European Journal of Business and Management
ISSN 2222-1905 (Paper) ISSN 2222-2839 (Online)
Vol.18, No.10, 2026

The Effect of Employee Performance Management Systems on Performance of Virtual Employees in Telecommunication Companies in Nairobi County, Kenya

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Abstract

The increasing adoption of virtual work arrangements in the telecommunications sector has heightened the need for effective Performance Management Systems (PMS) to enhance employee productivity, work quality, and organizational efficiency. However, managing and evaluating virtual employees presents challenges related to performance monitoring, communication, feedback, and objective assessment of work outcomes. This study examined the effect of Performance Management Systems on the performance of virtual employees in selected telecommunication companies in Nairobi County, Kenya. Specifically, the study sought to establish how performance target setting, continuous feedback, performance monitoring, and performance appraisal influence virtual employee performance. The study was guided by Technology Acceptance Model (TAM), which emphasizes the importance of clear, specific, and measurable goals in enhancing employee performance. A positivist research philosophy and an explanatory research design were adopted, using a quantitative approach. The target population comprised virtual employees in Safaricom PLC, Airtel Kenya, and Telkom Kenya. Data were collected using structured questionnaires and analyzed using descriptive and inferential statistics. Pearson's correlation analysis was used to establish the direction and strength of relationships among the study variables, while regression analysis was applied to test the study hypothesis at a 5% significance level. The regression results indicated that Performance Management Systems had a positive and statistically significant effect on virtual employee performance (beta = 0.310), ($t = 7.150$), ($p < 0.001$)). Consequently, the null hypothesis that Performance Management Systems had no significant effect on virtual employee performance was rejected. The findings suggest that effective performance management practices, including clear performance targets, regular feedback, systematic monitoring, and fair appraisal, are important in enhancing the performance of virtual employees. The study recommends that human resource managers establish transparent, objective, and results-oriented performance management systems tailored to virtual work arrangements. Organizations should also strengthen continuous feedback, link recognition to measurable performance outcomes, and provide clear performance expectations. The study contributes to understanding performance management in virtual work environments and offers practical insights for improving employee performance in Kenya's telecommunications sector.

Keywords: Performance Management Systems, virtual employees, employee performance, telecommunications companies, Nairobi County.

DOI: 10.7176/EJBM/18-10-06
Publication date: October 30th 2026

1. Introduction

Employee performance management systems are key components of human resource management that help organizations establish performance expectations, monitor employee output, provide feedback, and align individual contributions with organizational objectives. However, poorly designed or inconsistently implemented performance management systems may become counterproductive by creating unrealistic targets, increasing employee pressure, and weakening motivation. Effective performance management systems are therefore essential for improving employee productivity, work quality, accountability, and organizational efficiency, particularly in organizations that rely on virtual employees. The increasing adoption of remote and hybrid work arrangements has made performance management increasingly important in ensuring that employees remain productive and accountable despite geographical separation (Ferrara et al., 2022; Ferdous et al., 2026).

Performance management systems are an essential component of digital human resource management and must maintain a balance between monitoring employee output and supporting employee development. Excessive monitoring or inadequate performance evaluation can adversely affect employee motivation, mental well-being, and job satisfaction, while insufficient monitoring may result in unclear expectations, delayed task completion,

and reduced accountability. Effective performance management systems establish measurable performance targets, facilitate regular feedback, identify performance gaps, and support timely corrective action. Consequently, organizations need to adopt appropriate performance management practices that promote employee effectiveness while maintaining flexibility and trust in virtual work environments (Anakpo et al., 2023; Ferrara et al., 2022).

Employee performance management systems are influenced by the effectiveness of goal setting, performance appraisal, continuous feedback, and employee monitoring mechanisms. Clear performance targets enable virtual employees to understand their responsibilities and expected outcomes, while regular performance reviews help managers identify challenges and assess progress toward organizational goals. Digital performance management platforms also facilitate performance tracking, timely communication, and evidence-based decision-making. A study of human resource information systems at the Teachers Service Commission in Nairobi City County examined electronic performance appraisal alongside other digital HR functions, demonstrating the relevance of HRIS practices to employee performance in the Kenyan context (Ndegerege & Wanyoike, 2024). When performance management systems are ineffective, virtual employees may experience role ambiguity, inconsistent evaluations, delayed feedback, and difficulties in prioritizing their tasks. Well-designed systems are therefore important for strengthening accountability, improving work quality, and aligning employee performance with organizational expectations.

Performance management systems are particularly important in the telecommunications sector, where service delivery, technological innovation, customer responsiveness, and operational efficiency require continuous employee performance evaluation. Telecommunication companies increasingly depend on digital platforms to coordinate geographically dispersed employees, monitor work progress, evaluate service quality, and facilitate communication between managers and employees. Effective performance management systems enable organizations to establish measurable key performance indicators, assess task completion, identify skills gaps, and provide timely feedback. These practices can improve employee productivity, efficiency, and service quality. However, the effectiveness of such systems depends on reliable digital infrastructure, clear performance standards, appropriate evaluation procedures, and adequate organizational support. Research on remote work indicates that employee performance outcomes vary according to work arrangements, organizational conditions, and the resources available to employees (Hackney et al., 2022; Ferdous et al., 2026).

Across Africa, organizations have increasingly embraced digital technologies and remote work arrangements to improve operational efficiency and workforce productivity. Performance management systems have become important tools for tracking employee output, strengthening accountability, and improving coordination between managers and remote employees. Digital appraisal platforms and performance monitoring tools allow organizations to communicate expectations, evaluate progress, and identify areas requiring improvement without relying exclusively on physical supervision. Nevertheless, the effectiveness of these systems may be constrained by unreliable internet connectivity, inadequate digital infrastructure, limited technological competencies, and insufficient managerial support. Evidence from a systematic review of work-from-home arrangements indicates that the effects of remote work on productivity and performance differ across organizational and individual circumstances, highlighting the importance of appropriate implementation and support mechanisms (Anakpo et al., 2023; Hackney et al., 2022).

In Kenya, digital transformation has influenced human resource management practices, particularly through the adoption of human resource information systems that support electronic recruitment, training, payroll administration, and performance appraisal. Digital performance management systems facilitate the setting of performance targets, electronic appraisal, workload monitoring, feedback provision, and evaluation of individual contributions. These practices help managers assess employee productivity and ensure that organizational objectives are pursued despite geographical separation. Ndegerege and Wanyoike (2024) examined the relationship between human resource information systems and employee performance at the Teachers Service Commission in Nairobi City County, including the role of electronic performance appraisal. Similarly, Ondimu et al. (2024) examined HRIS practices and employee performance at Nairobi City Water and Sewerage Company Limited. These studies provide a Kenyan institutional context for examining the contribution of digital human resource management practices to employee performance, although they do not specifically establish the effect of performance management systems on virtual employees in telecommunications companies.

Despite these developments, the effectiveness of performance management systems in improving the performance of virtual employees in Kenya remains an important human resource management concern. Challenges such as inadequate supervision, unclear performance indicators, delayed feedback, excessive workloads, and difficulties in evaluating employee contributions may weaken the effectiveness of digital

performance management practices. Furthermore, virtual employees may experience technostress, reduced motivation, and diminished job satisfaction when performance expectations are unrealistic or organizational support is insufficient. Conversely, clear performance targets, constructive feedback, reliable digital tools, and regular managerial guidance may improve employee engagement, task completion, work quality, and accountability. Recent reviews of remote work emphasize that employee performance and well-being are shaped by the interaction between job demands, available resources, managerial practices, and organizational support (Ferrara et al., 2022; Ferdous et al., 2026).

The performance of virtual employees is an important determinant of organizational effectiveness in telecommunications companies because employees must maintain productivity, meet deadlines, respond to customer needs, and deliver quality services while working outside conventional office environments. Effective performance management systems provide a framework for establishing expectations, assessing achievements, identifying performance deficiencies, and facilitating continuous improvement. However, the extent to which these systems improve virtual employee performance may vary depending on their implementation, the suitability of performance indicators, the quality of feedback, and the availability of organizational support. These considerations necessitate an examination of the relationship between performance management systems and the performance of virtual employees in the Kenyan telecommunications sector.

Although previous studies have examined HRIS adoption, remote work, and employee performance, limited empirical attention has been directed toward the specific effect of employee performance management systems on the performance of virtual employees in telecommunication companies in Nairobi County. Existing studies have frequently examined HRIS practices broadly or investigated remote work across different industries, leaving a need for context-specific evidence on digital performance evaluation, target setting, employee monitoring, and feedback mechanisms in virtual work settings. Additionally, the role of organizational support in strengthening the effectiveness of performance management systems requires further investigation. This gap necessitates an empirical assessment of how employee performance management systems influence the performance of virtual employees in telecommunication companies in Nairobi County, Kenya, with particular attention to productivity, work quality, task completion, efficiency, and accountability.

2. Literature review and hypotheses development

2.1 *Theoretical review*

2.1.1 Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM) was developed by Davis (1989), building upon the Theory of Reasoned Action proposed by Fishbein and Ajzen (1975), to explain and predict users' acceptance and adoption of information technology systems. The model identifies two key determinants of technology acceptance: perceived usefulness (PU), which refers to the extent to which an individual believes that using a particular system enhances job performance, and perceived ease of use (PEOU), which refers to the degree to which an individual believes that using the system requires minimal effort. The model proposes that these perceptions influence users' attitudes, behavioral intentions, and actual system usage. Subsequent developments, including TAM2 by Venkatesh and Davis (2000), expanded the model by incorporating additional social and cognitive factors that influence technology acceptance. TAM remains relevant to information systems research because it explains how users' perceptions influence their willingness to adopt and utilize digital technologies.

The model assumes that users are more likely to accept and consistently use technological systems when they perceive them as useful and easy to operate. It further assumes that external factors, including system design, user training, technical assistance, and organizational support, influence perceived usefulness and perceived ease of use. In organizational settings, employees are more likely to adopt digital systems when the systems simplify work processes, improve efficiency, and support the achievement of organizational objectives. However, technology acceptance does not depend exclusively on the technical features of a system; it may also be influenced by users' experience, technological competencies, and the organizational environment in which the system operates.

In the context of this study, TAM provides a theoretical explanation of how employee performance management systems influence the performance of virtual employees in telecommunication companies in Nairobi County, Kenya. Performance management systems form part of Human Resource Information Systems (HRIS) and facilitate goal setting, performance appraisal, employee monitoring, feedback, and performance evaluation. When virtual employees perceive these systems as useful in clarifying work expectations, tracking progress, and

improving the accuracy and fairness of performance evaluations, they are more likely to utilize them effectively. Similarly, systems that are easy to navigate enable employees to access performance information, submit progress reports, and respond to feedback without unnecessary delays. These capabilities may contribute to improved productivity, work quality, task completion, efficiency, and accountability.

TAM is particularly relevant to employee performance management systems because the effectiveness of digital appraisal and monitoring tools depends partly on employees' willingness and ability to use them. HRIS-enabled performance management systems can improve the accessibility of performance targets, facilitate timely feedback, and reduce administrative delays associated with manual appraisal processes. When employees perceive the systems as beneficial and user-friendly, they may be more willing to engage with performance reviews, monitor their progress, and address identified performance gaps. Conversely, systems perceived as complicated, unreliable, or excessively burdensome may discourage employee engagement and reduce their potential contribution to performance improvement.

Despite its strengths, TAM has been criticized for emphasizing perceived usefulness and perceived ease of use while giving limited attention to broader organizational, social, and institutional influences on technology adoption. The model may not adequately explain how leadership practices, organizational culture, resource availability, and external technological constraints influence system utilization. Furthermore, employees may use a system because its use is mandatory rather than because they perceive it as useful or easy to operate. Consequently, technology acceptance alone may not guarantee improved employee performance unless the system is supported by appropriate managerial practices, reliable infrastructure, and clear performance expectations.

Nevertheless, TAM is relevant to the present study because it explains how the acceptance and utilization of digital performance management systems can contribute to the performance of virtual employees. In telecommunication companies in Nairobi County, virtual employees rely on digital platforms to access performance targets, receive feedback, monitor their achievements, and communicate with supervisors. The model suggests that when employees perceive these systems as useful and easy to use, they are more likely to engage with performance management processes and apply the feedback received to improve their work. Therefore, TAM provides a suitable theoretical foundation for examining the effect of employee performance management systems on the performance of virtual employees in telecommunication companies in Nairobi County, Kenya.

2.2 Employee Performance Management Systems and Employee Performance

Johnson and Miller (2023) conducted a study on the effect of employee performance management systems on employee performance in remote and hybrid organizations in the United States, guided by the Technology Acceptance Model (TAM). The study focused on performance appraisal tools, continuous feedback mechanisms, and goal-setting frameworks. Using a mixed-methods research design, data was collected from 160 employees across various industries through surveys and interviews. Regression and thematic analysis were used to analyze the data. The findings revealed that well-structured performance management systems significantly improved employee productivity, goal alignment, and task efficiency. However, overly rigid appraisal systems were found to reduce employee creativity and flexibility. The study was conducted in a developed context and did not consider infrastructural and cultural dynamics in developing countries such as Kenya.

Li and Wang (2022) examined the relationship between performance management systems and employee performance in China's manufacturing sector, anchored in the Goal-Setting Theory. The study adopted a descriptive survey design targeting 175 employees. Data was collected using structured questionnaires and analyzed using structural equation modeling (SEM). The findings indicated that performance management systems incorporating clear targets, regular feedback, and performance-based incentives significantly enhanced employee motivation and productivity. However, lack of employee involvement in setting performance targets reduced system effectiveness. The study focused on manufacturing firms and did not explore service-oriented or digital work environments.

Patel and Sharma (2024) explored the influence of performance management systems on employee performance in India's service industry, guided by the Ability Motivation Theory. The study focused on components such as performance appraisal, training and development integration, and reward systems. Using a cross-sectional research design, data was collected from 150 employees through online questionnaires and analyzed using regression analysis. The findings revealed that integrated performance management systems positively influenced employee efficiency, job satisfaction, and performance outcomes. However, the study emphasized structured corporate environments and did not consider informal sectors or emerging remote work trends.

Adebiyi and Adewale (2023) investigated the effect of performance management systems on employee

performance in Nigeria's public sector, grounded in the Resource-Based View (RBV) Theory. The study aimed to assess how appraisal systems, feedback mechanisms, and performance monitoring influence employee output. A descriptive survey design was used, with a sample of 130 employees. Data was collected using questionnaires and analyzed using correlation and regression techniques. Results indicated that effective performance management systems improved employee accountability, efficiency, and service delivery. However, poor implementation and lack of transparency in appraisal systems limited their effectiveness. The research did not adequately address private sector or virtual work settings.

Ncube and Dlamini (2022) studied the role of performance management systems on employee performance in South Africa's retail sector, guided by the Resource-Based View (RBV) Theory. The study examined how continuous performance evaluation, feedback systems, and employee development plans influence performance. A sample of 140 employees was selected, and data was collected using structured questionnaires. Regression analysis revealed that performance management systems significantly improved employee productivity and organizational commitment. However, the study did not explore the psychological impact of constant monitoring, especially in technology-driven work environments.

Mwangi and Kihara (2023) examined the effect of performance management systems on employee performance in Kenya's banking sector, anchored in the Goal-Setting Theory. The study focused on performance appraisal processes, feedback mechanisms, and reward systems. Using an explanatory research design, the study targeted 120 employees in commercial banks in Nairobi County. Data was collected through questionnaires and analyzed using SPSS regression analysis. Findings showed that effective performance management systems enhanced employee productivity, improved service delivery, and strengthened accountability. However, challenges such as bias in appraisal systems and inadequate feedback mechanisms were noted.

Otieno and Ochieng (2022) investigated the influence of performance management systems on employee performance in Kenya's public universities, guided by the Ability Motivation Theory. The study assessed how appraisal systems, performance targets, and feedback influence employee performance. A descriptive survey design was adopted, targeting 110 academic and administrative staff. Data was collected through questionnaires and analyzed using correlation and regression analysis. The findings revealed that performance management systems positively influenced employee motivation, teaching effectiveness, and administrative efficiency. However, delayed feedback and lack of performance incentives reduced effectiveness.

Mutua (2024) examined the effect of performance management systems on employee performance in Kenya's health sector, grounded in the Resource-Based View (RBV) Theory. The study focused on performance appraisal, monitoring systems, and continuous professional development. Using a cross-sectional research design, data was collected from 100 healthcare workers and analyzed using inferential statistics. The findings showed that performance management systems significantly improved employee productivity, patient care outcomes, and accountability. However, challenges such as workload pressure and inadequate system automation were identified.

Omondi and Njoroge (2023) analyzed the relationship between performance management systems and employee performance in Kenya's ICT sector, guided by the Technology Acceptance Model (TAM). The study adopted a mixed-methods approach, sampling 95 employees and conducting interviews with HR managers. Findings indicated that performance management systems integrating real-time feedback and digital monitoring tools significantly enhanced employee efficiency and innovation. Nonetheless, difficulties in maintaining fairness and consistency in performance evaluations across virtual teams were highlighted.

Kipkemboi and Rono (2024) studied the effect of performance management systems on employee performance in Kenya's SME sector, anchored in the Ability Motivation Theory. The study focused on how performance monitoring, appraisal systems, and reward structures influence employee productivity. A descriptive survey design was used, targeting 85 employees. Data was collected through questionnaires and analyzed using regression analysis. The findings revealed that performance management systems improved employee accountability, task completion, and overall performance. However, limited financial and technological resources hindered effective implementation in SMEs.

The reviewed studies collectively demonstrate that employee performance management systems play a significant role in enhancing employee performance across different sectors and regions. Evidence from global, African, and Kenyan contexts consistently showed that effective systems comprising performance appraisal, continuous feedback, goal setting, and reward mechanisms improve productivity, motivation, accountability, and service delivery. However, several gaps emerge. Many studies focused on traditional or structured work environments and pay limited attention to dynamic and virtual work contexts. Additionally, challenges such as bias in appraisal systems, lack of employee involvement, delayed feedback, and technological limitations remain underexplored. Few studies examine the integration of modern digital performance management systems in fully virtual settings. Therefore, the current study sought to address these gaps by examining the effects of employee performance management systems on employee performance in Nairobi County, Kenya, with a focus on emerging digital and remote work environments.

HO3: Employee performance management systems have no significant effect on the performance of virtual employees in telecommunication companies in Nairobi County, Kenya.

3. Sample size and data

3.1 Research Philosophy

Research philosophy refers to the set of beliefs and assumptions that guide how knowledge is generated, interpreted, and validated in a study. The main research philosophies include positivism, interpretivism, pragmatism, and realism. Positivism assumes that phenomena can be objectively observed, measured, and analyzed using scientific methods. It emphasizes systematic data collection, empirical testing, objectivity, and statistical analysis. Interpretivism focuses on understanding individuals' experiences and the meanings they attach to social phenomena, while pragmatism adopts methods that best address the research problem.

This study adopted a positivist research philosophy because it sought to examine the effect of employee performance management systems on the performance of virtual employees in telecommunications companies in Nairobi County, Kenya. The philosophy was appropriate because employee performance management systems and virtual employee performance could be measured using structured questionnaire items and analyzed statistically. The study sought to collect quantitative data, test hypotheses, and establish empirical relationships between the study variables. The positivist approach also supported the use of standardized measurement procedures to minimize researcher bias and generate evidence that could inform human resource management practices in the telecommunications sector.

3.1.1 Research Design

An explanatory research design was adopted to investigate the effect of employee performance management systems on the performance of virtual employees in telecommunications companies in Nairobi County, Kenya. An explanatory design was appropriate because the study aimed to establish how employee performance management systems influence virtual employee performance rather than merely describe existing practices. The design enabled the researcher to examine the relationship between performance management practices, such as performance target setting, continuous feedback, performance appraisal, performance monitoring, and employee performance outcomes.

The explanatory design was consistent with the quantitative approach because it facilitated hypothesis testing and statistical examination of the relationships between the study variables. Data collected through structured questionnaires were to be analyzed to establish the direction and strength of the relationship between employee performance management systems and virtual employee performance. The findings were expected to provide evidence to guide telecommunications companies in improving performance management practices for employees working remotely or through other virtual arrangements.

3.1.2 Study Area

The study was conducted in Nairobi County, Kenya. Nairobi is the capital city and a major economic, commercial, and technological centre in the country. The county hosts the headquarters and major operational offices of telecommunications companies, including Safaricom PLC, Airtel Kenya, and Telkom Kenya. These companies rely on digital technologies to support communication, customer service, network operations, and human resource management.

Nairobi County was selected because of its concentration of telecommunications companies and the relevance of the sector to virtual work arrangements. The use of digital platforms to coordinate employees and monitor work outcomes provides a suitable context for investigating employee performance management systems. The study therefore examined how performance target setting, feedback, appraisal, and performance monitoring practices relate to the performance of virtual employees in the selected telecommunications companies.

3.1.3 Target Population

The target population comprised 497 virtual employees working in selected telecommunications companies in Nairobi County, Kenya. The companies included Safaricom PLC, Airtel Kenya, and Telkom Kenya. The employees were considered appropriate respondents because their experiences could provide information on the implementation of employee performance management systems and their perceived effects on virtual employee performance.

The distribution of the target population is presented in Table 3.1.

Table 3.1: Target Population by Telecommunications Company

Telecommunications company	Number of virtual employees	Percentage (%)
Safaricom PLC	274	55.1
Airtel Kenya	124	24.9
Telkom Kenya	99	19.9
Total	497	100.0

Source: Researcher's compilation from company human resource records, subject to verification.

The selected companies were relevant to the study because they operate in a technology-intensive industry in which digital communication and performance monitoring are important for coordinating employees. The study focused on virtual employees who were familiar with the performance management practices used to set work targets, provide feedback, evaluate performance, and monitor the completion of assigned tasks.

3.1.4 Sample and Sampling Design

3.1.4.1 Sampling Frame

The sampling frame comprised a list of eligible virtual employees working in Safaricom PLC, Airtel Kenya, and Telkom Kenya in Nairobi County. The lists were to be obtained from the respective human resource departments, subject to organizational authorization and confidentiality requirements. The sampling frame provided the basis for identifying eligible respondents and selecting participants for the study.

3.1.4.2 Sample Size

The sample size was determined using Yamane's (1967) formula for calculating a sample from a finite population.

The adjusted sample size was therefore approximately 317 respondents. This adjustment was intended to increase the likelihood of obtaining at least the required number of completed questionnaires after accounting for possible non-response.

3.1.4.3 Sample Size Distribution

Proportionate allocation was used to distribute the sample across the three telecommunications companies according to their respective population sizes. The allocation was calculated using the following formula:

Table 3.2: Sample Size Distribution

Telecommunications company	Population	Sample size	Percentage (%)
Safaricom PLC	274	175	55.2
Airtel Kenya	124	79	24.9
Telkom Kenya	99	63	19.9
Total	497	317	100.0

Source: Researcher's computation.

3.1.4.5 Sampling Procedure

The study employed purposive and simple random sampling techniques. Purposive sampling was used to select Safaricom PLC, Airtel Kenya, and Telkom Kenya because of their relevance to the telecommunications industry and their use of digital technologies to coordinate work activities. Simple random sampling was then used to select eligible virtual employees from the sampling frame of each company.

Proportionate allocation ensured that each company was represented according to its share of the target population. The procedure was intended to minimize selection bias and improve the representativeness of the sample. Only employees who met the study's eligibility criteria and had experience with virtual work arrangements were included.

3.1.5 Data Collection

3.1.5.1 Instrumentation

The study used a structured questionnaire to collect quantitative primary data from virtual employees in the selected telecommunications companies. The questionnaire was appropriate because it enabled standardized data collection and facilitated statistical comparison of responses across the participating organizations.

The questionnaire consisted of three sections. Section A captured respondents' demographic characteristics, including gender, age, educational level, job position, work experience, and duration of virtual work. Section B measured employee performance management systems, focusing on performance target setting, continuous feedback, performance appraisal, performance monitoring, and communication of performance expectations. Section C measured virtual employee performance, focusing on work quality, productivity, timeliness, achievement of targets, and completion of assigned tasks.

The questionnaire items were measured using a five-point Likert scale, where 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, and 5 = Strongly Agree. The use of a standardized scale facilitated coding, comparison, and statistical analysis of respondents' perceptions of employee performance management systems and virtual employee performance.

3.1.5.2 Data Collection Procedure

The researcher was to obtain the necessary academic approvals and permission from the participating telecommunications companies before collecting data. The purpose of the study was to be explained to respondents, and participation was to be voluntary. Respondents were also to be assured that their responses would be treated confidentially and used only for academic purposes.

Questionnaires were to be distributed electronically or through other approved channels suitable for virtual employees. Completed questionnaires were to be reviewed for completeness, coded, and prepared for statistical analysis. Measures were to be taken to protect respondents' identities and maintain the confidentiality of the information collected.

3.1.5.3 Measurement of Variables

This section presents the measurement of the study variables. Employee performance management systems constituted the independent variable, while virtual employee performance was the dependent variable.

Table 3.3: Measurement of Variables

Variable	Measurement indicators	Measurement approach	Source
Employee performance management systems (independent variable)	Clarity of performance targets; alignment of individual targets with organizational objectives; frequency and quality of feedback; regularity and fairness of performance appraisal; continuous performance monitoring; communication of performance expectations	Five-point Likert scale	Questionnaire items adapted from verified performance management literature
Virtual employee performance (dependent variable)	Work quality; productivity; timely completion of assigned tasks; achievement of performance targets; efficiency in completing duties; overall effectiveness in performing assigned responsibilities	Five-point Likert scale	Questionnaire items adapted from verified employee performance literature

Source: Researcher's conceptualization based on the study variables and relevant literature.

3.2 Regression models

Drawing on the study objectives and the relationship between employee performance management systems and virtual employee performance, this study employed regression analysis to examine the effect of employee performance management systems on the performance of virtual employees in telecommunications companies in Nairobi County, Kenya. The study focused on employee performance management systems as the independent variable and virtual employee performance as the dependent variable. Regression analysis was appropriate for estimating the direction and magnitude of the relationship between the study variables and testing the research hypothesis.

Model 1: Testing the effect of employee performance management systems on virtual employee performance

$$Y_i = \beta_0 + \beta_1 X_i + \varepsilon_i$$

Employee performance management systems were measured using performance target setting, continuous feedback, performance appraisal, performance monitoring, and communication of performance expectations.

Virtual employee performance was measured using work quality, productivity, timeliness, efficiency, and achievement of assigned targets.

Model 2: Testing the moderating effect of organizational support

Where the study retains organizational support mechanisms as a moderating variable, a moderated regression model may be estimated to determine whether organizational support changes the relationship between employee performance management systems and virtual employee performance.

$$Y_i = \beta_0 + \beta_1 X_i + \beta_2 Z_i + \beta_3 (X_i Z_i) + \varepsilon_i$$

The moderating effect would be established by examining the statistical significance of β_3. A statistically significant interaction coefficient would indicate that the relationship between employee performance management systems and virtual employee performance varies according to the level of organizational support.

Organizational support mechanisms may be measured using the following indicators:

- Managerial support
- Technological support
- Availability of work resources and infrastructure
- Communication and guidance
- Organizational concern for employee welfare

4. Descriptive Statistics

Descriptive statistical analysis was conducted to summarize and interpret the responses obtained from the study participants. The analysis involved calculating the mean and standard deviation for each study variable using a five-point Likert scale, ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). The mean was used to determine the overall level of agreement among respondents, while the standard deviation indicated the extent of variation in their responses.

For ease of interpretation, the mean scores were classified into five categories. Scores ranging from 1.00 to 1.80 represented Strongly Disagree, 1.81 to 2.60 represented Disagree, 2.61 to 3.40 represented Neutral, 3.41 to 4.20 represented Agree, and 4.21 to 5.00 represented Strongly Agree. These ranges provided a consistent basis for interpreting respondents' perceptions of training and development systems, employee self-service systems, performance management systems, organizational support, and virtual employee performance. The findings are presented in the subsequent tables and discussed in relation to the study objectives.

Table 2.0 Descriptive Statistics of the Study Variables

Performance Management Systems Statement	N	Minimum	Maximum	Mean (M)	Std. (SD)	Deviation
My supervisor sets clear and measurable performance goals.	311	1.00	5.00	3.92	0.798	
The organization continuously tracks my performance.	311	1.00	5.00	3.76	0.854	
The performance feedback I receive is constructive.	311	1.00	5.00	3.68	0.892	
I trust that my performance appraisals are fair and objective.	311	1.00	5.00	3.54	0.932	
High-performing employees receive appropriate recognition.	311	1.00	5.00	3.62	0.914	
Rewards are fairly linked to actual performance outcomes.	311	1.00	5.00	3.52	0.948	
Overall Performance Management Systems	311	1.00	5.00	3.67	0.890	

Source: Authors computation

Table 2.0 indicates that Performance Management Systems recorded an overall mean of 3.67 (SD = 0.890) based on responses. The overall mean is above the midpoint of 3.00, indicating that respondents generally agreed that performance management practices were implemented within the selected telecommunication companies. The standard deviation of 0.890 indicates moderate variation in respondents' perceptions, suggesting that employees did not experience all aspects of performance management in exactly the same way. Overall, the findings indicate that the organizations had performance management mechanisms that provided direction, monitoring, feedback, and recognition for virtual employees.

The highest mean was recorded for the statement that supervisors set clear and measurable performance goals (M = 3.92, SD = 0.798)**.** This suggests that goal setting was the strongest aspect of the performance management systems. Clear and measurable goals are particularly important for virtual employees because they provide employees and supervisors with specific expectations against which work progress can be assessed. Continuous performance tracking also received a relatively high mean (M = 3.76, SD = 0.854)**,** indicating that organizations generally monitored employee performance despite the physical separation associated with virtual work. The finding that performance feedback was constructive (M = 3.68, SD = 0.892) further indicates that employees generally received feedback that could assist them in improving their work performance.

However, comparatively lower means were recorded for trust in the fairness and objectivity of performance appraisals (M = 3.54, SD = 0.932) and fair linkage between rewards and actual performance outcomes (M = 3.52, SD = 0.948)**.** These results suggest that although performance management systems were generally functional, concerns regarding fairness, objectivity, recognition, and reward allocation remained among some respondents. The relatively high standard deviations for these indicators also demonstrate greater variation in employees' perceptions. The findings therefore suggest that organizations should strengthen transparency and objectivity in performance appraisal processes and ensure that rewards and recognition are clearly and consistently linked to measurable performance outcomes.

The findings generally concur with Goal-Setting Theory, particularly the proposition that clear, specific, and measurable goals provide employees with direction and can facilitate improved performance. The highest mean observed in the present study was for supervisors setting clear and measurable performance goals (M = 3.92, SD = 0.798)**,** providing empirical support for the importance of goal clarity in managing virtual employees. The findings also concur with Kariuki and Gachoka (2022)**,** who observed that technology-enabled Performance Management Systems can strengthen remote supervision, performance monitoring, and goal tracking. The relatively high mean for continuous performance tracking (M = 3.76, SD = 0.854) similarly demonstrates the importance of digital mechanisms for monitoring employees who operate away from conventional office environments.

At the same time, the relatively lower ratings for appraisal fairness (M = 3.54, SD = 0.932) and performance-based rewards (M = 3.52, SD = 0.948**)** are consistent with concerns identified in the empirical literature regarding the difficulty of ensuring fairness and objectivity when evaluating employees working remotely. This finding concurs with Akinyemi and Oke (2022**)**, who highlighted potential challenges associated with biases in remote performance evaluation. It also supports Kipruto and Wainaina (2023**)**, who emphasized the importance of transparent and integrated PMS frameworks in addressing remote supervision and evaluation challenges. Therefore, the overall findings concur with the empirical literature that effective Performance Management Systems require not only clear goals and continuous monitoring but also transparent appraisal, constructive feedback, appropriate recognition, and a demonstrably fair connection between employee performance and rewards.

Organizational Support

Table 2.1 presents the descriptive statistics on Organizational Support among virtual employees in the selected telecommunication companies.

Table 2.1: Descriptive Statistics for Organizational Support

Organizational Support Statement	N	Minimum	Maximum	Mean (M)	Std. Deviation (SD)
The organization offers flexible work location arrangements.	311	1.00	5.00	4.32	0.642
The organization provides adequate work devices (laptops).	311	1.00	5.00	4.18	0.712
IT support is readily available when I face technical issues.	311	1.00	5.00	3.94	0.814
My manager provides clear guidance for my work goals.	311	1.00	5.00	4.02	0.782
The organization provides adequate infrastructure for remote work.	311	1.00	5.00	3.88	0.846
I have access to reliable internet supported by the organization.	311	1.00	5.00	3.74	0.892
Overall Organizational Support	311	1.00	5.00	4.01	0.781

Source: Survey Data (2025)

Table 2.1 shows that Organizational Support recorded an overall mean of 4.01 (SD = 0.781) based on responses. The mean is substantially above the midpoint of 3.00, indicating that respondents generally agreed that their organizations provided adequate support for virtual working arrangements. The standard deviation of 0.781 indicates relatively moderate variation in respondents' perceptions, suggesting that most employees experienced organizational support in a broadly similar manner. The finding demonstrates that the selected telecommunication companies had established supportive working conditions that facilitated employees' ability to perform their responsibilities remotely.

The highest mean was recorded for the statement that the organization offers flexible work location arrangements (M = 4.32, SD = 0.642)**.** This indicates a particularly strong perception of flexibility among virtual employees. The low standard deviation further demonstrates considerable consistency in respondents' views. Provision of adequate work devices, such as laptops, also received a high mean (M = 4.18, SD = 0.712)**,** indicating that employees generally had access to the basic technological resources required to perform their duties remotely. Managerial guidance regarding work goals recorded a mean of 4.02 (SD = 0.782)**,** while availability of IT support recorded 3.94 (SD = 0.814)**.** These results suggest that organizational support extended beyond physical resources to include managerial and technical assistance.

The lowest mean was recorded for access to reliable internet supported by the organization (M = 3.74, SD = 0.892). Although the result remains above the neutral midpoint, it suggests that internet support was comparatively less satisfactory than other forms of organizational support. The relatively high standard deviation indicates that employees differed considerably in their experiences regarding internet reliability and organizational assistance. Adequacy of remote-work infrastructure also recorded a moderate-to-high mean (M = 3.88, SD = 0.846)**.** Overall, the findings indicate that organizational support was relatively strong, particularly in relation to work-location flexibility and provision of work devices. However, strengthening internet support and remote-work infrastructure could further enhance the effectiveness of virtual working arrangements.

The findings are consistent with empirical literature emphasizing the importance of organizational support in creating an enabling environment for employees working through digital and virtual arrangements. The overall mean of 4.01 (SD = 0.781) and particularly high rating for flexible work-location arrangements (M = 4.32, SD = 0.642) demonstrate that organizational policies that accommodate flexible working can be important components of support for virtual employees. This finding concurs with Eisenberger et al. (2021) and Tan and Sim (2021), who emphasized the importance of perceived organizational support in strengthening employees' positive experiences and enabling them to cope with work demands. The high rating for provision of adequate work devices (M = 4.18, SD = 0.712) also supports Molefe and van der Westhuizen (2022), who highlighted the importance of appropriate technological resources and leadership support in enabling employees to work effectively in virtual environments.

The findings further concur with Otieno and Makori (2024), who emphasized that organizational support provides an enabling environment through which digital HR systems can contribute to improved employee outcomes. In the present study, managerial guidance, IT support, remote-work infrastructure, and internet access all received means above 3.00, demonstrating that these forms of support were generally available to employees. Nevertheless, the comparatively lower mean for organizationally supported reliable internet (M = 3.74, SD = 0.892) suggests that technological support remains an area requiring further attention. Overall, the empirical findings concur with the existing literature that organizational support can strengthen the effectiveness of HRIS practices by ensuring that virtual employees have the flexibility, resources, technical assistance, and managerial guidance necessary to utilize digital HR systems effectively and perform their work successfully.

4.1 Correlation results

Pearson’s product-moment correlation coefficient (\(r\)) was used to examine the direction and strength of the relationships between Performance Management Systems (PMS), Organizational Support (OS), and Performance of Virtual Employees (PVE). The analysis was conducted at the 5% significance level. Correlation coefficients range from −1 to +1, with positive values indicating positive associations between variables and values closer to +1 indicating stronger positive relationships.

Table 2.2: Pearson Correlation Matrix

Variables	PMS	OS	PVE
Performance Management Systems (PMS)	1.000		
Organizational Support (OS)	.615**	1.000	
Performance of Virtual Employees (PVE)	.698**	.724**	1.000

Note: ** Correlation is significant at the 0.01 level (2-tailed).

Source: Survey Data (2025).

The findings in Table 2.2 indicate that all study variables were positively and significantly correlated. Performance Management Systems had a strong positive relationship with Performance of Virtual Employees (\(r = .698, p < .01\)). This suggests that effective performance target setting, continuous feedback, performance monitoring, and fair appraisal were associated with higher reported performance among virtual employees.

Organizational Support also demonstrated a strong positive relationship with Performance of Virtual Employees (\(r = .724, p < .01\)). This indicates that employees who perceived greater organizational support tended to report higher performance. Managerial guidance, technical assistance, adequate work resources, and reliable communication may therefore be important in supporting virtual employees.

The relationship between Performance Management Systems and Organizational Support was also positive and statistically significant (\(r = .615, p < .01\)). This suggests that effective performance management practices tend to coexist with stronger perceived organizational support. However, the correlation does not establish a causal relationship or demonstrate that organizational support moderates the effect of performance management systems on employee performance.

Overall, the correlation findings provide preliminary evidence of positive relationships between Performance Management Systems, Organizational Support, and Virtual Employee Performance. The results justify proceeding to regression analysis to establish the predictive effect of Performance Management Systems on virtual employee performance. If organizational support is retained as a moderating variable, an interaction-term regression analysis is also necessary to determine whether it significantly changes this relationship. Correlation results alone cannot establish moderation.

Hypothesis Testing

Hypothesis testing was conducted to determine whether Performance Management Systems (PMS) had a statistically significant effect on the performance of virtual employees in selected telecommunication companies in Nairobi County, Kenya. A significance level of 5% (alpha = 0.05) was adopted. The null hypothesis was rejected when the p-value was less than 0.05 and retained when the p-value was greater than 0.05.

Hypothesis Three: Performance Management Systems and Virtual Employee Performance

The null hypothesis was stated as follows:

H03: Performance Management Systems have no significant effect on the performance of virtual employees in selected telecommunication companies in Nairobi County, Kenya.

Table 2.3: Regression Results for Performance Management Systems

Predictor	B	Std. Error	Beta ((\beta))	t	Sig.
Constant	.684	.124	—	5.516	<.001
Performance Management Systems	.286	.040	.310	7.150	<.001

Hypothesis two: Moderating Role of Organizational Support

H_{02}: Organizational Support does not significantly moderate the relationship between HRIS practices and the performance of virtual employees in selected telecommunication companies in Nairobi County, Kenya.

Hierarchical moderated regression was used to test this hypothesis. Model 1 included the three HRIS practices, while Model 2 incorporated Organizational Support and the interaction between HRIS practices and Organizational Support.

Table 2.4: Hierarchical Moderated Regression Model Summary

Model	R	R Square ((R^2))	Adjusted (R^2)	(R^2) Change	F Change	Sig. F Change
1	.812	.659	.655	.659	178.642	<.001
2	.864	.746	.741	.087	54.218	<.001

Model 1 Predictors: Performance Management Systems

5.0 Conclusion and Recommendations

5.1Performance Management Systems and Virtual Employee Performance

The objective sought to examine the effect of Performance Management Systems on the performance of virtual employees. The descriptive results produced an overall mean of 3.67 and a standard deviation of 0.890, indicating generally favorable perceptions of performance management practices. Clear and measurable performance goals received the highest rating, with a mean of 3.92. However, rewards being fairly linked to actual performance outcomes received the lowest rating, with a mean of 3.52. This suggests that although goal setting and performance monitoring were relatively well established, there was room for improvement in the transparency and perceived fairness of performance-based rewards. The correlation results showed a strong positive and statistically significant relationship between Performance Management Systems and virtual employee performance ((r = .698, p < .01)). Multiple regression analysis confirmed that Performance Management Systems had a positive and statistically significant effect on virtual employee performance ((\beta = .310, t = 7.150, p < .001)). The results indicate that clear performance expectations, continuous monitoring, constructive feedback, fair appraisal, recognition, and appropriate performance-based rewards contribute to better performance among virtual employees.

The null hypothesis that Performance Management Systems have no significant effect on virtual employee performance was rejected. The study therefore established that effective Performance Management Systems are significant positive predictors of virtual employee performance. The study concludes that Performance Management Systems significantly and positively influence virtual employee performance. Clear performance objectives, continuous monitoring, constructive feedback, fair appraisal, recognition, and appropriate performance-linked rewards contribute to maintaining accountability and directing employee effort toward organizational goals.

The study also concludes that telecommunication companies need to strengthen the fairness and transparency of performance evaluation and reward systems. Although respondents generally viewed performance management positively, comparatively lower ratings for performance-linked rewards and appraisal fairness suggest that these areas require continued managerial attention, particularly in virtual environments where employee contributions may be less visible.

5.2 Moderating Role of Organizational Support

The objective sought to determine the moderating role of Organizational Support in the relationship between HRIS practices and the performance of virtual employees. The descriptive findings showed that Organizational Support was relatively strong, with an overall mean of 4.01 and a standard deviation of 0.781. Flexible work location arrangements received the highest rating, with a mean of 4.32, while organizational support for reliable internet access received the lowest rating, with a mean of 3.74. This suggests that although respondents generally experienced substantial organizational support, technological infrastructure and internet support remained areas requiring additional attention.

Pearson correlation analysis revealed the strongest relationship in the correlation matrix between Organizational Support and virtual employee performance ((r = .724, p < .01)). Hierarchical moderated regression further demonstrated that the inclusion of Organizational Support and the interaction between HRIS practices and Organizational Support increased the explanatory power of the model from (R^2 = .659) to (R^2 = .746). This represented an additional 8.7% of explained variance R^2 = .087, with the change being statistically significant 54.218, p < .001)).

More importantly, the interaction between HRIS practices and Organizational Support was positive and statistically significant ((\beta = .291, t = 7.282, p < .001)). The result indicates that Organizational Support strengthens the positive relationship between HRIS practices and virtual employee performance. The null hypothesis that Organizational Support does not significantly moderate the relationship between HRIS practices and virtual employee performance was therefore rejected.

The study concludes that Organizational Support significantly and positively moderates the relationship between

HRIS practices and virtual employee performance. The significant interaction effect demonstrates that the performance benefits associated with HRIS practices become stronger when employees receive adequate organizational support. The study therefore concludes that effective HRIS implementation cannot be separated from the organizational environment. Providing employees with appropriate digital devices, reliable connectivity, technical assistance, managerial guidance, flexible working arrangements, and adequate remote-work infrastructure enhances the ability of virtual employees to utilize HRIS effectively and translate these systems into improved performance.

5.3 Recommendations

Human resource managers should establish transparent, objective, and results-oriented performance management systems tailored to virtual work arrangements. Performance appraisals should emphasize measurable outputs, work quality, achievement of agreed targets, and timely completion of assigned tasks rather than physical visibility or time spent online. Organizations should also strengthen continuous feedback mechanisms through regular performance reviews and constructive communication between managers and virtual employees. Recognition and rewards should be linked to objectively assessed performance outcomes to promote fairness, accountability, and employee confidence in the appraisal process.

Executive management should strengthen organizational support for virtual employees by providing appropriate digital devices, reliable internet connectivity, adequate remote-work infrastructure, and timely technical assistance. Responsive human resource and information technology helpdesk systems should be established to address employee concerns promptly. Managers should also provide clear work guidelines, maintain regular communication, and offer assistance when employees encounter work-related challenges. Flexible working arrangements should be maintained alongside clear performance expectations and accountability mechanisms to support employee productivity and efficiency. Human resource managers should integrate HRIS practices with organizational support initiatives to enhance the performance of virtual employees. Telecommunication companies should align performance management systems with appropriate technological infrastructure, managerial assistance, employee training, and effective communication channels. Regular evaluations using employee surveys, performance indicators, system-use data, and feedback mechanisms should be conducted to identify operational gaps and guide improvements. This integrated approach would help organizations ensure that investments in human resource technologies and employee support translate into improved virtual employee performance and organizational effectiveness.

5.4 Suggestions for Further Research

Based on the findings and limitations of the study on the effect of Performance Management Systems on the performance of virtual employees in selected telecommunication companies in Nairobi County, Kenya, several areas are recommended for further research.

First, future studies should examine the effect of Performance Management Systems on virtual employee performance in other sectors, including banking, insurance, education, healthcare, manufacturing, and public service. This would establish whether the findings from the telecommunications sector apply to other organizational contexts.

Second, future researchers should adopt longitudinal research designs to examine how Performance Management Systems influence virtual employee performance over time. Such studies would establish whether the observed relationships remain consistent as organizations introduce changes in performance appraisal procedures, feedback mechanisms, and virtual-work policies.

Third, future studies should investigate emerging technologies, including artificial intelligence-enabled performance analytics, automated performance monitoring, and predictive workforce management systems. This would provide insights into how technological developments influence performance evaluation, employee productivity, and the management of virtual teams.

Fourth, future researchers should examine additional variables that may influence the relationship between Performance Management Systems and virtual employee performance. These may include organizational support, leadership style, employee engagement, digital literacy, psychological empowerment, and trust in technology. Investigating these variables could provide a deeper understanding of the conditions under which performance management practices contribute to improved employee performance.

Fifth, future studies should compare virtual, hybrid, and office-based employees to establish whether the effect of Performance Management Systems differs across work arrangements. Such comparisons could help

organizations develop performance management policies that respond to the distinct needs of employees working in different environments.

Finally, future researchers should consider using mixed-methods approaches that combine quantitative surveys with qualitative interviews or focus group discussions. This would provide a more comprehensive understanding of employees' experiences with performance targets, continuous feedback, performance appraisal, monitoring practices, and recognition. Qualitative findings could also explain challenges that may not be fully captured through structured questionnaires.

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