The Influence of Human Resources Officers' Attributes on Understanding and Usage of Human Resource Information Systems Outputs in Decision-Making in Tanzania

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Abstract
This paper evaluated the nexus between Human Resource Officers' (HROs) attributes and their comprehension and usage of Human Resource Information Systems (HRIS) output. The study was conducted across 37 Local Government Authorities (LGAs) in six regions namely: Mwanza, Arusha, Dodoma, Morogoro, Iringa and Kagera. 201 structured questionnaires were distributed to HROs between May and July 2020. Additionally, in-depth interviews were scheduled and undertaken with eight (8) key informants to accrue additional data on Human Resources Management (HRM) practices. The findings from the ordered logistic model indicate that all four HRO attributes examined (HRIS experience, Information Technology (IT) Skills, IT Knowledge, HR Knowledge) exhibited positive β-values and are statistically significant in influencing HRO understanding of HRIS outputs. Furthermore, all four HRO attributes exhibited positive β-values demonstrating that they significantly influence HRO decision-making processes. However, only IT knowledge and HR knowledge were statistically significant. The study asserts that HRO attributes significantly influence their understanding of HRIS outputs and utilise the same to inform decisionmaking in Tanzania's LGAs.

Keywords: *HRIS experience, IT Skills, IT Knowledge, HR Knowledge & HRIS outputs*

1.0 INTRODUCTION

The efficacy of global organizations is largely influenced by the quality of their workforce thus, entities cannot thrive and maintain a competitive edge with subpar personnel. Organizations are therefore tasked to proficiently manage their Human Resources (HR) by hiring individuals with the necessary skills, qualifications, knowledge and experience (Mahapatro, 2021). Human Resource Management (HRM) is a strategic system aimed to optimize organizational performance in line with its goals (Johanson, 2009). Conventionally, HRM's focus is on supervising organizational personnel (Collings & Wood, 2009). Hence, organizations generally have an HR department or unit responsible for

functions such as employee recruitment, training and development, performance evaluation and compensation management (Paauwe & Boon, 2009).

The evolution of Human Resource Management (HRM) significantly impacted technological advancements. Traditionally, HRM tasks were performed manually within organizations, requiring extensive paperwork. However, relying on paper-based systems for managing employee information presented numerous challenges. These included processing delays, potential for human errors, security risks associated with handling physical documents, and lack of employee self-service capabilities. Recognizing these limitations, organizations have transitioned to using Human Resource Information Systems (HRIS). HRIS involves the systematic computerized processing of HR functions, allowing Human Resource Officers (HROs) to efficiently acquire, store, manipulate, analyze, retrieve and disseminate HR-related information using software installed on computers.

HRIS is a significant marker of technological advancement in Human Resource Management (HRM) practice. The software incorporates integrated systems that gather, store and analyze data pertaining to an organization's human resources (Hendrickson, 2003; Jahan, 2014). HROs generally utilize HRIS software platforms to generate various outputs for diverse organizational functions, including aiding in informed decision-making processes (Obeidat, 2012; Boateng, 2007). These outputs include employee information reports, payroll reports, time and attendance reports, performance management reports, recruitment and applicant tracking reports and Employee Self-Service (ESS) outputs (Bagdi, 2012). HRIS outputs play a pivotal role in HR management, furnishing valuable data and thus supporting informed decision-making.

Globally, the incorporation of HRIS in HRM practices has been widespread, with Tanzania being no exception (Jahan, 2014; Beulen, 2009; Hussain *et al*.,2007; and Hendrickson, 2003). In 2011, the Tanzanian government launched the implementation of HRIS across its HR departments and units, including those within Local Government Authorities (LGAs), aiming to address the challenges associated with the previously paper-based HR systems (Daniel, 2015 and Lameck, 2015). Before introducing HRIS, the government had laid the groundwork with conducive institutional frameworks, such as the Public Service Reform Program (PSRP) launched in 1991. The goal of PSRP was to create a more efficient, cost-effective, well-compensated and effective civil service. Additionally, the national ICT Policy emphasized the promotion of good governance, transparency and accountability.

Some researchers, however, noted that the mere presence of HRIS doesn't guarantee the achievement of anticipated outcomes, such as enhanced administrative efficiency, improved employee communication, increased information accuracy, reduced HR costs and improved HR productivity (Susnjar *et al.*, 2013). Achieving these desired outcomes largely depends on various factors that require careful consideration during HRIS implementation, including organizational attributes, user characteristics and technological aspects.

Several studies conducted in Tanzania have analyzed the influence of these factors on HRIS performance with interesting findings. For instance, Simba and Mwangu (2006) explored factors influencing the quality of HRIS data; Matimbwa *et al*. (2020) examined technological features and HRIS effectiveness; and Matimbwa and Masue (2020) investigated how organizational factors influence HRIS effectiveness in Tanzanian LGAs. Additional research, such as the work by Mboera *et al*. (2021) investigating the drivers impacting HRIS performance within the healthcare domain, Matimbwa *et al.* (2021) exploring the relationship between user attributes and HRIS efficacy in Tanzanian Local Government Authorities (LGAs), and Ngulugulu *et al*. (2023) analyzing HRIS adoption in Tanzania's public sectors, has significantly enhanced the understanding of these dynamics.

Although there is a wealth of research on HRIS, there is limited empirical evidence depicting the nexus between HRO attributes and their comprehension and utilization of HRIS outputs, such HRIS-generated data, reports and data analyses generated by HRIS software platforms in Tanzanian LGAs, and this study sought to bridge this knowledge gap. Specifically, the study aimed to: 1) identify the attributes that Human Resource Officers (HROs) need to effectively perform their duties using HRIS; 2) evaluate the influence of HRO attributes (such as HRIS experience, IT skills, IT knowledge, and HR knowledge) on their understanding of HRIS-generated outputs; and 3) assess the impact of HRO HRIS experience, IT skills, IT knowledge and HR knowledge on the utilization of HRIS outputs for decision-making purposes. Hence, this study seeks to provide evidence-based recommendations to inform policy and enhance decision-making processes in HR management practice.

The study utilized the Integrated Management Competence Model (IMCM) to define Human Resource Officer (HRO) attributes, including IT skills, IT knowledge, HR knowledge and experience in using HRIS. These attributes are postulated to influence the understanding of HRIS outputs and their utilization in decision-making across Local Government Authorities (LGAs). The main aim of implementing HR Information Systems (HRIS) in Tanzania's Local Government

Authorities (LGAs) is to improve the management of employee data to aid decision-making in Human Resource Management (HRM). This research is therefore centered on three key inquiries: 1) What attributes do Human Resource Officers (HROs) need to effectively carry out their responsibilities using HRIS? 2) How do factors such as HRIS experience, IT skills, IT knowledge, and HR knowledge impact HROs' comprehension of HRIS outputs? 3) How do HRIS experience, IT skills, IT knowledge and HR knowledge influence HROs' utilization of HRIS outputs for decision-making purposes?

2.0 METHODOLOGY

The research covered six regions: Mwanza, Arusha, Dodoma, Morogoro, Iringa, and Kagera. These were purposively selected to reflect a range of prevalence levels (high, medium, and low) of counterfeit certificates and ghost workers among civil servants within regional Local Government Authorities (LGAs). Specifically, Arusha and Mwanza exhibited high prevalence, Dodoma and Morogoro demonstrated medium prevalence, while Iringa and Kagera documented low prevalence of counterfeit certificates.

The study utilized a mixed methods approach with an explanatory cross-sectional sequential design. The explanatory nature of the study enabled the close examination of the attributes of Human Resource Officers (HROs) to determine their impact on understanding and usage of HR Information System (HRIS) outputs. The study employed a cross-sectional data collection method, conducting data collection, analysis and interpretation simultaneously. Furthermore, the philosophical underpinning of this study is grounded in the pragmatic paradigm due to its adoption of mixed methods research.

In this study, both primary and secondary data were gathered through various methods. Primary data collection involved the distribution of questionnaires and conducting in-depth interviews with key informants. The survey targeted 249 Human Resource Officers (HROs) who actively utilize HR Information Systems (HRIS) at the district level. The sample size, calculated using a formula by Krecjie and Morgan (1970), was 213, out of which 201 respondents were reached for questionnaire administration across different regions: Arusha (32), Mwanza (42), Dodoma (35), Morogoro (34), Iringa (27) and Kagera (31). The structured questionnaires were administered to HROs from 37 Local Government Authorities (LGAs) between May and July 2020. These questionnaires aimed to gather data on HROs' backgrounds, their experience with HRIS usage, ICT skills, HR knowledge, understanding of HRIS outputs and the utilization of these outputs in decision-making. The random sampling technique was employed to select HROs for questionnaire administration, utilizing a sampling frame

comprising a list of all HROs at the district level responsible for HRIS usage. In-depth interviews were undertaken with 8 key informants to gather additional data on HRM practices. The selection of key informants followed a purposive sampling approach, where interviewees were selected based on their expertise in HRM. Key informants for this study included heads of HR departments/units in 37 LGAs, six HROs serving as 'approvers' across the six regions stationed at Utumishi, and two directors from the Human Capital Division.

Quantitative and qualitative secondary data were obtained from documents and archived records sourced from LGAs in selected regions and central government offices. This involved reviewing and analyzing various pertinent documents, including the ICT policy, to extract relevant information related to HRIS. Data organization, editing and entry into the computer followed data collection. The information gathered from the structured questionnaires was loaded into IBM's Statistical Package for Social Sciences (SPSS) version 26.0 for analysis. Subsequently, the data underwent screening to identify and rectify errors in the dataset. Furthermore, before conducting detailed data analysis, the information was sorted to facilitate the analysis process. This involved recording certain data to align with the analysis requirements, particularly for ordinal logistic regression.

Respondents' preliminary data were analyzed using descriptive statistics, including frequencies, which were presented in tables. This study also employed inferential statistical analysis to assess the influence of independent variables (HRIS experience, IT skills, IT knowledge, and HR knowledge) on dependent variables (understanding HRIS outputs and usage of HRIS outputs in decision-making). An ordinal regression model was employed because the dependent variables were measured on a 5-point Likert scale. Independent variables were measured through scale (HRIS experience) and ordinal (IT skills, IT knowledge and HR knowledge). Two separate ordered logistic regression models were conducted: one for understanding HRIS outputs and another for the use of HRIS outputs in decision-making processes. Thus, the model specification was:

$$\mathbf{Prob}(Y) = \beta_0 + \beta_{ij} X_{ij} + \ldots + \beta_n X_n + \varepsilon$$

Where Y = dependent variable measured by Five Point Likert Scale of understanding outputs generated by HRIS, or the other model for usage of HRIS outputs in decision making.

β_0 = Constant term

β_{ij}– β_{nj} = Explanatory indicators (coefficient estimates) of predictor 'i' to 'n' in setting j

X_{ij} – X_{nj}= Predictor 'i' to 'n' of Y in setting j in this study, independent variables.

ε = Normally Distributed Error Term

The independent variables were assessed for multicollinearity, outliers, linearity and independence of residuals prior to ordered logistic model analysis. Multicollinearity occurs when an independent variable strongly correlates with one or more other independent variables ($r > 0.9$). SPSS outputs of correlation analysis indicate that none of the independent variables exhibited high correlations; the highest correlation coefficient observed was 0.401. Thus, there was no multicollinearity. Outliers, which are extreme scores (very high or very low scores), were checked during screening and none were detected. Linearity and independence of residuals were checked using scatter plots and the results showed a straight-line relationship between the obtained and the predicted dependent variable (DV) scores. Qualitative data collected through in-depth interviews with key informants underwent content analysis, which is normally used to condense extensive recorded information or communication into categories representing various aspects of the research, as was the case in the current study. Additionally, documentary materials were comprehensively reviewed to extract information that could portray the circumstances regarding the understanding of HRIS outputs and their usage in decision making.

3.0 RESULTS AND DISCUSSION

The four Human Resource Officers (HROs) attributes of focus in this study include: experience in using the Human Resources Information System (HRIS), IT skills, IT knowledge and HR knowledge. These findings are consistent with previous research by Akoyo and Muathe (2017), Oliveira and Martins (2010), and Combs *et al.* (2006), which similarly demonstrated the significance of IT skills and knowledge, HR knowledge and experience in HRM. Nurhayati and Mulyani (2015) demonstrated a positive correlation between experience and the quality of information in accounting information systems. Furthermore, Hyvari (2006) argued that a lack of experience could impede the efficiency of an information system. The findings reveal that the majority (24.4%) of HROs had five years of experience using HRIS. Additionally, the majority (50.1%) of HROs demonstrated a high level of information technology skills, while a considerable portion (41.8%) possessed moderate IT knowledge. Moreover, the majority (57.7%) of HROs exhibited a high level of expertise in human resource management.

Similarly, Lee & Mirchandani (2010) and Combs *et al*. (2006) also emphasized the significance of IT skills and knowledge in the application of HRIS, particularly in the contemporary era of technological advancement. These skills and knowledge empower HROs to effectively navigate and leverage HRIS.

Moreover, HR knowledge is essential for understanding various HR processes such as recruitment, performance management, training, payroll and benefit administration. Qadir & Agrawal (2017) emphasized that HR knowledge aids in configuring HRIS to align with the organization's specific needs and workflows.

The ordered logistic regression model was employed to evaluate the influence of HRO attributes on understanding outputs generated by HRIS. The SPSS outputs for model fitting information provided values of -2 log-likelihood for the intercept-only and final models, and also the chi-square statistic. A statistically significant chi-square value of 115.631 ($p = 0.000$) indicated that the model represented a significant improvement over the baseline intercept-only model. This suggests that the data adequately fit the model and at least one predictor significantly relates to the response variable. Additionally, the Goodness-of-Fit analysis yielded a Pearson's chi-square statistic with a p-value of 0.000, indicating acceptance of the null hypothesis, implying that the observed data align with the fitted model. The pseudo R square statistic (Nagelkerke) resulted in a value of 0.484, suggesting that 48.4% of the variation in the dependent variable was attributed to the four independent variables included in the model.

Table 1 presents SPSS outputs of an ordered logistic regression model evaluating the influence of HRO attributes on understanding HRIS outputs. All attributes have positive regression coefficients (β values), indicating a positive influence on the dependent variable. Further, Table 1 reveals that all four variables are statistically significant in influencing the HRO understanding of HRIS outputs. These findings suggest that HROs with experience in using HRIS, along with proficient IT skills, IT knowledge and HR knowledge, are better equipped to interpret HRIS outputs, discern trends and patterns in HRIS data, and effectively communicate HRIS findings to other HROs and decision-makers. These findings concur with those of Matimbwa *et al*. (2021) and Gelinas *et al*. (2012), which emphasized the influence of skills and knowledge on the quality of information derived from information systems. Additionally, the lack of IT skills and knowledge impedes optimal HRIS utilization (Njau, 2017).

Table 1: Parameter Estimates for understanding outputs generated by HRIS

							95% Confidence Interval	
		Estimate	Std. Error	Wald	df	Sig.	Lower Bound	Upper Bound
Threshold	[Understanding = 1.0]	5.078	1.531	10.997	1	.001	2.077	8.080
	[Understanding = 2.0]	8.691	1.284	45.796	1	.000	6.174	11.209
	[Understanding = 3.0]	10.904	1.357	64.524	1	.000	8.244	13.565
	[Understanding = 4.0]	14.991	1.587	89.202	1	.000	11.880	18.102
Location	HRIS experience	.243	.103	5.516	1	.019	.040	.445
	IT Skills	.659	.266	6.129	1	.013	.137	1.180
	IT Knowledge	1.471	.215	46.611	1	.000	1.048	1.893
	HR Knowledge	.908	.274	10.975	1	.001	.371	1.445

Another ordered logistic regression model was conducted to evaluate the influence of HRO attributes on the usage of outputs generated by HRIS in making relevant decisions. Particularly, HRIS experience, IT Skills, IT Knowledge and HR Knowledge were regressed against HRIS usage outputs in decision-making.The Chi-square statistic from the SPSS outputs for model fitting information was 73.388, which was statistically significant ($p = 0.000$), indicating that the model significantly improved the baseline intercept-only model. Thus, the data entered into the model fit adequately, and at least one of the predictors significantly related to the response variable.The Goodness-of-fit analysis from the SPSS outputs, represented by Pearson's chi-square statistic, yielded a p-value of 0.130, suggesting acceptance of the null hypothesis, indicating that the observed data are consistent with the fitted model.The pseudo R-square statistic (Nagelkerke) resulted in a value of 0.357, indicating that 35.7% of the variation in the dependent variable was attributed to the four independent variables included in the model.

The SPSS outputs in Table 2 present the estimated coefficients for the dependent variable, which is the usage of HRIS outputs in decision-making. The regression coefficients (β values) in Table 2 are all positive, indicating a positive influence on the dependent variable. Furthermore, the results in Table 2 reveal that out of the four variables, only two statistically influence the usage of HRIS outputs in decision making.

The quantitative data findings align with insights from in-depth interviews with Human Resource Officers (HROs), emphasizing the importance of HRIS outputs in guiding diverse decision-making processes. These processes include areas such as performance management, recruitment, workforce planning, compliance,

cost management and employee engagement. The study suggests that HROs equipped with IT and HR knowledge are well-positioned to effectively utilize HRIS outputs in decision-making. According to interview responses, HROs with IT knowledge possess the ability to access relevant data and derive meaningful insights crucial for decision-making processes. Similarly, HROs with HR knowledge demonstrate a deep understanding of organizational structure, culture, policies and procedures, enabling them to interpret HRIS outputs within the broader organizational context and make decisions aligned with strategic HRM goals and objectives.

Table 2: Parameter Estimates for the usage of HRIS outputs in decision-making

		Estimate	Std. Error	Wald	df	Sig.	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
Threshold	[Decision making = 2.00]	5.942	1.253	22.487	1	.000	3.486	8.398
	[Decision making = 3.00]	8.417	1.294	42.310	1	.000	5.881	10.953
	[Decision making = 4.00]	12.880	1.532	70.707	1	.000	9.878	15.882
Location	HRIS experience	.182	.109	2.802	1	.094	-.031	.395
	IT Skill	.425	.276	2.376	1	.123	-.115	.966
	IT Knowledge	.466	.199	5.472	1	.019	.076	.857
	HR Knowledge	1.533	.296	26.874	1	.000	.953	2.113

4.0 CONCLUSION AND RECOMMENDATIONS

This paper explores the attributes of Human Resource Officers (HROs) and their impact on understanding and utilizing HR Information Systems (HRIS) in decision making within Tanzania. Based on the findings, the study concludes that crucial attributes of HROs in Local Government Authorities (LGAs) in Tanzania include HRIS experience, IT skills, IT knowledge and HR knowledge. The results from the ordered logistic model demonstrate that the majority of these variables display positive regression coefficients, indicating their positive influence on both understanding HRIS outputs and using them in decision making. Specifically, all four attributes contribute to understanding HRIS outputs, while IT and HR knowledge significantly influence the usage of HRIS outputs in decision making. It is therefore recommended as per study findings that HRIS experience, IT skills, IT knowledge and HR knowledge are fundamental in guiding HROs in LGAs in Tanzania to grasp HRIS outputs and apply them in decision making processes such as the recruitment of new employees.

Based on the study's findings, it is suggested that the government should prioritize investment in training initiatives tailored for Human Resource Officers

(HROs) in Local Government Authorities (LGAs) to enhance their effectiveness in usage of HR Information Systems (HRIS). Such training programs would contribute to enhancing the IT and HR skills and knowledge of HROs within LGAs. Moreover, considering that HRIS experience is cultivated through active engagement in learning endeavors and the practical application of HRIS-related abilities, the study proposes that HROs in LGAs actively pursue such opportunities to advance their proficiency in HRIS usage.

In addition, the study recommends that the LGAs should prioritize the skill and knowledge development of their employees, particularly HROs. Furthermore, it is recommended that HRO attributes should be integrated into laws, policies, administrative circulars and decrees governing HRM in Tanzania. Such policies and laws encompass a range of regulations, including the Records and Archives Management Act (No. 3) of 2002, the Public Service Act (No. 8) of 2002, the Employment and Labour Relations Act (No.6) of 2004, the Labour Institutions Act (No.7) of 2004, the e-Government Act (No.10) of 2019, the National Information and Communications Technology Policy of 2016, Education and Training Policy of 2014, Vocational Education Policy of 1996 and the Higher Education Policy of 1999. There are significant financial implications for enhancing the proficiency of HROs in utilizing HRIS outputs through improving their experience, IT skills, IT knowledge, and HR knowledge. Therefore, the study recommends that LGAs must allocate adequate funds specifically for skill and knowledge development initiatives. This necessitates strong support from top management, tasked with ensuring consistent and sufficient budget allocations to cover the expenses associated with ongoing HRO training.

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