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IMPACT OF HUMAN RESOURCE INFORMATION SYSTEMS ON PLANNING IN HUMAN RESOURCE IN THE NOW AND FUTURE OF THE KENYAN CIVIL SERVICE

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Abstract

Human Resource in the civil service is faced with diverse challenges, which include a dysfunctional system, demotivated employees, resistance to change, poor performance among others. These challenges have led to a growing need to reform the way human resource is structured in the public service. One of such ways is the use of the Human Resource Management Information System. For that this study sought to determine the effect of human resource information systems on planning in human resource function in the now and future of the Kenyan Civil Service. The study used a positivist approach and a descriptive research design. With the target population being the workers in the civil service, 459 persons were incorporated as a sample size. The obtained results were descriptively analyzed, as well as inferential statistics obtained. The findings revealed that HRMIS planning has a dire notable impact on employee performance both now and in the future. The study concluded that HRMIS is the key to building superior policies in human resource planning and employee performance that will help the challenges that have for long bedeviled the human resource in the civil service.

Keywords: Human Resource, Human Resource Information System, HRMIS, Civil Service, Information System, Planning, Management Support, Employee Performance



INTRODUCTION

Information systems (IS) have had a significant impact on human resource (HR) planning in recent years, and this impact is expected to continue in the future. One way that IS has impacted HR planning is by providing organizations with the ability to analyze and manage large amounts of data related to their workforce, such as information on employee skills, qualifications, and job performance (Mugambi, et al, 2019). This allows organizations to make more informed decisions about staffing and career development, leading to improved employee performance and satisfaction. Further, IS has impacted HR planning through the use of automation, which enables organizations to streamline HR processes such as recruitment, onboarding, and performance management. This can lead to cost savings, improved efficiency, and a more positive employee experience. In the future, Information System is expected to play an even greater role in HR planning by providing organizations with the ability to predict workforce trends and anticipate future skill needs. This will enable organizations to proactively plan for workforce changes and take advantage of new opportunities.

Problem Statement

Despite the potential benefits of Information System in HR function, such as improved accuracy and efficiency of HR processes (Mugambi, et al, 2019), many organizations in Kenya continue to struggle with the effective implementation and use of Information System in HR planning (Oketch, et al. 2016). Barriers to Information System adoption and implementation include lack of technical expertise, limited access to technology, and a lack of standardization in HR data (Njoroge, et al, 2018). This study aimed to investigate the challenges and barriers to Information System adoption and implementation in HR in Kenya, and to understand how IS can be effectively used to improve HR planning in the Kenyan context (Kibet, et al, 2020). Further, the HR function is bedeviled with a myriad of challenges including a mundane system and workforce that is largely unresponsive to the needs of the customers, (Public Service Commission of Kenya annual performance evaluation report, 2017). Further, to the subsequent performance index report for the year 2018/2019, performance in the civil service declined from 31% in 2016/2017 to 25.32% in 2018/2019 thus causing a concern. For that reason, the government initiated a number of reforms initiatives geared towards revamping the performance of the civil service. The reforms included: developing strategies to re-engineer the civil service delivery abilities, sustenance of high-performance culture, productivity measurement framework and implementation of training programs for skills acquisition among others. These reforms followed calls by a number of stakeholders dating back in 1990's to review the operations of the civil service in enabling the government to achieve its mandate as documented in Government Sessional papers number one of 1986, 1992, and 1994 as well as in the vision 2030 and digital blue print of 2013.

LITERATURE REVIEW

Theoretical Review

Diffusion of Innovation Theory (DOI)

This theory, developed by Everett Rogers (2003), posits that the adoption and diffusion of innovations, including IS, is influenced by factors such as relative advantage, compatibility, complexity, trialability, and observability. In the context of IS in HR, DOI can be used to understand how factors such as the perceived benefits of IS in HR planning, the compatibility of IS with existing HR practices, and the ease of trying and observing IS in HR planning influence the adoption and diffusion of IS in HR.

According to the theory, the adoption and diffusion of innovations are influenced by five key factors: relative advantage, compatibility, complexity, trialability, and observability (Rogers, 2003). Applying the Diffusion of Innovation theory can help organizations understand the factors that influence the adoption and diffusion of HRMIS, and develop strategies to promote its adoption and diffusion among employees (Rogers, 2003). By addressing these factors, organizations can increase the likelihood of successful adoption and diffusion of HRMIS, which can, in turn, enhance mentoring support and job satisfaction, and planning in human resource.

Human Capital Theory

Schultz proposed the Human Capital Theory in 1961, and Becker expanded on it significantly later in 1964 (El-Farr & Hosseingholizadeh, 2019). The theory (HCT) is a comprehensive approach to analyze a wide spectrum of the input of people in organizations. Education, in this approach, is placed at the center and considered the source of economic development of organizations. The theory proposes that training offered to staff boosts their productivity and transmits usable information and skills. This approach is meant to deliver services at optimal levels. To do so, the theory proffers that effective organizations provide a framework that encourages optimization of workforce (El-Farr & Hosseingholizadeh, 2019). Training, for example, enables increase in organizational performance.

The theory presumes that individuals that acquire knowledge and skills through education and training increase their productivity in the workplace. As a result, they earn higher salaries. This is however an assumption of an ideal labour market. Therefore, people would invest in education up to the point where the private benefits from education are equal to the private costs. In light of this set of assumptions, the logic of HCT becomes clear that education and training ought to increase human capital and higher productivity rate, which in turn brings a higher wage for the individual. Based on this reasoning, it can be claimed that education and earnings are positively correlated and thus education/training should be promoted. The theory is largely aligned to employee performance in the study and other HRMIS practices.

However, the theory is criticized for failing to envisage the changing dynamic aspects of human capital including technology in its initial proposition. Therefore, the proliferation of the knowledge-based economy, and technological advancement continue to drive many governments and corporations to seek new tactics to maintain a competitive advantage (Allan et al., 2008). The common agreement in response is that success is highly reliant on individuals with higher levels of ability and dedication.

This theory supports objective of HRMIS integration. The theory is relevant to the study in that an employee's gained knowledge and abilities can readily transfer to particular commodities and services as a result of human capital investment (Ronner, 2005). Given that the accumulation of knowledge and skills via efficient HRM practices plays a crucial role in the development of human capital, there is a general opinion that learning is the most essential aspect in increasing human capital. This suggests that learning is a critical component of acquiring such knowledge and skills through successful HRM practices (Sleezer et.al, 2006). It is increasingly acceptable for the conceptual underpinning of one's human capital to be built on knowledge and skills developed via successful HRM practices. Assuming that knowledge may generally incorporate other human capital components such as skills, experience, and competency, the relationship between human capital and knowledge has a broad implication that firms should invest in their people through successful HRM processes.

HRMIS is key in identifying potential mentors and mentees, match them based on their skills, competencies, and interests, and monitor the progress of their mentoring relationship. It can also help provide employees with access to relevant training and development programs, which can help them acquire new skills and knowledge, and enhance their job satisfaction. Additionally, HRMIS can help managers and supervisors track employee performance and provide timely feedback and recognition, which can boost morale and motivation (Kibet et al., 2020). Further, according to Shadare & Oyewobi (2019), HRMIS can enable HR professionals to make informed decisions based on accurate and timely data. HRMIS can help identify skills gaps and talent shortages, forecast future workforce needs, and design effective recruitment and retention strategies.

There are several literatures that have looked into the role played by HRMIS on mentoring support and job satisfaction in the civil service, as well as the impact of information systems on planning in human resource. A study by Oketch et al. (2016) on the impact of human resource information systems on human resource management in Kenya. The study found out that the use of IS in HR planning can improve the accuracy and efficiency of HR processes such as recruitment, performance management, and employee training. However, the study also identified several barriers to the effective implementation of IS in HR, including a lack of technical expertise, limited access to technology, and a lack of standardization in HR data.

Njoroge, et al. (2018) carried out a study on the impact of human resource information systems on organizational performance in Kenya. The findings from this study indicated that IS can improve the effectiveness of HR planning by providing managers with access to accurate and up-to-date information on employee skills and qualifications. However, the study also highlighted the importance of addressing issues such as data security and privacy, and the need for staff training to ensure effective use of IS. Another similar study by Kibet, et al. (2020) found out that the use of IS in HR can lead to improved employee performance through better tracking of employee performance and training, and the provision of more accurate and timely feedback to employees. However, the study also found that the success of IS in HR depends on factors such as the level of staff engagement and the quality of the data entered into the system.

Mugambi et al. (2019) found out that that while the adoption of HRMIS in East Africa is increasing, there are still several barriers to its effective implementation, including a lack of technical expertise, limited access to technology, and a lack of standardization in HR data. One major barrier is a lack of technical expertise among HR professionals in East Africa. Many organizations lack the necessary skills to implement and maintain HRMIS, which can result in poor system performance and data quality (Aghdasi et al., 2018). This barrier can be overcome through training programs and partnerships with external consultants to provide technical support. Another barrier is limited access to technology in the region. Many organizations, especially those in rural areas, lack the necessary infrastructure and resources to implement and maintain HRMIS effectively (Aghdasi et al., 2018). This can be addressed through partnerships with technology providers, government initiatives to increase access to technology, and the use of cloud-based HRMIS, which can reduce the need for on-premises infrastructure.

A lack of standardization in HR data is another barrier to the effective implementation of HRMIS in East Africa (Amollo et al., 2019). In many cases, HR data is not properly structured or standardized, which can make it difficult to integrate and analyze across different systems and organizations. This barrier can be addressed through the development of data standards and protocols, as well as collaboration among organizations to promote standardization and data sharing.

A study by Wang'ombe et al. (2017) on HRMIS impact on employee engagement found that the use of IS in HR can lead to improved employee engagement through better communication and access to information, but also highlighted the importance of addressing issues such as data security and privacy, and the need for staff training to ensure effective use of IS. Similarly, Kipkoech et al. (2016) found that IS can improve talent management by providing managers with accurate and up-to-date information on employee skills and qualifications, but also noted that the success of IS in HR depends on factors such as the level of staff engagement and the quality of the data entered into the system. Nyaanga & Mwirigi (2018) reviewed the literature on the adoption and implementation of HRMIS in Africa and found that there is a need for more research in this area, particularly in terms of understanding the unique challenges and opportunities for IS adoption in Africa.

Overall, these studies suggest that HRMIS can have a positive impact on mentoring support, job satisfaction, and planning in human resource management. Specifically, they highlight the importance of HRMIS in providing accurate and timely information, facilitating communication and collaboration, and enhancing employee engagement and empowerment. These findings have significant implications for HR practitioners and policymakers in the civil service who seek to optimize their human capital and achieve their strategic goals.

METHODOLOGY

The study was based on positivism research philosophy. This is due to positivists' heavy emphasis on the quantification of constructs and their conviction that quantitative measurement is the best method for determining the characteristics of phenomena. A descriptive research design was adopted for the study with the aim being to describe the how things were at the time of the study using quantitative approach. The design enabled the study to establish the effect of HRMIS on employee performance to gather quantifiable information that was used for statistical inference on the researcher's target audience through data analysis.

The study was conducted in Nairobi where all the government ministries are headquartered. The researcher aimed at including all government ministries into the study. There are 21 ministries in the national Government with one additional without portfolio. It is at the headquarters, that majority of the HR decisions and polices emanate and cascaded to field offices for implementation. The study population constituted 1384 personnel drawn from 21 HRM departments of government ministries headquarters in Nairobi, Kenya (Civil Service of Kenya, 2021). Stratified random sampling technique was used to identify respondents. This was achieved by separating the sample according to ministries. As a result of stratification, opinion, and perception towards HRMIS, top level management support of personnel in each ministry was included in the study. A sample of 549 was obtained from the population who got supplied with the self-designed questionnaires to fill. The researcher employed closed ended questions using 1-5 Likert type statements to collect data. After data collection was accomplished, the data was cleaned, coded, categorized and keyed into SPSS (Statistical Package for Social Sciences version 25); this process yielded both descriptive and inferential statistics using SPSS V25.

RESULTS

The purpose of this study is to explore the impact of HRMIS on planning in human resource management in the Kenyan Civil Service, both currently and in the future. The study looked at the effects of human resource information system integration on planning in the now and in the future.

Descriptive Statistics on HRMIS Planning

Table 1: Descriptive Results of HRMIS Planning

	N	Min.	Max.	Mean	SD	Skewness	Kurtosis
The HRMIS aids in quick planning and	421	1	5	3.40	.699	.183	.143
timely dissemination of information on							
recruitment of potential employees for							
the organization.							
Through HRMIS planning, it is easy to	421	1	5	3.53	.701	.345	.157
appreciate every employee based on							
the work they have done.							
HRMIS has been an effective change	421	1	5	3.55	.667	.054	.125
agent for positive planning and							
shaping the employees' attitudes							
towards the use of technology.							
The HRMIS planning has increased	421	1	5	3.41	.685	.124	.321
employee commitment with the design							
by boosting their motivation and							
communication confidence levels.							
Compensation of employees has been	421	1	5	3.50	.693	.245	.131
made easy and quick through the							
HRMIS planning							
AVERAGE MEAN				3.478			

The table shows the descriptive statistics of HRMIS planning based on five different statements. The sample size (N) for each statement is 421. The minimum and maximum values for each statement range from 1 to 5, indicating that the respondents have different levels of agreement or disagreement towards the statements. The mean value for each statement ranges from 3.40 to 3.55, which suggests that the respondents, on average, agree with the statements. The standard deviation (SD) for each statement ranges from 0.667 to 0.701, which indicates that there is some variability in the responses. The skewness values for each statement range from 0.054 to 0.345, which suggests that the data is relatively symmetrical. The kurtosis values for each statement range from 0.125 to 0.321, which suggests that the data is relatively flat. Overall, the results suggest that the respondents have a positive perception of HRMIS planning, with the mean value for all statements being above 3.0, indicating agreement with the statements.

HRMIS Planning in the Civil Service

The research attempted to determine the effect of HRMIS planning on employee performance at the civil service of Kenya. The hypothesis stated that;

H₀₁: HRMIS planning has no statistically significant effect on employee performance at the civil service of Kenya. The following model was used.

$$Y = \beta o + \beta_1 X_1 + \epsilon$$

Table 2: Model Summary on HRMIS Planning

				Std. Error of the
Model	R	R Square	Adjusted R Square	Estimate
1	.755	.570	.569	.44714

The Model Summary table presents the goodness of fit measures for the regression model that was performed to examine the relationship between the independent variable (HRMIS planning) and the dependent variable (employee job satisfaction). The R value of .755 indicates a strong positive correlation between the two variables. The R square value of .570 indicates that 57% of the variance in employee job satisfaction can be explained by the HRMIS planning variable. The adjusted R square value of .569 indicates that the model has a good fit, as it only decreases slightly after adjusting for the number of predictors in the model. The standard error of the estimate of .44714 represents the average distance that the observed values fall from the regression line, indicating the degree of accuracy of the model's predictions.

Table 3: ANOVA Table on HRMIS Planning

		Sum of				
Model		Squares	df	Mean Square	F	Sig.
1	Regression	111.178	1	111.178	556.086	.000 ^b
	Residual	83.771	419	.200		
	Total	194.949	420			

Table 3 shows the ANOVA table for the regression analysis. The regression model is significant with a p-value of less than .05, as indicated by the F-value of 556.086 and the associated significance level of .000b. This means that HRMIS planning significantly predicts job satisfaction in the Kenyan Civil Service. The sum of squares for regression is 111.178, which indicates that the model explains a significant amount of variance in job satisfaction. Overall, the results suggest that HRMIS planning has a positive impact on job satisfaction in terms of employee performance in the Kenyan Civil Service.

Table 4: Coefficient on HRMIS Planning

		Unstandardized Coefficients		Standardized		
				Coefficients		
Model		В	Std. Error	Beta	t	Sig.
1	(Constant)	.922	.138		6.680	.000
	HRMIS planning	.770	.033	.755	23.581	.000

Table 4 shows the coefficients for the regression model with HRMIS planning as the independent variable. The unstandardized coefficient (B) for HRMIS planning is 0.770, with a standard error of 0.033. The standardized coefficient (Beta) for HRMIS planning is 0.755, indicating that HRMIS planning has a strong positive relationship with the dependent variable (employee performance).

The t-value for HRMIS planning is 23.581, which is statistically significant at p<0.001, indicating that the coefficient is reliable and unlikely to have occurred by chance. The constant term has a B value of 0.922 and a t-value of 6.680, indicating that there is a significant intercept.

Overall, the results suggest that there is a strong positive relationship between HRMIS planning and employee performance, and the model is a good fit for the data (R-square=0.570, adjusted R-square=0.569). The linear regression equation from the results is:

$$y = 0.770x + 0.922$$

where, y is the dependent variable (HR performance) and x is the independent variable (HRMIS planning).



Top level management support, HRMIS planning and Employee Performance

Sub hypothesis one examined the moderating role of top-level management support on the relationship between HRMIS planning on employee performance at the civil service of Kenya. Simple Linear Regression was used to present the findings in table 5, 6, and 7.

Table 5: Model Summary for Top level management support, HRMIS planning and Employee Performance

					Change Statistics				
		R	Adjusted R	Std. Error of the	R Square				Sig. F
Model	R	Square	Square	Estimate	Change	F Change	df1	df2	Change
1	.755 ^a	.570	.569	.44714	.570	556.086	1	419	.000
2	.886 ^b	.785	.784	.31680	.215	416.684	1	418	.000

Table 5 presents the model summary for two regression models that examine the relationship between top-level management support, HRMIS planning, and employee performance.

For Model 1, the R-squared value of .570 indicates that 57% of the variance in employee performance can be explained by HRMIS planning alone. The adjusted R-squared value of .569 adjusts for the number of predictors in the model, indicating that the model explains a significant amount of the variation in employee performance. The standard error of the estimate of .44714 measures the average distance between the predicted and actual values of the dependent variable. The change statistics indicate that adding top-level management support in Model 2 leads to an increase of .215 in the R-squared value, which is statistically significant according to the F-test with a value of 416.684 and a p-value of .000.

For Model 2, the R-squared value of .785 indicates that 78.5% of the variance in employee performance can be explained by both HRMIS planning and top-level management support. The adjusted R-squared value of .784 adjusts for the number of predictors in the model, indicating that the model explains a significant amount of the variation in employee performance. The standard error of the estimate of .31680 measures the average distance between the predicted and actual values of the dependent variable. The change statistics indicate that the F-test value for Model 2 is 416.684 with a p-value of .000, indicating that the model significantly explains the variation in employee performance.

These results suggest that both HRMIS planning and top-level management support have a significant positive effect on employee performance, and that the addition of top-level management support improves the model's ability to explain the variation in employee performance.

Table 6: ANOVA for Top level management support, HRMIS planning and Employee Performance

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	111.178	1	111.178	556.086	.000 ^b
	Residual	83.771	419	.200		
	Total	194.949	420			
2	Regression	152.997	2	76.499	764.228	.000°
	Residual	41.951	418	.100		
	Total	194.949	420			

Table 6 presents the analysis of variance (ANOVA) for two regression models that examine the relationship between top-level management support, HRMIS planning, and employee performance.

For Model 1, the ANOVA shows that the regression model significantly explains the variation in employee performance, as indicated by the F-test value of 556.086 with a p-value of .000. The sum of squares for the regression is 111.178, indicating that HRMIS planning explains a significant proportion of the variation in employee performance. The residual sum of squares is 83.771, indicating that there is still some unexplained variation in employee performance that is not accounted for by HRMIS planning.

For Model 2, the ANOVA shows that the regression model significantly explains the variation in employee performance, as indicated by the F-test value of 764.228 with a p-value of .000. The sum of squares for the regression is 152.997, indicating that both HRMIS planning and top-level management support explain a significant proportion of the variation in employee performance. The residual sum of squares is 41.951, indicating that the addition of top-level management support in Model 2 has reduced the amount of unexplained variation in employee performance.

Overall, the ANOVA results provide further evidence that both HRMIS planning and toplevel management support have a significant positive effect on employee performance, and that the addition of top-level management support improves the model's ability to explain the variation in employee performance.

Table 7: Coefficients for Top level management support, HRMIS planning and Employee Performance

		Unsta	andardized	Standardized		
		Co	efficients	Coefficients		
Mod	el	В	Std. Error	Beta	t	Sig.
1	(Constant)	.922	.138		6.680	.000
	HRMIS planning	.770	.033	.755	23.581	.000
2	(Constant)	2.275	.118		19.262	.000
	HRMIS planning	073	.047	072	-1.542	.124
	X_1M	.124	.006	.948	20.413	.000

Table 7 shows the coefficients for the two regression models that examine the relationship between top-level management support, HRMIS planning, and employee performance.

For Model 1, the coefficients show that HRMIS planning has a significant positive effect on employee performance, as indicated by the beta value of .755 with a p-value of .000. The intercept (constant) value is .922, indicating that in the absence of HRMIS planning, the predicted value of employee performance is .922. The t-value of 23.581 for HRMIS planning indicates that the coefficient estimate is significantly different from zero.

For Model 2, the coefficients show that both HRMIS planning and top-level management support have significant positive effects on employee performance. HRMIS planning has a smaller coefficient than in Model 1 and is negative, indicating that its effect on employee performance is reduced when top-level management support is included in the model. The coefficient for top-level management support (X1M) is .124, indicating that for every one-unit increase in top-level management support, the predicted value of employee performance increases by .124 units. The intercept value is 2.275, indicating that in the absence of both HRMIS planning and top-level management support, the predicted value of employee performance is 2.275.

Overall, the coefficients provide further evidence that both HRMIS planning and top-level management support have significant positive effects on employee performance, and that the addition of top-level management support in Model 2 improves the model's ability to predict employee performance.

Model 1 is a simple linear regression with only one independent variable, HRMIS planning. The linear regression equation for this model is:

Employee Performance = 0.922 + 0.770 (HRMIS planning)



The above equation indicates that the predicted value of employee performance increases by 0.770 units for every one-unit increase in HRMIS planning, when holding other variables constant.

Model 2 is a multiple linear regression with two independent variables, HRMIS planning and top-level management support. The linear regression equation for this model is:

Employee Performance = 2.275 - 0.073 (HRMIS planning) + 0.124 (top-level management support)

This equation indicates that the predicted value of employee performance increases by 0.124 units for every one-unit increase in top-level management support, and decreases by 0.073 units for every one-unit increase in HRMIS planning, when holding other variables constant. In conclusion, these findings suggest that organizations that invest in HRMIS planning are likely to see improvements in their employees' performance.

CONCLUSION AND RECOMMENDATIONS

Human resource (HR) planning has been greatly influenced by information systems (IS), and this influence is anticipated to persist in the future. This study focused on determining the impact of HRMIS planning on employee performance in the now and in the future. The paper helps show the expected trends in the HRMIS and achieving employee satisfaction. The study findings revealed that HRMIS planning is key in employee performance as it has a direct positive impact. A good HRMIS system and plans will result in superior performance by the employees in the civil service. Studies like that of Okech and Namusonge (2018) found out that the implementation of HRMIS positively influenced employee performance in public hospitals in Kenya. Another study by Akinyi, Omwenga, and Bwisa (2019) showed that the use of HRMIS was associated with improved employee performance in Kenyan universities. Similarly, a study by Aketch and Omwenga (2017) found that the use of HRMIS positively affected employee performance in the Kenyan public sector.

Based on these results, the study recommends that Kenyan organizations should prioritize HRMIS planning as a way to improve employee performance. This can include investing in HR information systems that allow for the collection and analysis of employee data, as well as developing HR policies and practices that utilize this data to inform staffing decisions and career development opportunities. Additionally, organizations should ensure that top-level management supports the implementation of HRMIS planning initiatives to maximize their effectiveness. Further research can be conducted to explore the specific strategies and best practices that can be employed to optimize the impact of HRMIS planning on employee performance in Kenyan organizations.

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