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Gidnorah Mwakuli Mangale & Dr. Stanley Kavale, PhD

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¹Gidnorah Mwakuli Mangale & ² Dr. Stanley Kavale, PhD

¹ Master Student, Jomo Kenyatta University of Agriculture and Technology, Kenya

² Lecturer, The Open University of Kenya, Kenya

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ABSTRACT

This study investigated the impact of human resource analytics on the organizational performance of shipping agents in Mombasa County, Kenya. Specifically, it examined recruitment analytics, training analytics, employee appraisal analytics, and employee retention analytics. The research was underpinned by evidence-based management theory, resource-based view theory, human capital theory, and contingency theory. A descriptive research design was used, targeting Human Resource professionals from 42 shipping agents registered by the Kenya Ship Agents Association as of March 2024. A sample size of 69 was determined using Taro Yamane's formula and purposive sampling. Data were collected through a structured questionnaire and analyzed using SPSS version 25. The results revealed significant positive correlations between organizational performance and the four human resource analytics. Multiple regression analysis indicated that training, employee appraisal, and retention analytics positively and significantly affected organizational performance, while recruitment analytics negatively and insignificantly influenced organization performance. A knowledge gap among staff involved in recruitment was highlighted as the reason for the results of recruitment analytics, hence a need to address it. The study concluded that shipping agents in Mombasa should utilize these human resource analytics to improve performance.

Keywords: Human resource analytics, recruitment analytics, training analytics, employee appraisal analytics, employee retention analytics and organization performance

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INTRODUCTION

Human resource analytics involves systematically collecting, analyzing, and interpreting data related to human resources within an organization to optimize workforce performance and achieve organizational objectives Fernandez et al., (2020). This approach leverages data to understand the impact of human capital on organizational performance, guided by frameworks such as LAMP (Logic, Analytics, Measures, and Processes) and the Human Capital Bridge Framework to align HR analytics with organizational goals Boakye & Ayerki Lamprey, (2020). Despite recognizing the critical role of human resource analytics, many organizations struggle to effectively leverage it due to challenges in adopting data-driven human resource practices Oladipupo & Olubusayo, (2020). The adoption of human resource analytics remains limited, with Liaison Workforce report in July 2020 indicating that only 20% of HR professionals in Kenya feel confident in conducting advanced HR analytics, highlighting significant obstacles Moturi et al., (2022).

In 2024, global shipping agents' performance is shaped by economic trends, technological advancements, and geopolitical dynamics, influenced by factors like the aftermath of the COVID-19 pandemic, economic downturns, and inflation, leading to fluctuating demand and supply chain management challenges. Digital tools and predictive analytics are increasingly adopted to enhance efficiency, while major shipping alliances ensure market stability. Notably, countries like Germany, the Netherlands, Switzerland, and Denmark excel in customs performance, infrastructure quality, and shipment timeliness with the highest-ranking score of ranked at 4.1 by Logistics Performance Index (2023). In Africa, shipping agents face challenges such as competition, infrastructure issues and management inefficiencies Kahyarara, (2018). However, the ongoing investments and strategic initiatives provide a pathway for significant improvement in their performance.

Shipping agents in Mombasa County play a pivotal role in facilitating logistics services in Kenya, with a traditional emphasis on operational efficiency, cost reduction, and timely delivery. However, the evolving landscape of the shipping industry recognizes the critical importance of human capital for sustainable success. Despite ongoing efforts to enhance infrastructure and digitalize services, the industry grapples with challenges in achieving optimal performance, as noted by the East African Shippers Council (SCEA, 2019) and Nancy et al. (2023). Moreover, research on human resource analytics in Kenya is limited with none of the studies specifically investigating the impact of human resource analytics on the organizational performance of shipping agents in Mombasa County, Kenya. This research gap highlights the need for a study on how human resource analytics can enhance the performance of shipping agents in Mombasa County. The specific study objectives were: -

- To find out the effect of recruitment analytics on organizational performance of shipping agents in Mombasa County, Kenya.
- To find out the effect of training analytics on organizational performance of shipping agents in Mombasa County, Kenya.
- To find out the effect of employee appraisal analytics on organizational performance of shipping agents in Mombasa County, Kenya.
- To find out the effect of employee retention analytics on organizational performance of shipping agents in Mombasa County, Kenya.

LITERATURE REVIEW

This study was guided by four key theories: Evidence-Based Management Theory, Resource-Based View Theory, Human Capital Theory, and Contingency Theory. The Evidence-Based Management Theory advocates for using evidence (analytics) in decision-making processes, extending to human resource practices like recruitment, training, appraisal, and retention. The Resource-Based View Theory asserts that a company's competitive advantage stems from its unique

resources, including human capital, which human resource analytics leverage for sustained competitive advantage. Human Capital Theory emphasizes investing in employees' knowledge and skills, with HR analytics aiding in talent acquisition, training, and performance management decisions. Contingency Theory suggests that HR analytics' effectiveness relies on alignment with internal and external organizational factors, necessitating context-specific applications.

Recruitment analytics has been shown to significantly impact organizational performance through various studies. Samtani (2022) conducted research on the advantages of using prescriptive analytics in recruitment and performance management processes by HR professionals based in Ireland. The study revealed that prescriptive analytics in recruitment, when based on sorted and defined data, can positively influence decision-making processes. Similarly, Vadithe & Kesari (2023) investigated Human Resource Analytics on Talent Acquisition, finding that HR analytics can lead to efficiency and effectiveness in organizational performance, particularly in talent acquisition strategies. These studies highlight the role of recruitment analytics in optimizing organizational processes and improving performance. Training analytics is another critical aspect influencing organizational performance. Kiran et al. (2023) explored the effect of HR Analytics and Human Capital Management on Organizational Performance, demonstrating that HR analytics supports various human capital management practices, including training and development, leading to improved organizational performance. Furthermore, Hundiwala (2019) examined the Impact of People Analytics for sustainability of organizations, emphasizing how HR analytics can inform performance appraisal and contribute to organizational sustainability. These studies underscore the significance of training analytics in enhancing employee development and organizational success.

Employee appraisal analytics has also been shown to impact organizational performance positively. Kale & Anute (2022) investigated HR Analytics and its Impact on Organizations Performance, demonstrating how HR analytics, such as employee performance evaluations, can lead to improvements in performance and retention rates. Additionally, Muhammad & Naz (2022) studied the moderating efficacy of HR analytics on the relationship between employee engagement, retention, and organizational performance, revealing that effective implementation of retention strategies can enhance organizational outcomes. These studies highlight the role of employee appraisal analytics in driving organizational effectiveness and employee engagement. Employee retention analytics is critical for maintaining organizational performance. Varma & Chavan (2019) conducted a study on HR Analytics – To understand the effect on Employee Turnover, identifying challenges faced by organizations in managing turnover rates. Meanwhile, Muhammad & Naz (2022) explored the moderating efficacy of HR analytics on employee engagement and retention, showing how effective retention strategies can enhance organizational performance. These studies emphasize the importance of employee retention analytics in fostering employee engagement and reducing turnover rates, ultimately contributing to organizational success.

Organizational performance metrics for shipping agents encompass various dimensions, including financial performance, operational efficiency, and customer satisfaction. Narendar & Mishra (2021) analyzed the Impact of HR Analytics on Organizational Performance of the IT industry, showing a significant effect of HR analytics on organizational performance. Ameer et al. (2023) investigated the Impact of HR Analytics Competencies on Organizational Performance, revealing how HR analytics competencies can influence decision-making and return on investments in businesses. These studies highlight the broader impact of HR analytics on

organizational performance across different industries, including shipping.

METHODOLOGY

The study adopted a descriptive research design, aiming to systematically portray human resource analytics within Mombasa County's shipping industry. The study targeted 84 HR professionals from 42 shipping agents registered by Kenya Ships Agent Association, with a sample size of 69 determined through Taro Yamane's formula.

Purposive sampling ensured the selection of respondents capable of addressing the research questions effectively. Data collection involved distributing structured questionnaires, preceded by a pilot study to test the research instruments. Reliability and validity of the instruments were assessed, and data processing included cleaning, processing, and analyzing qualitative and quantitative data using descriptive and inferential statistics.

FINDINGS

Reliability of Research Instrument

Table 1: Reliability Test Results

Construct	No. of Items	Cronbach's Alpha	Recommendation
Recruitment Analytics (X_1)	6	0.906	Accepted
Training Analytics (X_2)	6	0.917	Accepted
Employee Appraisal Analytics (X_3)	6	0.814	Accepted
Employee Retention Analytics (X_4)	6	0.975	Accepted
Organizational Performance (Y)	6	0.953	Accepted
Entire Scale	30	0.913	Accepted

According to Cooper and Schindler (2008) Cronbach Alpha of 0.7 and above is acceptable and shows that the data collection instrument is reliable. Table 1 highlights the consistency and dependability of the measurement instrument across various analytics constructs.

Descriptive Results

The study examined the impact of human resource analytics (recruitment analytics, training analytics, employee appraisal analytics, and employee retention analytics) on the performance of shipping agents in Mombasa County, Kenya. The mean and standard deviation of these variables are presented as follows.

Table 2: Descriptive Results for Recruitment Analytics

Statement	n	Mean	Standard Deviation
Recruitment analytics reduce the time taken to fill vacancies	42	4.2619	0.5868
Recruitment analytics has decreased the cost per hire	42	4.2143	0.7169
Increase in offer acceptance rate since utilizing recruitment analytics	42	3.9762	0.6803
Recruitment analytics inform organization hiring decisions	42	3.7857	1.0941
Employees involved in recruitment have the knowledge to utilize recruitment analytics	42	3.4762	0.9936
Overall, recruitment analytics have positively impacted our organizational performance	42	3.9286	0.8380
Recruitment Analytics	42	3.9405	0.8183

Recruitment analytics were perceived positively, with an overall mean score of 3.9405 and a standard deviation of 0.8183, indicating general agreement on their positive impact on organizational performance. These findings align

with R. Thiyagarajan (2021) study on the role of recruitment analytics and metrics in targeted recruitment post-pandemic that showed that predictive analytics helps reduce recruitment time and cost while locating competencies quicker.

Table 3: Descriptive Results for Training Analytics

Statement	n	Mean	Standard Deviation
Training analytics contribute to improving training KPIs	42	4.2439	0.6626
Training analytics has led to increase in training ROI.	42	3.8095	1.0178
Training completion rates increased since using training analytics.	42	3.8810	0.8612
Training analytics to enhance organization training effectiveness.	42	3.5476	1.2337
Utilization of training analytics and improved training outcomes.	42	3.6190	1.1677
Overall, training analytics have positively impacted our training initiatives and organizational performance.	42	3.8810	1.2138
Training Analytics	42	3.8303	1.0261

Training analytics were perceived positively, with an overall mean score of 3.8303 and a standard deviation of 1.0261, indicating general agreement on their positive impact on training initiatives and organizational performance. These findings are consistent with the study by Kiran et al. (2023), which revealed that data analytics in training and

development can be used to maximize return on investment and determine the real value of employee training programs, helping to improve learning experiences by providing a data-driven approach to course updates, improvements, and realization.

Table 4: Descriptive Results for Employee Appraisal Analytics

Statement	n	Mean	Standard Deviation
Skills Proficiency Rate help in identifying areas for skills development for enhancement within our workforce.	42	4.3902	0.6663
We have observed a direct link between high Promotion Readiness Scores and employee appraisal analytics	42	3.8571	0.9258
We have observed a positive correlation between high Employee Attendance Rates and increased productivity	42	3.8810	0.7715
Our organization relies on data from employee appraisal analytics to improve workforce productivity.	42	3.7143	1.1952
There is a correlation between the utilization of employee appraisal analytics and improved overall performance	42	4.2381	0.6172
Overall, employee appraisal analytics have positively impacted our organizational effectiveness.	42	4.0952	0.6555
Employee Appraisal Analytics	42	4.0293	0.8053

Employee appraisal analytics were perceived positively, with an overall mean score of 4.0952 and a standard deviation of 0.6555. These findings collaborate with the study by Kale, H., & Anute, N.

(2022), which showed that appraisal analytics allows for the calculation of what employees need or are lacking, enabling the creation of programs to help increase performance.

Table 5: Descriptive Results for Employee Retention Analytics

Statement	n	Mean	Standard Deviation
Employee retention analytics significantly contribute to reducing employee turnover rates within our organization.	42	3.9762	0.9997
Implementing employee retention analytics has led to a better understanding of employee satisfaction levels.	42	3.8571	0.9258
Our organization has data-driven insights from exit interview data to identify trends and factors contributing to turnover.	42	3.7143	1.1746
A clear correlation between the utilization of employee retention analytics and reduced employee turnover.	42	3.9286	0.9726
Employee retention analytics valuable in addressing concerns and improving retention strategies.	42	4.0714	1.0451
Overall, employee retention analytics have positively impacted our retention efforts and organizational stability.	42	4.0476	1.0348
Employee Retention Analytics	42	3.9325	1.0255

Employee retention analytics were perceived positively, with an overall mean score of 4.0476 and a standard deviation of 1.0348, indicating general agreement on their positive impact on retention efforts and organizational stability. These findings are consistent with the study by Varma, C., &

Chavan, C. (2019) on HR analytics to understand the effect on employee turnover, which concluded that using analytics helps calculate what employees value most and then create a model to boost the retention rate.

Table 6: Descriptive Results for Organizational Performance

Statement	n	Mean	Standard Deviation
Implementing recruitment analytics has led to a significant decrease in our organization's cost per hire	42	4.0000	0.8554
There is a positive correlation between training analytics utilization and improved ROI from training initiatives	42	4.0476	0.8821
Employee productivity levels have improved following the utilization of employee appraisal data in the organization.	42	3.9048	0.6917
Our organization has experienced enhanced profit margins since implementing HR analytics strategies	42	3.5714	1.0625
HR analytics has led to noticeable improvements in operational efficiency within our organization	42	3.8810	1.2138
Utilizing HR analytics has positively impacted our ability to retain customers by ensuring high-quality workforce	42	3.9762	1.1367
Organizational Performance	42	3.8968	0.9737

HR analytics were perceived positively, with an organizational performance mean score of 3.8968 and a standard deviation of 0.9737, suggesting that respondents viewed organizational performance favorably, which underscores the positive contribution of HR analytics to organizational

effectiveness. These findings are consistent with the study by Muriithi, A. W., & Waithaka, P. (2019), which concluded that HR data access, data management, and stewardship aspects of people analytics had a significant effect on the performance of microfinance institutions.

Correlation Analysis Results

Table 7: Correlation Analytics

		Recruitment Analytics	Training Analytics	Employee Appraisal Analytics	Employee Retention Analytics	Organization Performance
Recruitment Analytics	Pearson Correlation Sig. (2-tailed)	1				
Training Analytics	Pearson Correlation Sig. (2-tailed)	.816**	1			
Employee Appraisal Analytics	Pearson Correlation Sig. (2-tailed)	.627**	.860**	1		
Employee Retention Analytics	Pearson Correlation Sig. (2-tailed)	.510**	.653**	.815**	1	
Organization Performance	Pearson Correlation Sig. (2-tailed)	.654**	.859**	.921**	.881**	1
	N	42	42	42	42	42

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

Recruitment Analytics demonstrates a strong positive correlation (Pearson's $r = 0.654$, $p < 0.01$) with Organization Performance. Similarly, Training Analytics shows a strong positive correlation ($r = 0.859$, $p < 0.01$) with Organization Performance. Furthermore, Employee Appraisal Analytics indicates a very strong positive correlation ($r =$

0.921 , $p < 0.01$) with Organization Performance. Additionally, Employee Retention Analytics reveals a very strong positive correlation ($r = 0.881$, $p < 0.01$) with Organization Performance. These findings show HR analytics to be beneficial for overall organizational performance of shipping agents in Mombasa County, Kenya.

Table 8: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.823 ^a	.677	.663	.34839

a. Predictors: (Constant), Recruitment analytics, training analytics, employee appraisal analytics, employee retention analytics

The value of R square is 0.677. This implies that 67.7% of variation of organizational performance was explained by the four independent variables. 32.3% implies that there are factors not studied in

this study that influences organizational performance in shipping agents in Mombasa County, Kenya.

Table 9: ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	30.251	4	7.563	118.723	.000 ^b
	Residual	2.357	37	.064		
	Total	32.608	41			

a. Dependent Variable: Organizational Performance

b. Predictors: (Constant), Recruitment analytics, training analytics, employee appraisal analytics, employee retention analytics

The ANOVA test indicate that independent variables namely, Recruitment analytics, training analytics, employee appraisal analytics and employee retention analytics are important in predicting

organization performance as indicated by significance value=0.000 which is less than 0 .05 level of significance ($p=0 .000<0.05$).

Table 10: Regression Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.492	.393		-1.251	.219
	Recruitment analytics	-.066	.103	-.051	-.642	.525
	Training analytics	.397	.125	.393	3.171	.003
	Employee appraisal analytics	.378	.179	.253	2.112	.042
	Employee retention analytics	.409	.072	.444	5.674	.000

a. Dependent Variable: Organizational Performance

The results on Table 10, the coefficient associated with the regression constant is -0.492 with a standard error of 0.393, the coefficient associated with the first independent variable (Recruitment analytics) is -0.066 with a standard error of 0.103, the coefficient associated with the second independent variable (Training analytics) is 0.397 with a standard error of 0.125, the coefficient associated with the third independent variable (Employee appraisal analytics) is 0.378 with a standard error of 0.179 and finally the coefficient associated with the fourth independent variable (Employee retention analytics) is 0.409 with a standard error of 0.072. Further, only recruitment analytics was found to be statistically insignificant at $p=0.525$ since its significant value is greater than 0.05 or ($P>0.05$). The other 3 variables namely training analytics, employee appraisal analytics and employee retention analytics were found to be statistically significant at $p=0.003$, $p=0.042$ and $p=0.000$ respectively since their associated p-values are 0.05 or ($P>0.05$). Consequently, the regression model.

$(Y = \alpha + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \mu)$ becomes:

$$Y = -0.492 - 0.066X_1 + 0.397X_2 + 0.378X_3 + 0.409X_4$$

DISCUSSION OF FINDINGS

This study aimed to determine the effect of HR analytics on the organizational performance of shipping agents in Mombasa County, focusing on

recruitment, training, employee appraisal, and employee retention analytics. The findings indicated that recruitment analytics had a negative and insignificant effect on organizational performance, contrary to Vadithe & Kesari (2023), who found HR analytics and talent acquisition enhance organizational performance. In contrast, training analytics showed positive and significant effects on organizational performance, consistent with Kiran et al. (2023), who revealed that training analytics strongly impacts performance and concluded that HR managers should ensure their organizations' human capital needs are appropriately identified and assessed. Employee appraisal analytics also showed positive and significant effects on organizational performance, aligning with Kale & Anute (2022), who found that HR analytics can help identify employee needs and create programs to boost performance. Lastly, employee retention analytics showed positive and significant effects on organizational performance, consistent with Muhammad & Naz (2022), who disclosed that effective retention strategies, supported by HR analytics, are critical for enhancing organizational outcomes.

CONCLUSION AND RECOMMENDATION

In conclusion, this study unveiled significant insights into the impact of HR analytics on the organizational performance of shipping agents in Mombasa County, Kenya. It found that while

recruitment analytics had a negative and insignificant influence on performance, training analytics, employee appraisal analytics, and employee retention analytics all had positive and significant impacts. These findings underscore the potential of HR analytics to enhance organizational performance when effectively implemented. Recruitment analytics' negative impact suggests a need for better knowledge and implementation strategies. In contrast, the positive effects of training, appraisal, and retention analytics indicate their importance in developing skills, identifying

high performers, and improving retention strategies. To leverage these findings, management should invest in addressing knowledge gaps in recruitment analytics and fully embrace the other HR analytics to drive performance. Policymakers should standardize HR analytics practices, offer financial incentives, and promote collaboration to create an environment conducive to effective HR analytics use, thereby enhancing the performance and competitiveness of shipping agents in Mombasa County.

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