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Designing Performance Management System Using Balanced Scorecard and Competency-Based Approach: A Case Study At Perumda Air Minum Tirta Jaya Mandiri (PDAM) Kabupaten Sukabumi

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Abstract: This study aims to design an integrated performance management system that links organizational strategy with individual performance and capability at Perumda Air Minum Tirta Jaya Mandiri Kabupaten Sukabumi. A qualitative case study approach was employed through semi-structured interviews with key management personnel and analysis of organizational documents. The data were analyzed using thematic analysis and triangulation to identify gaps between existing performance management practices and ideal system characteristics. The findings indicate that current performance appraisal practices remain administrative in nature and lack strategically cascaded KPIs and a structured competency framework. The proposed integration of the Balanced Scorecard and a competency-based approach enhances strategic alignment, objectivity, and transparency in employee performance evaluation.

Keywords: Performance Management System, Balanced Scorecard, Competency-Based Approach.

INTRODUCTION

Organizations are mandated to ensure high-quality services while ensuring accountability, transparency, and efficient use of public resources. In this context, human resources play a strategic role, as organizational performance is primarily determined by employees' collective skills, behaviors, and ability to execute strategy effectively (Boxall & Purcell, 2016). In answer to that, the Performance Management System (PMS) turned into a critical managerial mechanism to align individual performance with organizational objectives, particularly in public sector organizations where service quality and stakeholder trust are essential (Aguinis, 2019)

However, empirical studies report that performance management practices in public organizations often remain administrative, subjective, and weakly linked to strategic goals (Kim & Rubianty, 2022; Pratama, 2021). Usually, Performance evaluations are dominated by employees' attendance records, task completion, and compliance-based audits, with limited use of measurable performance indicators and competency standards. Such practice could reduce

the development value of performance management and increase the risk of bias, unfairness, and misalignment between individual contribution and organizational priorities (de Araujo et al., 2024)

The Balanced Scorecard (BSC) has been widely adopted as a strategic performance measurement framework to address these limitations by translating organizational vision and strategy into a balanced set of financial and non-financial indicators (Kaplan & Norton; Niven, 2019). Through its cascading mechanism, the BSC translates organizational objectives into unit-level and individual performance targets, thereby strengthening strategic alignment and accountability. Nevertheless, many BSC implementations, particularly in the public sector, remain focused on the organizational level and do not capture employee behavior and capability as key performance drivers (Northcott & Taulapapa, 2012; Widodo & Nugroho, 2023).

To answer the limitation, Competency-based approaches emphasize the assessment of observable behaviors, skills, and underlying capabilities that explain how performance results are achieved (Boyatzis, 2018; Armstrong, 2019). By integrating the competency assessment into the Performance Management System, organizations cannot only evaluate performance outcomes but also the potential within each employee, supporting fairness, continuous development, and long-term capability building. However, previous studies indicate that integrated frameworks combining strategy-based performance indicators and competency-based assessment at the individual level remain limited, particularly in the context of regional public utilities or local government-owned enterprises (Putra, 2021; Widajaja & Suryani, 2022).

This study addresses this gap by designing an integrated Performance Management System that combines the Balanced scorecard and a competency-based approach in the context of PDAM Tirta Jaya Mandiri Kabupaten Sukabumi. The study aims to analyze existing performance management practices and develop a framework that enhances strategic alignment, objectivity, and transparency while supporting employee development in a public services organization.

METHOD

This study uses a qualitative research design using a case study approach to develop an integrated Performance Management System (PMS) in a public service organization. The case study method is appropriate because it enables an in-depth understanding of the organizational context, managerial practices, and performance management challenges in real-world settings (Yin, 2018). The research object is Perumda Air Minum Tirta Jaya Mandiri (PDAM) Kabupaten Sukabumi, a regional public water utility that has not yet implemented a structured and objective PMS.

The Primary data were collected through semi-structured interviews with the General Director, Head of Human Resources, and Head of Procurement. These informants were selected using purposive sampling because they are directly involved in strategic decision-making, human resource management, and operational performance. The interviews focused on the current performance management practices, strategic priorities, balanced scorecard, and competency-based dimensions. Secondary data were obtained from internal organizational documents, such as strategic plans, organizational structure, financial reports, and performance records, to support data triangulation and contextual understanding (Kvale, 2015)

Data analysis was conducted using thematic analysis to identify patterns and key themes related to the performance management practices and gaps. The analysis followed systematic stages of data familiarization, coding, theme development, and interpretation (Braun & Clarke, 2006). To enhance validity and reliability, triangulation was applied by cross-checking interview findings with secondary data and relevant literature (Miles & Huberman, 2014).

The Performance Management System is then designed by integrating both the Balanced Scorecard to measure performance outcomes and a competency-based approach to assess employee potential (Kaplan & Norton, 1996; Boyatzis, 2018). This integration resulted in a

structured performance and potential appraisal model that aligns with the organizational context of PDAM Kabupaten Sukabumi

RESULTS AND DISCUSSION

The findings indicate that performance management practices at PDAM Kabupaten Sukabumi remain administrative and fragmented. Performance evaluation is primarily based on attendance records and task completion, as well as periodic external audit without an internal system of KPIs that translates the organizational strategy into individual targets. This condition limits strategic alignment and increases subjectivity in performance assessment, which is consistent with previous studies on public sector performance management (Kim & Rubianty, 2022); Pratama, 2021)

The absence of internally cascaded KPIs weakens the organization's ability to align daily operational activities with long-term objectives. Kaplan and Norton (2001) argue that without a clear linkage between strategy and performance indicators, performance management systems risk becoming administrative tools rather than mechanisms for strategy execution. In the context of PDAM Kabupaten Sukabumi, this gap explains why consistent improvements in service quality and internal process effectiveness do not necessarily accompany aggregate-level performance improvements.

To address this limitation, this study proposes a Balanced Scorecard–based performance measurement framework that translates PDAM's strategic objectives into a strategy map across four perspectives, (1) *financial perspective,* (2) *Customer perspective*, (3)*Internal process*, and (4) *learning and growth perspective,* as shown in Figures 1 that later on will be the translated into the Key Performance Indicators

Perspective	Objectives	Performance Measures	Parameter
Financial	Increase cost efficiency and optimize asset utilization	1. Cost Efficiency of Operations 2. Effectiveness of asset utilization	1.Percentage of operational cost savings per year compared to previous year 2.Percentage of asset utilization rate
Customer (Internal)	Improve internal satisfaction through smooth support and service	1.Quality of internal service delivered by support units (including procurement) 2. Responsiveness to internal request and issues	1.Percentage of internal users reporting "Satisfied/very satisfied" in internal satisfaction survey 2.Average response/resolution time (Days/hours) for internal request
Internal Process	Improve compliance, coordination efficiency, and integrity of interdivisional process	1. Level of SOP implementation in key processes 2. Speed and smoothness of cross-division processes 3. Strengthening governance, transparency, and accountability in procurement and financial processes 4. Effectiveness of internal oversight mechanism	1.Percentage of transactions compliant with SOP (based on sampling/audit) 2.Average process turnaround time between divisions (request–approval–execution) 3.Percentage of procurement processes applying segregation of duties (request–verification–execution–payment) 4. Percentage of transactions using multi-level authorization in the system 5. Percentage of procurement/financial transactions recorded in digital audit-trail systems 6. Number of internal audit findings related to process or integrity violations 7. Number of validated whistleblowing reports followed up within a defined period
Learning Growth	Strengthen employee competence, system literacy, and ethical awareness	1.Fulfilment of competency standards for key positions 2. Effectiveness of training and development programs 3.Strength of ethics, anti-fraud, and compliance culture	1.Percentage of employees meeting target competency level for their position 2. Percentage improvement in post-training assessment scores compared to pre-training 3. Percentage of employees who have completed ethics/anti-fraud/SOP-compliance training

Figure 1. Strategy Map

The strategy map clarifies cause and effect relationships among strategic objectives, illustrating how improvements in employee capabilities and internal processes support service quality and, ultimately, financial sustainability. In line with Niven (2019), the strategy map

functions as a strategic alignment mechanism rather than merely a measurement tool, ensuring that performance indicators reflect both outcomes and performance drivers.

Based on the strategy map, a set of KPIs was formulated and cascaded to the Procurement Division to operationalize performance measurement at the functional level (Table 1). The selected KPIs emphasize cost efficiency, internal service reliability, process integrity, transparency, and employee capability development. This reflects a deliberate shift from attendance-based evaluation toward outcome-oriented and process-aware performance assessment. Such a shift is critical for public service organizations, where efficiency, accountability, and ethical conduct are equally important performance dimensions (de Araújo et al., 2024).

BSC Perspective	KPI Indicator	Definition	Parameter
Financial	Procurement Cost Saving Rate	Percentage of savings achieved compared to the budget	% operational cost savings per year
Financial	Asset Utilization Rate	Accuracy between the realized and planned budgets	% of assets utilization rate
Customer (Internal)	Internal Customer Satisfaction Index	Percentage of internal users reporting *"Satisfied/very satisfied."*	% satisfaction survey results
Customer (Internal)	Internal Request Solution Time	Avg. Time to respond and resolve the internal request	Avg. resolution time (days/hours)
Internal Process	SOP Compliance Rate	Percentage of Transactions Compliant with SOP	% compliant transactions (Audit sampling)
Internal Process	Cross-Division Process Turnaround Time	Average processing time between divisions	Avg processing duration (request – approval – execution)
Internal Process	End-to-End Procurement Process Completion Rate	Percentage of procurement processes completed fully	% cycle completed (request–verification–execution–payment)
Internal Process	Multi-Level Authorization Utilization Rate	Percentage of transactions using a multi-level authorization system	% transactions with multi-level authorization
Internal Process	Digital Audit-Trail Recording Rate	Percentage of procurement transactions recorded in the digital audit trail	% transactions digitally recorded
Internal Process	Integrity Violation Findings	Number of internal audit findings related to integrity violations	Number of violations
Internal Process	Whistleblowing Follow-Up Rate	Percentage of validated whistleblowing reports followed up	% reports followed up within the defined period
Learning & Growth	Competency Standard Fulfillment Rate	Percentage of employees meeting target competency level	% employees meeting competency standard
Learning & Growth	Post-Training Performance Improvement Rate	Percentage improvement in post-training assessment scores	% improvement compared to pre-training
Learning & Growth	Ethics & Compliance Training Completion Rate	Percentage of employees completing ethics/anti-fraud/SOP training	% training completion

Analytically, the inclusion of internal customer satisfaction and internal request resolution time underscores procurement's role as an internal service provider rather than a purely administrative unit. This perspective aligns with contemporary public sector management literature, which emphasizes internal service quality as a determinant of overall organizational performance (Northcott & Taulapapa, 2012). Similarly, the inclusion of process-related KPIs, such as SOP compliance and digital audit-trail recording, strengthens governance and transparency, addressing common accountability challenges in public procurement functions.

However, performance outcomes alone are insufficient to capture the full contribution of employees, as they fail to explain the behaviors and processes through which results are achieved (Aguinis, 2019; DeNisi & Murphy, 2017). This limitation is particularly critical in public service organizations, where ethical behavior, coordination, and service orientation are essential performance dimensions beyond numerical outcomes (Kim & Rubianty, 2022; de Araújo et al., 2024). Therefore, this study complements KPI-based performance measurement with a competency-based approach that focuses on observable behaviors and underlying capabilities that drive sustainable performance (Boyatzis, 2018; Armstrong, 2019). Competencies are classified into core, functional, and leadership categories to reflect ethical values, technical expertise, and managerial capacity required to support organizational strategy (Campion et al., 2011; SHRM, 2016).

Position	Core Competencies	Functional Competencies	Leadership Comptencies
Staff Procurement (Operational Competencies focused on Execution)	Ethical Standards, Innovation, Sustainability Awareness, and Professional Discipline.	Procurement Planning, E-Procurement Systems, Strategic Sourcing, Contract Management, Supplier Relationship Management	-
Head of Procurement (Strategic competencies focused on planning and alignment with organizational goals)	Ethical Standards, Innovation, Sustainability Awareness, and Professional Discipline	Strategic Procurement Planning, Advanced E-Procurement System, Contract Negotiation and Management, Supplier Relationship Strategy, Data Analysis for Decision Making	Transformatational Leadership, Decision-Making, Communication, Visionary Thinking, Team Building, Regulatory Compliance Knowledge.

The classification of competencies provides a structured foundation for assessing employee capability across different organizational roles. This structure aligns with prior competency modelling literature, which emphasizes the importance of distinguishing between organization-wide behavioral competencies, job-specific technical competencies, and leadership competencies to ensure strategic alignment and fairness in assessment (Campion et al., 2011; SHRM, 2016).

Competency assessment in this study is conducted using *360-degree feedback* across all competency categories. The use of a single, integrated assessment tool reflects practical considerations related to implementation feasibility and resource constraints in public sector organizations. Previous studies indicate that multi-source feedback is effective in capturing observable work behaviors, reducing single-rater bias, and enhancing perceived fairness when supported by clear behavioral indicators (Bracken et al., 2016; Church & Silzer, 2020).

To integrate performance outcomes and competency-based potential, this study adopts the 9-Grid framework as an analytical integration tool. The framework links KPI-based performance levels with competency-based potential levels, enabling a more holistic appraisal perspective that considers both achievement and behavioral capability.

	Low Performance	Medium Performance	High Performance
High Potential	**Development Priority** Employees have strong growth capacity but current performance is still low, indicating the need for intensive coaching, job fit evaluation, and capability strengthening.	**Emerging Talent** Employees show good growth capacity and moderate performance. They are suitable for accelerated development through training, mentoring, and job enrichment.	**High Potential Talent** Employees demonstrate excellent performance growth capacity. They should be prioritized for succession planning and leadership acceleration.
Medium Potential	**Underutilized Talent** Employees show moderated capability but fail to deliver expected result. Job mismatch or motivation issues may occur and require managerial intervention.	**Core Contributor** Employees perform consistently and have sufficient capability to sustain performance. They form the backbone of daily operations.	**Core Performer** Employees deliver strong results with stable capability. They should be maintained through performance-based rewards and selective development.
Low Potential	**Risk Talent** Employees show weak performance and limited growth capacity. They require serious evaluation related to reassignment, reskilling, or corrective action	**Inconsistent Performer** Employees show moderate performance but limited future capacity. they require performance stabilization and basic development	**Solid Performer** Employees deliver good results but show limited future growth capacity. They are reliable in execution but not prioritized for leadership pipelines

In this study, the 9-Grid framework is used solely as an analytical tool to integrate performance and potential dimensions within the Performance Management System. Performance scores are derived from Balanced Scorecard–based KPIs, while potential scores are obtained from competency-based assessment. The integration of these two dimensions provides a holistic appraisal perspective that captures not only what employees achieve but also their capability for future development.

The results of the 9-Grid analysis are not positioned as a standalone talent classification or managerial decision instrument. Instead, they serve as a synthesis mechanism that supports consistent interpretation of appraisal outcomes and informs development-oriented follow-up actions, such as coaching, targeted training, or performance stabilization.

Through this integration, the proposed PMS moves beyond an administrative evaluation tool toward a strategic and developmental system. The system's final output is an integrated performance appraisal form that consolidates KPI achievement, competency assessment, and development direction, ensuring alignment among individual performance, capability development, and organizational strategy.

To maintain conceptual clarity and practical feasibility, the structure of the integrated performance appraisal form is summarized in the table below.

Section	Assessment Focus	Data Source
KPI-Based Performance Assessment	Achievement of strategic targets	Balanced Scorecard KPIs
Competency-Based Potential Assessment	Behavioral and Capability evaluation	360-Degree Feedback
Performance- Potential Integration	Holistic interpretation of results	9-Grid Framework
Development Recommendation	Individual improvement direction	Appraisal synthesis

Through this integrated appraisal structure, the proposed Performance Management System moves beyond a purely evaluative function toward a strategic and developmental mechanism. The performance appraisal form ensures transparency, consistency, and alignment between individual performance, capability development, and organizational strategy.

CONCLUSION

This study was conducted to design a Performance Management System using a Balanced Scorecard and a competency-based approach in the context of Perumda Air Minum Tirta Jaya Mandiri (PDAM) Kabupaten Sukabumi. The research objective was to develop an integrated system that links organizational strategy with individual performance and capability in a public service organization where performance evaluation practices were previously administrative and weakly structured.

The findings of this study support the formulation of an integrated Performance Management System that translates organizational strategy into measurable performance indicators while incorporating competency assessment to capture behavioral and capability dimensions. The Balanced Scorecard provides a structured mechanism to cascade strategic objectives into Key Performance Indicators, while the competency-based approach complements outcome measurement by explaining how performance results are achieved. The integration of these two components, supported by the 9-Grid framework as an analytical tool, enables a coherent linkage between performance achievement and employee potential without positioning talent mapping as an independent managerial decision instrument.

From an industrial engineering and management science perspective, this study contributes by offering a systematic design framework that integrates strategy execution, performance measurement, and human capability assessment into a single operational appraisal system. The proposed design improves the clarity, consistency, and traceability of performance evaluation processes, which are critical elements in improving organizational effectiveness and resource utilization in public sector systems. By structuring performance appraisal as an integrated system rather than a standalone administrative process, this study provides a practical reference for developing performance management systems in similar public service organizations.

REFERENSI

Aguinis, H. (2019). *Performance management* (4th ed.). Chicago Business Press.

Armstrong, M. (2019). *Armstrong's handbook of performance management: An evidence-based guide to delivering high performance* (6th ed.). Kogan Page.

Boyatzis, R. E. (2018). *The competent manager: A model for effective performance* (2nd ed.). John Wiley & Sons.

Bracken, D. W., Rose, D. S., & Church, A. H. (2016). The evolution and devolution of 360° feedback. *Industrial and Organizational Psychology*, 9(4), 761–794. https://doi.org/10.1017/iop.2016.93

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77–101. https://doi.org/10.1191/1478088706qp063oa

Boxall, P., & Purcell, J. (2016). *Strategy and human resource management* (4th ed.). Palgrave Macmillan.

Campion, M. A., Fink, A. A., Ruggeberg, B. J., Carr, L., Phillips, G. M., & Odman, R. B. (2011). Doing competencies well: Best practices in competency modeling. *Personnel Psychology*, 64(1), 225–262. https://doi.org/10.1111/j.1744-6570.2010.01207.x

Church, A. H., & Silzer, R. (2020). Going behind the curtain with a new generation of leadership assessment tools. *People and Strategy*, 43(2), 50–57.

De Araujo, R. M., Tejedo-Romero, F., & de Sousa, R. T. (2024). Performance management systems in the public sector: Challenges for transparency and accountability. *Public Management Review*, 26(2), 312–330. https://doi.org/10.1080/14719037.2022.2105678

DeNisi, A. S., & Murphy, K. R. (2017). Performance appraisal and performance management: 100 years of progress? *Journal of Applied Psychology*, 102(3), 421–433. https://doi.org/10.1037/apl0000085

Kaplan, R. S., & Norton, D. P. (1996). *The balanced scorecard: Translating strategy into action*. Harvard Business School Press.

Kaplan, R. S., & Norton, D. P. (2001). *Strategy-focused organization: How balanced scorecard companies thrive in the new business environment*. Harvard Business School Press.

Kim, S., & Rubianty, D. (2022). Performance appraisal fairness and effectiveness in public organizations. *Public Personnel Management*, 51(2), 256–274. https://doi.org/10.1177/00910260211059943

Kvale, S., & Brinkmann, S. (2015). *InterViews: Learning the craft of qualitative research interviewing* (3rd ed.). Sage Publications.

Miles, M. B., Huberman, A. M., & Saldaña, J. (2014). *Qualitative data analysis: A methods sourcebook* (3rd ed.). Sage Publications.

Niven, P. R. (2019). *Balanced scorecard evolution: A dynamic approach to strategy execution*. Wiley.

Northcott, D., & Taulapapa, T. M. (2012). Using the balanced scorecard to manage performance in public sector organizations. *International Journal of Public Sector Management*, 25(3), 166–191. https://doi.org/10.1108/09513551211224234

Pratama, A. B. (2021). Performance management challenges in Indonesian public sector organizations. *Journal of Public Administration Studies*, 6(2), 89–102.

Putra, R. D. (2021). Integrating performance measurement and competency assessment in public organizations. *Jurnal Manajemen dan Kewirausahaan*, 23(1), 45–56.

SHRM. (2016). *Competency-based HR management*. Society for Human Resource Management.

Widjaja, G., & Suryani, A. (2022). Designing competency-based performance appraisal systems in local government enterprises. *Journal of Asian Public Policy*, 15(3), 415–430. https://doi.org/10.1080/17516234.2021.1940621

Widodo, J., & Nugroho, R. (2023). Strategic performance management in Indonesian public organizations. *Public Organization Review*, 23(1), 87–104. https://doi.org/10.1007/s11115-022-00620-5

Yin, R. K. (2018). *Case study research and applications: Design and methods* (6th ed.). Sage Publications.