the Balanced scorecard (BSC) approach, performance management is closely

related to employment, while employment is a matter of supply and demand needed by the institutions. Therefore, to improve performance management, the government must have a national-level policy that can direct the development and growth of the country. According to Syahputra (2018), national policies influence resource productivity, for example, by setting policies to reduce differences between middle managers and general staff (even in terms of shifts and wage levels).

2.4. Operational dimension

The dimensions consist of the quality of human resources, support from information, communication, and technology (ICT). According to Aisyah et al. (2017), the quality of human resources has a positive and significant impact on the performance of Municipal Waterworks Company of Jember Regency (*Perusahaan Daerah Air Minum*, PDAM) employees. According to Aisyah et al. (2017), the quality of human resources has a positive and significant impact on the performance in Municipal Waterworks Company of Jember Regency. This phenomenon proves that good human resources, good behaviour, and flexible communication will have an impact on employee performance. Kasannudin (2021) concluded that the quality of human resources significantly influences performance. The quality of human resources is determined by the presence of employees who perform well in the enterprise or organization. Employee development needs must always be assessed and addressed immediately to ensure the effective operation of the organization. In this case, developing employees means increasing their capacity through training, assigning tasks requiring new skills or greater responsibility, improving work processes, or other methods. Providing employees with training and development opportunities will encourage them to perform better, strengthen their job-related skills and competencies, and help employees keep up with changes, such as introducing new technologies.

Based on the study of Muzzaki et al. (2016), it was found that two variables, namely the ease of use of IT (X_1) and the usefulness of using IT (X_2), had a significant influence on performance (Y) of 3.726% and 4.92%, respectively. Based on the results of the F-test, it was found that the calculated F-value was 55.345, which means that the employee performance variable (Y) is significantly influenced by the independent variables, namely the ease of using IT (X_1) and the usefulness of using IT (X_2). Utilizing IT, such as working faster, improving performance, increasing productivity, and making work more effective, easier, and useful, positively affects employee performance. In line with these findings, Bayu et al. (2021) concludes that: 1) the relationship of information technology affects company performance; 2) the relationship of information technology affects company performance with

the ability of management knowledge as a mediating. This means that if ICT is implemented adequately and appropriately, it will support employee performance optimally.

2.5. Value-added dimension

This dimension consists of organization culture. Work culture has a positive and significant influence on the performance of employees in the national unity, politics, and community protection of East Kutai Regency (is a regency of East Kalimantan province, Indonesia). This statement is based on the findings of Muizu and Sari (2019), who, under their hypothesis that finding indicates there is a positive or significant influence between leadership and organizational culture on employee performance. This finding is strengthened by Hasra et al. (2021), which define work culture as a set of assumptions or belief systems, values, and norms developed within an organization that is used as behavioral guidelines for its members to overcome problems of external adaptation and internal integration.

3. METHODOLOGY

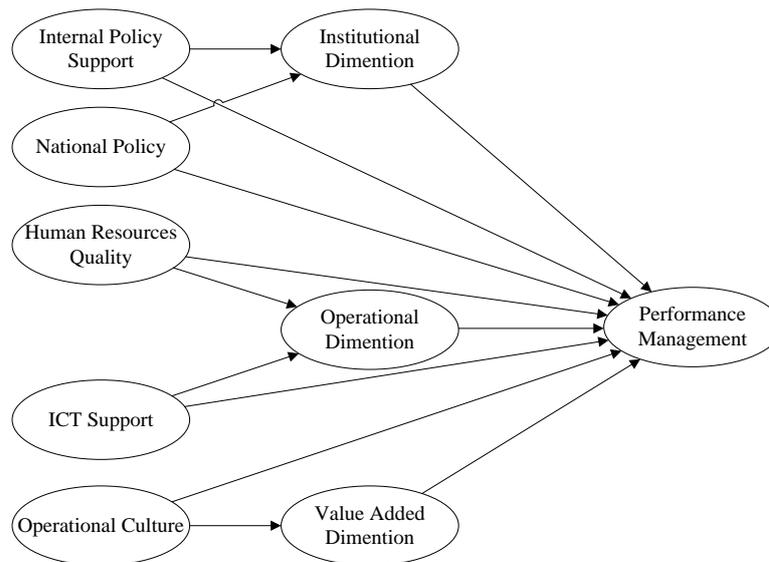
3.1. Research population and sample

The research model was elucidated using SEM-PLS. Data will be pointed out the correlation between each variable. The approach used in this study is a mixed method, where there is a combination of statistical data processing using quantitative methods and qualitative methods (Cresswell, 2012). The research was conducted in several areas, considering their specificity and uniqueness, (Yogyakarta province, West Java province, and South Sumatra province) apropos of data provided by each regional institution through library and field research.

3.2. Statistical tools

Data analysis was imposed by quantitative methods using SEM-PLS, where more than one response variable was correlated with the predictor variables (Johnson & Wichern, 2007; Rencher, 2002). Data were analyzed using the SmartPLS version 3.0 software. In addition, this research can also use path analysis. The difference between path analysis and SEM-PLS is in the data processing, where SEM-PLS uses first or second order. In addition, the fulfillment of the assumptions in the path analysis distinguishes between the two methods because the SEM-PLS does not require the assumptions to be fulfilled. So, in the study, considering the sample and efficiency, it was decided to use SEM-PLS. The research was conducted using the relationship of influence or causality. If there are response variables and predictor variables, then the relationships shown in Figure 1 are obtained.

Figure 1. Research model



Source: Authors' elaboration.

The literature by Roh (2018) suggests that there is a relationship between the operational dimension, the institutional dimension, and the value-added dimension to performance management. The institutional dimension variable has indicators relating to internal policies and national policies. The operational dimension has indicators depicting the quality of human resources and information technology. The value-added dimension has indicators in the form of work culture. The literature review and diagram above show the correlation between each variable.

4. RESULT AND DISCUSSION

4.1. Research sample demographic profile

Table 1 show the characteristics of respondents based on their perspectives. In this paper, we collect 391 civil servants as respondents. This questionnaire has been distributed in the special region of Yogyakarta, West Java province, and South Sumatra province as the location of this research.

The survey that has been conducted shows that the majority of respondents came from West Java province, namely 34.5%, followed by respondents from Yogyakarta and South Sumatra, amounting to 33.8%. Most respondents were from the community range of around 36–40 years (33.5%), with the proportion being male more than female. The survey results also show that most respondents have a monthly income of over 4 million Indonesian rupiah (IDR) (99.7%), and some others (0.3%) have an income of 2 million to 4 million Indonesian rupiah (IDR). In addition, the data shows that most respondents had a bachelor's degree, 53.2%, then a master's degree, 46.8%.

Table 1. The demographic profile

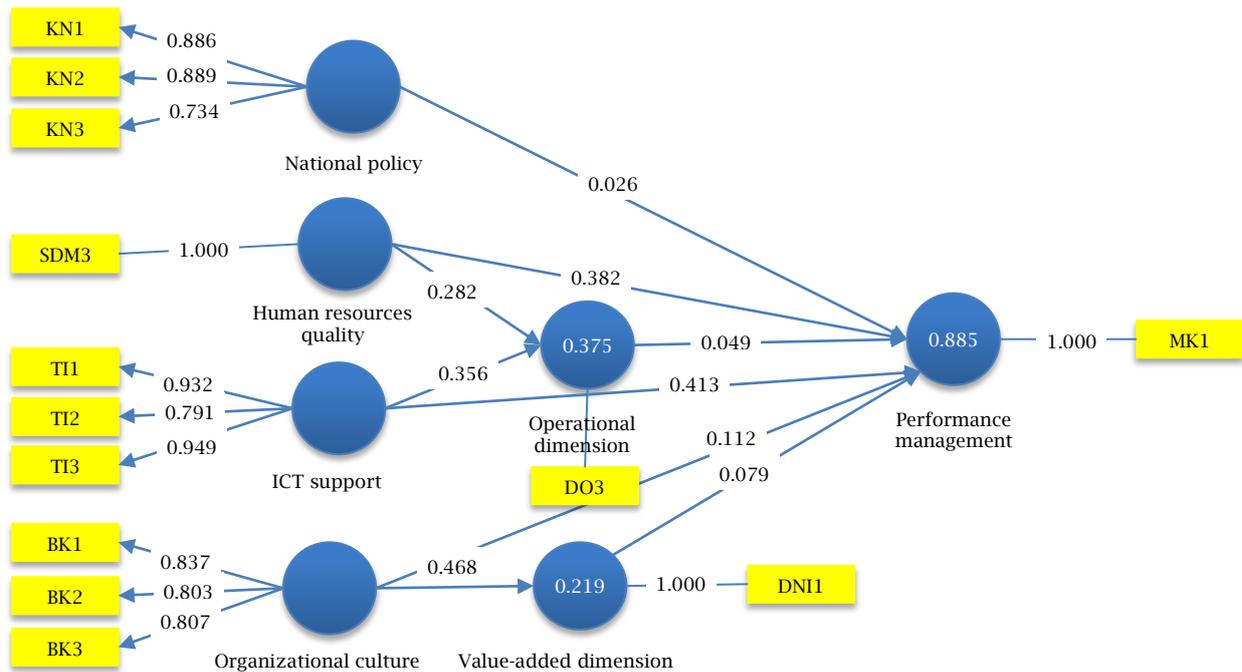
Measure	Items	Frequency	Percentage
Work location	Special region of Yogyakarta	124	31.7%
	West Java province	135	34.5%
	South Sumatra province	132	33.8%
Gender	Male	211	53.96%
	Female	180	46.04%
Age	20–25 years	0	0%
	26–30 years	11	2.8%
	31–35 years	76	19.4%
	36–40 years	131	33.5%
	41–45 years	113	28.9%
	46–50 years	34	8.7%
	51–55 years	26	6.7%
Total income (monthly)	1–2 million	0	0%
	2–4 million	1	0.3%
	Above 4 million	390	99.7%
Education	D3 (diploma)	0	0%
	S1/D4 (bachelor)	208	53.2%
	S2 (magister)	183	46.8%
	S3 (doctoral)	0	0%

Source: Authors' elaboration.

4.2. Structural model analysis

In this paper, we used SmartPLS to analyze the data. The first step is to do an algorithm to validate the data. In this step, we conducted that the *Institutional dimension*, which has been proposed before, has a different validation. However, the *Internal policy* has direct valid data into *Performance management*, which this variable must replace for better analysis.

Figure 2. The correlation of each variable



Source: Authors' elaboration.

The next step is to look at the coefficient of determination (R^2) as soon as the data has been declared valid. Indicators influence the *Operational dimension* from the questionnaire by 37.5%, and factors outside the model influence the other by 62.5%. Furthermore, *Performance management* is 88.5% influenced by the indicators from the questionnaire, and the indicators influence 21.9% of the *Value-added dimensions* from the questionnaire.

In the next step, we observed the relationship between the variable and indicator by bootstrapping; the relation shows the positive and negative effects. The table below shows that each indicator and each variable have a positive effect. This step also showed us the significance of each variable using T-statistic. T-statistic > 1.96 indicates a significant effect, while T-statistic < 1.96 indicates no significant effect. In addition, it can also be seen from the p-value. If the p-value shows less than alpha (0.05), the effect is significant, and vice versa.

Table 2. Data processing R-squared (R^2)

Variable	R-squared
Operational dimension	0.375
Performance management	0.885
Value-added dimension	0.219

Source: Authors' elaboration.

Table 3. Relationship between variables (as hypotheses)

Hypothesis	Coefficient	Mean	STDEV	T-statistic	P-values
H1 ICT support → Operational dimension	0.356	0.365	0.087	4.079	0.000
H2 ICT support → Performance management	0.413	0.419	0.054	7.721	0.000
H3 Human resources quality → Operational dimension	0.282	0.273	0.090	3.126	0.002
H4 Human resources quality → Performance management	0.382	0.376	0.052	7.291	0.000
H5 National policy → Performance management	0.026	0.025	0.021	1.238	0.216
H6 Operational dimension → Performance management	0.049	0.048	0.022	2.182	0.030
H7 Organizational culture → Performance management	0.112	0.114	0.035	3.175	0.002
H8 Organizational culture → Value-added dimension	0.468	0.472	0.053	8.821	0.000
H9 Value-added dimension → Performance management	0.079	0.075	0.027	2.906	0.004

Source: Authors' elaboration.

The data above shows that *ICT support* significantly affects *Operational dimension* and *Performance management* with T-statistic values of 4.079 and 7.721. *Human resources quality* affects *Operational dimension* and *Performance management* with T-statistic values of 3.126 and 7.291, respectively. The *Operational dimension* affects *Performance management* with a T-statistic value of 2.182. *Organizational culture* affects *Performance management* and *Value-added dimension* with

T-statistic values of 3.175 and 8.821. *Value-added dimension* affects *Performance management* with a T-statistic value of 2.906. Meanwhile, the *National policy* does not have a significant influence on *Performance management*.

The next step after we observe the significance of each variable is to show the quality of observation by using blindfolding. In this section, the predictive relevance shows the Q^2 which the value above zero (0) points is counted as well-observed.

Table 4. Data processing the predictive relevance (Q^2)

Variable	Q^2
ICT support	0.578
Human resources quality	1.000
National policy	0.414
Operational dimension	1.000
Organizational culture	0.329
Performance management	1.000
Value-added dimension	1.000

Source: Authors' elaboration.

In the last steps, we ensure how well the model is by observing the normed fit index (NFI) value, which the saturated model has 0.884. This value presented in percentage and became 88.4%, this value showed that the model fit the research.

Table 5. Data processing fix model

	Saturated model	Estimated model
Normed fit index (NFI)	0.884	0.86

Source: Authors' elaboration.

4.3. Discussion

Hypotheses *H1* and *H2* led to the conclusion that ICT support has significantly influenced the operational dimension and performance management. Both are directly related in a T-statistics value of 4.079 and 7.721 with both p-value = 0.000, which is not greater than alpha 0.05. This conclusion is consistent with the researchers confirming the decisive influence of information, communication, and technology support during performance management (Muzzaki et al., 2016; Bayu, 2021). In addition, it confirms the further sustainable performance management to be more adaptive, competitive, productive, effective, and dynamic (Kaboolian, 1998; Barzelay, 2001; Pollit & Bouckaert, 2011) through SAKIP that has been widely linked with ICT support. These results also mean that adequately implementing ICT will support employee performance optimally.

The hypotheses *H3* and *H4* led to the conclusion that the quality of human resources significantly affects the operational aspect and performance management with the T-statistics value of 3.126 and 7.291, with both p-value = 0.000, which is not greater than alpha 0.05. The finding of these hypotheses *H3* and *H4* are confirmed by Sitohang (2009), Kasannudin (2021), and Merisa et al. (2017), that good human resources can give the improving performance of employees. In order to support these results, Rohayatin et al. (2017) verify that to minimize the bureaucratic gap, we need to enhance resource management through human resources quality.

The result of the influence of national policies on performance management (*H5*) showed a T-statistics value of 1.238 that less than 1.96, and a p-value = 0.216, that did not greater than alpha 0.05, which means *H5* is insignificant influencing performance management. Thus, this conclusion denies Soegoto (2016) and Syahputra (2018) findings that deny national policies affect performance quality. Thereby, this *H5* also denies the previous research by Roh (2018) that the institutional dimension did not affect the efficiency increase in further sustainable performance management.

The hypothesis *H6* confirms the significant impact of the operational dimension on performance management, as evidenced by T-statistics of 2.182

and p-value = 0.030. This finding supports that the operational dimension leads to sustainability in economic, social, and environmental enhancing sustainable performance management (Adams et al., 2014; Cavicchi & Vagnoni, 2018; Bouloiz, 2020; Park & Krause, 2021). Like this statement, *H6* confirmed Roh (2018) on the importance used of the operational dimension through government evaluation systems for sustainable performance management.

The hypotheses *H7* and *H8* led to the conclusion that organizational culture had a significant impact performance management and value-added dimensions. The results show a T-statistics value of 3.175 and 8.821, in addition, both p-value = 0.000, which is not greater than alpha 0.05. This means that *H7* and *H8* have significant influence both directly and indirectly. These study results are consistent with those of researchers on the significance of organizational culture (Muizu & Sari, 2019).

The hypothesis *H9* confirms the significant impact of the value-added dimension on performance management with a T-statistic value of 2.906 and p-value = 0.004. This finding supports Roh (2018) that the value-added dimension consists of efficiency, effectiveness, and accountability, which becomes a critical value pursued by sustainable performance management.

5. CONCLUSION

This work has contributed to improving the existing management strategy research by Roh (2018) on the issues of sustainable performance management in provincial governments. Some researchers deliberate more on improving, implementing, and evaluating performance management (Ateh et al., 2020; Choi & Moynihan, 2019). Nevertheless, the authors have not found any earlier studies to find evidence of the determinants of sustainable performance management based on SEM-PLS analysis. This study found that the first factor in establishing sustainable performance management is the operational dimension which is one of the keys to sustainable performance management through the government evaluation system. These findings showed that *H1*, *H2*, *H3*, *H4*, *H6*, *H7*, *H8*, and *H9* significantly influence performance management.

This research is crucial in evaluating the effectiveness and efficiency of the Indonesian government's performance measurement model, and it can provide valuable information for future performance improvement. By utilizing SEM-PLS analysis, the research can determine the reliability and validity of the performance measurement models and provide insight into the relationships between different variables that influence government performance. However, the limitation of this study is that it only focused on three regions in Indonesia, which means that the findings may not be representative of the entire country. As such, the research results must be interpreted carefully and applied in the local context. Nonetheless, this study can serve as a foundation for future research on government performance management, which could lead to better public services, enhanced citizen satisfaction, and increased transparency and

accountability in government agencies. Thus, assessing the performance measurement model in government agencies is essential for future research, as it can provide valuable insights into the strengths

and weaknesses of the current system and pave the way for better policies and strategies that can improve government performance.

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