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The Link between Components of Performance Management and Performance Management Effect

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Abstract

Research findings on the outcomes of performance management are inconclusive as researches reported both intended and unintended consequences of performance management. This paper investigates the extent to which the components of the performance management process influence the performance management effect in the public organizations. Performance management comprises a range of practices an organization engages in, from which this study investigates the influence of participation in target setting, performance information use, performance information processing capacity, performance review, performance indicators quality, and provision of performance management training on performance management effects. Understanding the link between components of performance management and performance management effects would guide how to improve performance management. Regression analysis based on data obtained from a survey of public sector organizations in Ethiopia indicates the influence of Participative target setting, Performance information processing capacity and Use of performance information on the Performance management effects were not statistically significant. In contrast, Performance indicators quality, Provision of training on performance management, and Performance Reviews significantly affect performance management outcomes. The study point outs the strategies the organizations can implement to improve the Performance management effects.

Keywords: performance management effects, performance management, result-oriented performance management, public sector performance management, performance management process

Introduction

Performance management takes many different forms: some are designed for application within individual organizations (micro perspective), while others are for the management of the entire government (macro perspective) (Lee & Kim, 2007). Researchers (such as Boschken, 1994; Binnendijk, 2000; and Kamensky & Fountain, 2008) noticed the important distinctions among performance analysis at micro, meso, and macro perspectives. Performance management analysis at micro perspective deals with the performance of an individual employee or small group, project, program, or organization; Meso perspective deals with a performance at a policy arena or sectoral level; and Macro perspective deals with the performance of the entire country, supra-national as well as local and regional governments. This study investigates effects of performance management in the domain of organization, which takes a micro perspective.

Performance management within a micro perspective is a multidimensional construct; and comprises a 'range of practices' an organization engages in to ultimately improve organizational performance (De Nisi & Gonzalez, 2000). Performance management is a means to execute organizational strategy by setting expectations in advance, measuring the performance of individuals and groups, fixing accountability for behavior and results, and helping to improve performance (Bae, 2006). Muriu (2017) describes performance management as the process of setting goals through strategic planning, measuring indicators during implementation, and using the obtained information to make decisions on service delivery. In the definition of performance management, given by Lee& Kim (2007), the key components of performance management are setting and communicating clear performance goals, performance monitoring and measurement, and linking performance with rewards and accountability. Likewise, this paper defines organizational performance management as a process that comprises setting and communicating clear performance targets, selecting performance indicators, monitoring and measuring performance, and using performance information for decision-making.

In the process of organizational performance management, organizations first establish targets, select indicators, and identify performance standards. Then, performance measurement involves performance monitoring, evaluation and review. Organizations collect performance data for each indicator as part of the process of monitoring and evaluation. The regular performance review follows performance monitoring and evaluation to determine the level of goal achievement (Kamensky & Fountain, 2008). Performance measurement ultimately provides performance information that helps managers to make appropriate decisions almost in all management functions. Organizations use performance information to modify strategies or activities that improve the achievement of results and to link all organizational activities with the organization-wide goal (Kamensky & Fountain, 2008). Moreover, performance information is useful for learning, resource allocation, program adjustment, accountability, incentives, and other decisions.

Research findings on the outcomes of performance management are inconclusive. Organizations adopt performance management in the hope that it will bring them positive results such as better employee motivation, performance enhancement, organizational learning, and higher performance culture (Lee & Kim, 2007). Performance management system improves the results of individual or team efforts by linking these to the organization's corporate objectives (John, 2000). Kettl and Kelman (2007) view performance management as a central plank in the future of governance; however, other researchers reported that performance management has intended and unintended outcomes (Van Dooren et al., 2010) performance management has positive and negative outcomes (Johnsen, 2005), performance management has small and uncertain effects (Andersen & Nielsen, 2020). Performance management has been criticized as is rhetoric and disconnected from reality (Van Dooren et al., 2015). A review of empirical researches on performance management by Johnsen (2005) summarizes the positive and negative outcomes of performance management. Wenene (2016) on his part argues the reforms aimed at strengthening performance management and service delivery are not producing the desired results; while Anh Vu et al. (2022) indicate performance management has been often promoted as an innovation to improve public sector performance, but globally is hard to implement. It implies that the expected results from performance management is not always for granted. A review of researches on performance management by Andersen and Nielsen (2020) shows, the average effects of performance management systems are small and uncertain.

As the research findings on the outcomes of performance management are inconclusive, Wholey (1999) calls for study on the value of performance management in terms of improving management systems, accountability, resource allocation, and policy decisions, and finally improving program performance and public confidence in public agencies. Similarly, Verbeeten (2008) suggests a study on the interaction of the performance management system with other aspects of the control system such as reward and accountability in public sector organizations. Oliveira et al. (2021) suggest further research to shed light on the link between performance management and organizational communication.

Since performance management is a multi-faceted phenomenon, it is essential to study the impact of individual components of performance management, rather than embracing or discarding performance management altogether (Andersen & Nielsen, 2020). Therefore, this study investigates how each component of performance management influences the performance management effects. It raises a research question; to what extent do the key components of the performance management process influence the performance management outcomes of public organizations?

The key components of the performance management process included in the study are participative target setting, performance indicators quality, performance information processing capacity, provision of training for accomplishing performance management, performance information use, and performance reviews. In the context of this study, Performance Management Effect refers to the extent to which performance management motivates employees; stimulates organizational learning; helps communicate more effectively with elected officials; promotes accountability, and the extent to which investment in organizational performance management is worthwhile.

The remaining part of this paper consists of the description of performance management outcomes, the presentation of theoretical background of the research hypotheses on the link between key components of performance management process and performance management effects, description of data and research method, and presentation of results, discussions and the way forward.

Performance Management Outcomes

Learning is one of the outcomes of performance management as organizations learn from the performance management process what is possible and desirable. It may happen in the form of skills, knowledge, and attitudes transfer between countries, between levels of government, and between types of services

(Bouckaert & Peters, 2002) as it occurs between individuals. In performance management practices, learning is mostly accomplished through performance models such as benchmarking and best value, in which best practices and standards are provided. Generally, performance management practices trigger organizational learning (Bouckaert & Peters, 2002), and specifically, the feedback in the performance management process aids adaptation and learning. Marr and Gray (2012) suggest collection and use of the relevant performance indicators, analysis, review, and challenge performance will create an enabling learning environment.

The other outcome of performance management is employee motivation. Modern performance management models such as BPR and BSC recognized the long established association between different kinds of rewards and motivation and they encourage the execution of performance-based reward to motivate employee for higher performance. As part of motivating people to higher performance, organizations have in the past reward excellence and will continue in the future to reward excellence with the allocation of monetary rewards (Niven, 2002). BSC-based performance management system additionally provides intrinsic rewards through participating employees in strategy design, goal setting, and performance measurement. Boyle (1996) argues incentives are essential to improve management and accountability because changes in how organizations evaluate and reward managers are critical to effecting any change in how they manage. Whitford and Coetsee (2006) argue explicit recognition and reward of high-performing individuals is a desirable value of the organization.

Performance management has effect on ensuring accountability for results. Accountability in the public sector bears the responsibilities and obligations of public officials to the public in performing their functions (Aucoin & Heintzman, 2000). Accountability is a cornerstone of public management because it constitutes the principle that informs the processes whereby those who hold and exercise public authority are held to account (Aucoin & Heintzman, 2000). The current emphasis on both accountability and performance measurement has been associated with the increased skepticism and discontent of the public with how their tax money is being spent. Performance measurement with an emphasis on outcomes has been heralded as one way to respond to demands for results-oriented accountability (De Lancer, 2006). Dubnick and Frederickson (2011) also argue that to ensure accountability for the improvement of outcomes of the organizational program, a system of performance measurement can be a solution. Accordingly, measures of the measurable, measures of processes in lieu of outcomes, and measures of the surrogates of results are understood to be useful and legitimate (Dubnick & Frederickson, 2011).

Performance management has many more outcomes. Organizations that implemented the BSC enhance their extant relationships with stakeholders using performance management as an instrument of communication. Oliveira et al., (2021) argue that organizational leaders adopt performance management tools to meet the challenge they are in communicating strategic goals to the stakeholders. Thus, communication with elected officials and other internal and external stakeholders is another outcome expected from performance management. Research by Yang and Hsieh (2007) recognizes as performance management effects: enhanced staff evaluation, priority setting, cost-efficiency, strategic planning, improved external communication, public accountability, customer responsiveness, and citizen trust. The study by Ammons et al. (2013) considers, as outcomes of performance management: improved performance, greater accountability, better management decisions, greater clarity about goals and objectives, improved service quality, greater service efficiency, greater success in meeting strategic goals, more suitable allocation of resources among programs, interdepartmental collaboration, improved teamwork, strengthened organizational culture, and improved human resource management. The next subsection presents the proposed links between components of performance management and the outcomes of performance management.

The Performance Management Process and Performance Management Effects

The process of performance management influences outcomes expected from performance management. Boyle (1996) argues, how organizations evaluate performance and reward employees and managers are critical to influencing any change in how they manage. Diefenbach (2009) on his part argues systematic, regular, and comprehensive performance management activities such as capturing, measuring, monitoring, and assessing organizational and individual performance will lead to positive consequences such as increased efficiency, productivity, and quality, higher performance, and motivation. He argues that explicit targets, standards, performance indicators, measurement, and control systems make management to be based on facts and provide decisions on a rational basis. Likewise, Courpasson (2000) shows performance management increases the chance to hold people accountable and to reduce illegitimate privileges. Performance measurement is important for improving trust, accountability, and ensuring value for money (Carter, et al, 2002; Yang & Holzer, 2006). Yang and Holzer (2006) also indicate that performance measurement improves public trust in government when citizens directly participate in the evaluation process. These reports of prior researches indicate the

interdependence among different elements of performance management and performance management outcomes.

Since performance management is a multi-faceted phenomenon that includes measuring performance, setting targets on one or more performance dimensions, evaluating the performance against these targets, and using this information, it is essential to study the impact of individual components of performance management, rather than embracing or discarding performance management altogether (Andersen & Nielsen, 2020). Understanding the effect of each performance management component would help us understand how to improve performance management effects. Accordingly, the next paragraphs summarize the linkages of performance management effects with key components of the performance management process, namely: participation in target setting, performance information processing capacity, quarter performance review, performance indicators quality, performance information use, and provision of performance management training.

Participative performance target setting refers to the extent to which employees take part in target setting and negotiate on targets with their superior, as well as the extent to which top-level management communicates performance targets to employees and the extent to which the employees understand their work unit's performance targets. Literature documents the participation of employees in setting performance targets has linkage with performance management effects. A study by Sanderson (2001) indicates the participation of employees in target setting has positive results in encouraging learning. Kamensky and Fountain (2008) argue frontline involvement is essential to identify the activities they engage in and the service those activities produce and how to measure the degree of progress being made. Ammons, et al. (2013) examine the contribution of the engagement of senior managers in performance review to the levels of performance management success among a set of seventy-two U.S. local governments that were known as having good performance management. Their finding shows local governments having an executive review of operating units' performance routinely secure more benefits from performance management than those whose senior executives' engagement in review is only ad hoc or rare. Sathornkich (2010) also confirmed the importance of engagement in his study conducted in Thailand. Based on these prior research findings, this study developed the first hypothesis.

1. *Participation in setting performance targets positively influences performance management effects.*

Performance measurement and using the resulting information is another key component of performance management process. Performance measurement produces performance information that may take the form of statistics, analyses, annual reports, press releases, or media articles (Johnsen, 2005). As simply measuring performance is not sufficient for performance management, organizations must use the performance information produced. This study assesses the use of performance information in terms of the extent to which organizations use the information obtained from performance measurement in decisions on developing the organizational plan, budgeting, changing work process, identifying performance problems, taking corrective actions to solve the low-performance problem, setting or revising performance goals, and refining performance measure.

Performance information is essential for learning, resource allocation, program adjustment, accountability, incentives, and other decisions. Moreover, performance information is vital to link all organizational activities with the organization-wide goal (Kamensky & Fountain, 2008). Performance information provides evidence that informs decision-making, thereby determining the quality of decisions. An evidence-based decision that prescribes facts on outputs and outcomes should inform decisions rather than ideologies or opinions. Performance information serves as an instrument of controlling to impose positive or negative sanctions. The use of performance information challenges our fundamental hypotheses in performance measurement and public administration (Liu & Dooren, 2013). Suppa and Webb (2016) found that the actual use of performance information is the best indicator of where public organizations find success in implementing performance based management. As a wide range of research findings agreed on the useful role of performance information for learning, ensuring accountability, motivating employees through execution of performance-based rewards, and finally to improving policy decisions and organizational performance, this study developed the second hypothesis as follows.

2. *Performance information use positively influences performance management effects.*

A study by Andersen and Nielsen (2020) observe that public managers seldom used purposefully performance information and that performance management does not improve performance as intended. This is because many organizations lack the necessary capacity to process the performance information and avail it in a usable form. Moreover, Vakkuri and Meklin (2003) divulge that in performance management, critical challenges that managers face are getting data and turning data into information that can be used for management decision-making. Information processing is the purposeful generation, aggregation, transformation, and dissemination of information associated with accomplishing some organizational task (McCormack & Trkman, 2014). The

information processing capacity refers to the ability of an organization to achieve easy accessibility of performance information to the stakeholders, availability of the performance information in a usable format, availability of analytical tools for collecting, analyzing, and using performance information, and availability of capable manpower to analyze performance information.

We argue that the performance information processing capacity is a critical factor for performance management effects, because the organization can use performance information only when they can process and avail the information for use. Technical issues stemming from basic difficulties in designing, developing and implementing data and analyses methods affect a performance management system (Suppa & Webb, 2016). McCormack and Trkman (2014) show the increase in information processing needs demands an increase in information processing capabilities, which leads to better acceptance, better decision-making, and consequently better performance. Thus, the third hypothesis states the link between performance information processing capacity and performance management effects as follows.

3. *Performance information processing capacity positively influences performance management effects.*

Program evaluation and performance review are important mechanisms for feedback and coaching. According to Kamensky and Fountain (2008), performance management requires institutionalized ways of obtaining feedback from service using citizens through engagement methods ranging from the traditional, face-to-face public hearings to more interactive, online efforts, such as wikis and blogs. The feedbacks help to evaluate non-achieving programs, to identify the causes for failure to achieve desired results and to find solution to improve performance. Performance review also helps to check the quality of reporting through discussions with stakeholders like management, elected officials, the media, customers, and the public to improve the quality of the report (Kamensky & Fountain, 2008). The information flow and feedback in the performance review process help organizations to learn from their experiences and employ the information obtained in each stage to reconsider alternatives (Helden et al., 2012). The information flow and feedback in the performance review process improves performance management outcomes such as learning, performance communication and performance improvement. Decision-making follows performance review and program evaluation. Hence, we hypothesized:

4. *Quarter performance review positively influences performance management effects.*

The selection of performance indicators is one of the important decisions in performance management. Indicators need to be fit for purpose and any aggregation methods in indicator selection need to be carefully thought and integrated (Heinrich, 2002). Heinrich (2002) suggests choosing the performance measures that are closely aligned with their stated goals; approximate actual performance as closely as possible; are relatively simple and inexpensive to administer, and make it difficult for managers to increase their measured performance in ways other than increasing their actual performance. In describing criteria for the selection of performance measures, Niven (2002) describes the characteristics of good scorecard measures as linked to strategy, quantitative, accessible, easily understood, counterbalanced, relevant, and based on a definition shared by all involved. This study operationalized performance indicator quality in terms of trustworthiness of results from performance measurement, the accuracy of performance measurement in reflecting the quality of management, and reliability of performance indicators. West and Blackman (2015) note performance improvement as a criterion for good indicators. Literature documents application of the homogenous set of attributes of performance indicator would increase the effectiveness of the performance management. This review of literature led to the formulation of the next hypothesis.

5. *Performance indicators quality positively influences performance management effects.*

Lastly, this paper analyzed the linkage between the provision of training for accomplishing performance management tasks and performance management effects. Provision of training for accomplishing performance management tasks refers to the organization's dedication to provide, arrange, or pay for training that would help employees better accomplish performance management tasks. Since many government units do not have the in-house analytical capacity necessary for performance measurement, as shown in (Berman & Wang, 2000), training on performance management could enhance performance management effects (Yang & Hsieh, 2007). Training provides managers with adequate information about the transition toward results-based management. Therefore, we can hypothesize:

6. *Provision of performance management training positively influences performance management effects.*

Data and Methods

This research employed quantitative research approach and founded on cross-sectional survey data collected from officials of public sector organizations of Ethiopia. Civil Service Commissions at the federal, regional and local levels were selected from the public sector organizations, because of their mandate to guide and

supervise the organizational performance management system in their respective jurisdiction in the Ethiopian Federal system. In reflection of the Ethiopian federal system, the study included the Civil Service Commission of the Federal Government of Ethiopia, the Civil Service Commissions of two regional state governments (Oromia and Afar) and that of Addis Ababa City Administration.

Once organizations were identified for the study, the subsequent sampling decision was selection of people that represent the organizations. To overcome the chance of occurrence of sample bias in surveying informants from only one organizational level, the survey includes employees at the rank of three levels, namely: senior experts, team leaders, and directors. This research applied a formula developed by Cochran (1977) that determined 208 sample respondents as the appropriate size. The Cochran formula is widely used since it is capable of giving a mathematical solution to the problem of determining sample size. The distribution of questionnaires to the randomly selected respondents resulted in return of 184 questionnaires.

To avoid the potential errors that might mislead the interpretation of the regression test results, the study undergone analysis of missing values, checking for outliers, and the normality test of the data distribution. Furthermore, exploratory factor analysis was performed to provide evidence that the items truly represent the same construct. Moreover, we checked the fulfillment of important regression assumptions to assure that the results from the regression analysis are valid. Finally, a linear regression analysis identified the factors affecting performance management effects, based on which, the research makes conclusions and recommendations.

This study analyzed the link between performance management components and Performance management effects using multiple linear regression model: $y = \beta_0 + \beta_1 X_1 + ... + \beta_n X_n + \varepsilon$

Where:

- y = the predicted value of the dependent variable (performance management effects)
- B_0 = the y-intercept (value of y when all other parameters are set to 0)
- B_1X_1 = the regression coefficient (B1) of the first independent variable (X1)
- B_nX_n = the regression coefficient of the last independent variable
- e = model error

The performance management components included in the regression model as independent variables were Participative target setting, Performance indicators quality, Performance information processing capacity, Provision of training for accomplishing performance management, Performance information use, and Performance reviews. Researchers measure performance management effects by using a multi-item index, reflecting major outcomes of performance management, such as productivity, motivation, learning, and value (Behn, 2003; Ingraham & Moynihan, 2001; Wholey, 1999; Yang & Hsieh, 2007). Among the different effects of performance management, this research considers the worth of investment in performance management, motivation of employees, stimulation of organizational learning, the effectiveness of communication with external stakeholders, and promotion of accountability.

As there is seldom a perfect measure of concepts, this study measures each construct by using more than one survey item. The survey items combined into a single index would provide a better measurement tool than a single item for analysis of data pertaining to each construct (Kothari, 2004). As the factor analysis provides evidence that the items truly represent the same construct, the combined scores on several items can represent one construct.

As a step to test assumptions of factor analysis, multicollinearity and singularity were checked via the determinant of the correlation matrix and by using Bartlett's test of Sphericity respectively. The test results indicated Bartlett's test of Sphericity was significant (Sig. 0.000) for each factor analysis models, which means that the correlation matrix is not an identity matrix in each model. Multi-collinearity was tested via the determinant of the correlation matrix, which is greater than 0.00001 in each case as indicated in Table 1. The KMO values that range between 0.738 and 0.897 confirm the adequacy of the sample size to perform factor analysis. Normality was checked by KMO and Bartlett's Test. In each model, Bartlett's test of Sphericity was significant (<.001), which suggests the data are normally distributed.

Table 1. Test results of Assumptions of Factorial Analysis

Construct	**No. of items**	**Determinant**	**KMO**	**Bartlett's test of Sphericity** Sig.	**Case-to-variable ratio**
Participative target setting	6	.085	.800	.000	30.7:1
Performance indicator Quality	3	.191	.738	.000	61.3:1
Performance management Effects	5	.030	.889	.000	36.8:1

Performance Reviews	8	.007	.897	.000	23:1
Performance information processing capacity	4	.113	.820	.000	46:1
Provision of training for accomplishing performance management	6	.005	.879	.000	30.7:1
Performance information use	7	.003	.885	.000	26.3:1

As the requirement for identifying the number of factors stated by selected variables, we applied the Guttman-Kaiser rule of thumb, which suggests retaining only those factors with an eigenvalue larger than 1. Applying this rule, the Factor Analysis on each model extracted one factor. Thus, the stated sets of variables represent one factor in each model. In each model loadings of each variable on a factor is greater than 0.5.

Hair et al., (2019) argue the amount of factor loading is a fundamental consideration in determining convergent validity. More specifically, Igbaria et al., (1997) demonstrate that a variable is good if the latent variable shows the factor loading of ≥ 0.50. In addition to the loadings above 0.5 on one construct, Zhang, and Xiang (2019) suggest cross-loadings less than 0.5. Applying these thresholds in the current study, factor loading for each variable was above 0.5 and no variable has cross-loadings above 0.5. Hence, the measurements of the constructs meet the criteria for convergent validity. A low-to-moderate correlation is often considered evidence of discriminant validity (Zhang and Xiang, 2019). Hair et al. (2006) state that discriminant validity could be established by correlating one construct to another. According to their suggestion, if the correlation value of constructs is lower than 0.85, it means that the discriminant validity exists. Applying Hair et al. (2006) suggestion, this research conducted a factor analysis and checked that the correlation value of each pair of constructs is lower than 0.85 in Factor Correlation Matrix.

In situations where research involves several constructs, Kassahun (2012) recommends calculating Cronbach's Alpha for each construct separately to ensure the reliability of measurement. Accordingly, Cronbach's Alpha for each construct was calculated and the results show Cronbach's Alpha values that range between 0.79 and 0.95 (See Table 2). The value of Cronbach's Alpha for each variable passes the criterion of $\alpha \geq 0.7$. It confirms the reliability of the measurement of the constructs.

Table 2: Reliability Statistics

Construct (Index Variables)	Cronbach's Alpha	No. of items	Scale Measures
Extent to which Performance information is used for decision making	.936	7	5 points measurement scale from no extent to a very great extent
Participation in performance target setting	.793	6	5 points measurement scale from no extent to a very great extent
Performance indicator Quality	.907	3	5 points measurement scale from completely disagree to completely agree
Performance review	.945	8	5 points measurement scale from no extent to a very great extent
Performance information processing capacity	.887	4	5 points measurement scale from no extent to a very great extent
Provision of training on performance management	.928	6	5 points measurement scale from no extent to a very great extent
Performance management Effects	.950	5	5 points measurement scale from completely disagree to completely agree

Results

Descriptive Analysis

The literature documentes the necessity of involvement of employees and other stakeholders in target setting to motivate employees for higher performance. This study of the Ethiopian public sector organizations assessed the negotiations made between top management and organizational units for setting performance targets; employees' participation in setting performance target of their work unit; participation in performance target at organizational level; and understanding of performance target by employees. The mean (3.0693) and standard deviation (0.86187) show employee participation in target setting is 'somehow moderate'.

This study assessed performance indicator quality of organizations by an index of three variables that include reliability of performance indicators, trustworthiness of measurement results, and accuracy of performance measurement in reflecting management quality. The scale was adopted from Yang and Hsieh (2007) managerial effectiveness of performance measurement. The rating (mean 2.802 and standard deviation 0.81158) of trust, accuracy and reliability of performance measurement by respondents revealed the quality of performance indicators in use by public organizations was unconvincing.

The responses to eight survey questions revealed performance reviews were held regularly on routine basis, larger part of work process were subject of performance reviews, top leaders largely take part in review meetings and the performance reviews conducted in the public sector identify the gap between expected and actual performance of organizations. On the other hand, as the limitations of performance review of public sector organizations, quarterly performance reviews insufficiently involve staff with relevant knowledge needed to facilitate problem solving and to identify improvement opportunities. In addition, quarterly performance reviews insufficiently include officials external to the agency that can contribute to the goals discussed at the reviews. Moreover, discussion on quarter or annual performance reviews provides a limited forum for constructive feedback and, many respondents doubt the worth of their organizations' quarterly performance reviews for organizational learning. The exclusion of people who can contribute constructive ideas from the review meeting reduce the potential role of performance review in identifying the root cause of performance problems and in searching solutions to problems faced. As performance feedback and learning are the two essential outcomes of performance review meetings, if they are not achieved it is not possible to conclude that performance reviews are effective.

Performance information processing capacity is necessary to transform performance measurement in to useful information. The survey assesses performance information processing capacity by using index of four items; which are accessibility of performance information to stakeholders, availability of performance information in a usable format, availability of analytical tools to collect, analyze and use information and availability of manpower with necessary competence to process performance information. The aggregate responses reveal the organizations were constrained by limited accessibility of performance information to stakeholders, inability to avail performance information in a format easy to use and lack of analytical tools to process performance information. Training strengthen performance information processing capacity of an organization. Thus, organizations provide, arrange or finance trainings that would help their employees to accomplish performance management tasks. The assessment of the capacity building efforts of the organizations studied to identify issue of concern in performance management indicates organizations did not give adequate attention to improve capacity of employees to conduct performance management.

The extent to which performance information is used for decisions related to planning, budgeting, determining work process, identifying performance problem, taking corrective action to solve low performance problems, setting or revising performance goals and refining performance measures is shown by mean value of 3.01 with standard deviation 0.892. The mean rating of the use of performance information indicate organizations did not largely use performance information. Performance management effect was measured using index of five survey items. The mean values of rating of effects of performance management revealed the majority of respondents disagreed with roles of performance management in motivating employees for higher performance, stimulating organizational learning, helping to communicate more effectively with elected officials and in promoting accountability. This responses analysis revealed failure of the public sector organizations in Ethiopia to achieve the results expected from performance management.

Table 3. Descriptive Statistics

	Mean	Std. Deviation	N
Performance Management Effects	2.6067	.90774	178
Participative Target Setting	3.0693	.86187	178
Performance Indicators Quality	2.8020	.81158	178
Performance information processing capacity	2.9031	.90359	178
Provision of Training for accomplishing performance management	2.8221	.93421	178
Degree of use of performance information	3.0144	.89286	178
Performance Reviews	2.9993	.78626	178

The Correlation Analysis

The correlation as shown in Table 4 depicts the association of the independent variables with Performance Management Effects. The positive sign of the Pearson Correlation coefficients indicates all independent variables

have a positive linear association with Performance Management Effects, while the values of the Pearson Correlation coefficients that range between 0.486 and 0.796 indicate the strength of the correlation between the variables were moderate to strong. Furthermore, Sig. (1-tailed) .000 for each Pearson Correlation indicates the correlation between each of the independent variables and Performance management effects is statistically significant at the alpha level of 0.01. The Pearson Correlation coefficients revealed each paired relationships between the dependent variable and the independent variables were linear.

Table 4 Correlations

		1	2	3	4	5	6	7
Pearson Correlation	Performance Management Effects	1.000						
	Participative Target Setting	.486	1.000					
	Performance Indicators Quality	.796	.554	1.000				
	Performance information processing capacity	.537	.579	.600	1.000			
	Provision of Training for accomplishing performance management	.490	.465	.419	.511	1.000		
	Degree of use of performance information	.527	.468	.502	.603	.596	1.000	
	Performance Reviews	.586	.523	.567	.604	.494	.573	1.000
Sig. (1-tailed)	Performance Management Effects	.	.000	.000	.000	.000	.000	.000
N	Performance Management Effects	178	178	178	178	178	178	178

Analysis of Factors for Performance Management Effects Using Linear Regression Model

This subsection first presents the process followed for verifications of the satisfaction of regression assumptions such as linearity in the relationships between the predictors and the outcome variable, homogeneity of variance (homoscedasticity), independence, and Multicollinearity. Next, it presents the test of model fit and interpretation of the results.

Diagnosis of Regression Assumptions

The existence of the linear relationship between the dependent variable and each of the independent variables, and between the dependent variable and the independent variables collectively were checked by creating scatter plots and partial regression plots using SPSS Statistics, and then these scatter plots and partial regression plots were visually inspected. The scatter plot depicts a bivariate plot of the predicted value against residuals; it appears that the relationship of standardized predicted to residuals is roughly linear around zero. The linearity checks were supported by analyzing the correlation between the dependent variable and each of the independent variables to confirm the existence of a direct linear relationship between a dependent variable and each of the independent variables.

Another assumption of ordinary least squares regression is Homoscedasticity. The scatter plot of this regression model shows that the residual plots are centered around zero and also that the variance around zero is scattered uniformly and randomly. Thus, it was concluded that the Homoscedasticity assumption is satisfied. The linear regression also assumes that the residuals are normally distributed. It is important to meet this assumption for the p-values for the t-tests to be valid. Thus, the P-P plot was used to compare the observed cumulative distribution function of the standardized residual to the expected cumulative distribution function of the normal distribution. The normal P-P Plot indicates the errors are normally distributed.

A regression model needs to satisfy multicollinearity to produce a reliable result. As the degree of multicollinearity increases, coefficient estimates become unstable and the standard errors for the coefficients can get wildly inflated. This study applied the variance inflation factor to check the satisfaction of multicollinearity assumption, which is shown in the regression coefficients table under the Collinearity Statistics column. The tolerance is an indication of the presence of variance in the independent variable that cannot be accounted for by the other independent variables; whereas, very small tolerance values indicate redundancy of an independent variable as a factor of the dependent variable. More specifically, tolerance values less than 0.10 are considered worrisome. The VIF is (1/tolerance) and as a rule of thumb, a variable whose VIF values is greater than 10 is problematic. In this regression analysis, as shown in the regression coefficient table, the highest VIF value is 2.243

(which is less than 10) and the smallest tolerance value is 0.446 (which is greater than 0.1). Thus, Collinearity Statistics shows multicollinearity assumption is satisfied.

The independence of observations is another assumption that must be satisfied for a regression test to produce a valid result. In this regression analysis, the independence of observations was checked by application of the Durbin-Watson statistic. Karadimitriou et al. (2018) indicate that if there is no autocorrelation (where subsequent observations are related) and observations are independent, the Durbin-Watson statistic falls between 1.5 and 2.5. Applying this rule to test the independence of observations in this regression analysis, the Durbin-Watson statistic was found to be 2.059 (see model summary table). This Durbin-Watson statistic (2.059) falls within the range between 1.5 and 2.5, therefore, we concluded the data is not autocorrelated and observations are independent.

The Goodness of the Model Fit

The model summary table illustrates the values of R, R Square, and adjusted R Square. In this regression model, the R-value is 0.824, which indicates the existence of a strong correlation between the observed value and the predicted value of Performance management effects. R Square is the square of the measure of correlation and it indicates the proportion of the variance of Performance management effects due to the changes of the independent variables that were included in the model. The model summary table illustrates, R square is 0.679, which implies 67.9 percent of the Performance management effect is explained by factors included in the model and the remaining 32.1 percent variation in the Performance management effects is due to factors other than those in the model. The difference between R square and adjusted R square is very small, implying that low random variation of the dependent variable as the independent variables change. Overall, the model summary indicates a good prediction of Performance management effects based on values of the independent variables. Thus, the researchers certainly assume the regression model well predict the Performance management effects as the model explains 67.9 percent of changes in the Performance management effects.

Regression Test

The F-ratio and sig. in the ANOVA table indicate whether the result of this regression model could have occurred by chance or reached significance. The Sig value 0.00 is less than $\alpha = 0.05$, which implies the independent variables reliably predict the Performance management effects. In other words, the change in Performance management effects due to changes in the independent variables is not due to random chance. Hence, the researcher can be confident that the regression model adopted in this study has not occurred by chance and is considered highly significant. Moreover, from this ANOVA test result, we can infer, at least some explanatory variables have an impact on the Performance management effects.

The inferences drawn based on information provided in the ANOVA table is an overall significance test assessing that indicates all independent variables together reliably predict Performance management effects. However, the ANOVA table does not verify the ability of any of the particular independent variables to predict the Performance management effect. The coefficient table indicates which of the six independent variables have a significant relationship with the Performance management effect. The Sig values greater than $\alpha = 0.05$ indicates the variable is not significant in explaining the dependent variable, while the independent variables with a p-value less than 0.05 significantly explain the dependent variable.

In line with this rule, the coefficient table of this regression analysis indicates Participative target setting (Sig. =.633), Performance information processing capacity (Sig. = .524), and Degree of use of performance information (Sig. =.252) were not statistically significant to explain the Performance management effects as their Sig values were greater than $\alpha = 0.05$. The rest independent variables explain the Performance management effects significantly; as the Sig. value 0.000 for Performance indicators quality, Sig. value 0.021 for the Provision of training for accomplishing performance management and Sig. value 0.021 for Performance Reviews are less than $\alpha = 0.05$. Based on inferences drawn from this regression analysis, we conclude that organizations can increase the Performance management effects by increasing the provision of training on performance management to employees by improving the performance indicator quality and by improving performance reviews.

Table 5. Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.824[a]	.679	.667	.52359	2.059

a. Predictors: (Constant), Performance Reviews, Provision of Training for accomplishing performance management, Participative Target Setting, Performance Indicators Quality, Degree of use of performance information, Performance information processing capacity

b. Dependent Variable: Performance Management Effects

Table 6 ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	98.967	6	16.495	60.166	.000[b]
	Residual	46.879	171	.274		
	Total	145.847	177			

a. Dependent Variable: Performance Management Effects

b. Predictors: (Constant), Performance Reviews, Provision of Training for accomplishing performance management, Participative Target Setting, Performance Indicators Quality, Degree of use of performance information, Performance information processing capacity

Table 7 Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	T	Sig.	Tolerance	VIF
1	(Constant)	-.339	.179		-1.889	.061		
	Participative Target Setting	-.029	.061	-.028	-.479	.633	.562	1.781
	Performance Indicators Quality	.742	.067	.664	11.161	.000	.531	1.882
	Performance information processing capacity	-.042	.065	-.041	-.639	.524	.446	2.243
	Provision of Training for accomplishing performance management	.129	.055	.133	2.337	.021	.579	1.727
	Use of performance information	.073	.063	.071	1.150	.252	.487	2.054
	Performance Reviews	.164	.070	.142	2.330	.021	.506	1.977

a. Dependent Variable: Performance Management Effects

Conclusion and the Way Forward

This study investigates the link of participation in setting performance targets and performance indicators, use performance information, performance information processing capacity, quarter performance review, performance indicators quality, and provision of performance management training with performance management effects. The regression analysis showed the elements of performance management process together reliably can predict Performance management effects. Some of the prior research results doubt on whether performance management reforms have the potential to meet their purposes (Gassner et al., 2022); while others indicate that abandoning performance measurement will results in loss of valuable information at a moment when data are especially needed to make critical decisions (Aguinis & Burgi-Tian, 2021). On the other hand Ojiako et al. (2022) indicate the conditions that influences performance management outcomes such as the different priorities of a heterogeneous stakeholders. Since performance management is a multi-faceted phenomenon, this study investigates the impact of individual components of performance management, rather than embracing or discarding performance management altogether.

The analysis of individual influence of each factors in the regression model shows the influence of Participative target setting, Performance information processing capacity, and Degree of use of performance information were not statistically significant; while the influence of Performance indicators quality, Provision of training for accomplishing performance management, and Performance reviews were statistically significant to predict performance management effects. The finding supports prior researches such as Janati et al., (2021), which indicates performance indicators is one of the factors influencing performance management outcomes and Han

and Moynihan (2022), which shows managerial use of performance information is only associated with objective indicators of performance.

The paper concludes that organizations can increase the Performance management effects by increasing the provision of training on performance management to employees, by improving the performance indicator quality, and by improving performance reviews. This finding suggests further work is required from the public sector organizations in Ethiopia to improve trustworthiness, reliability and accuracy of performance indicators. Additionally, to increase the benefits of performance review, organizations should increase the involvement of people who can make valuable contributions; should redesign performance review in a way that it can provide performance feedback and to drive lessons vital for future improvement of organizational performance. The public sector organizations must further strengthen organizational capacity to perform tasks related to performance management through providing, arranging and financing trainings.

This paper sheds light on the link between the performance management process and performance management effects. It addressed the literature gap by detailing the link between the key components of the performance management process and performance management effects and it suggests what managers have to do to improve performance management. The paper brings to light several critical issues of performance management; however, both the scope and the depth of the issues covered generate areas for future research. A detailed study in a broad range of sectors in the central, regional, and local governments in the public services Ethiopia is valuable. This research identified performance indicator qualities, performance review, and performance management training as determinants of performance management effect; future research can explore the strategies to improve performance indicator qualities, performance review, and performance management training.

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