

Influence of Human Resource Information System (HRIS) on Improving Human Resources Practices Performance: A Case of Mbeya Water Supply and Sanitation Authority (MBEYA UWSA)

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DOI: <https://doi.org/10.5281/zenodo.22724204>

Published Date: 12-September-2026

Abstract: This study assessed the influence of the Human Resource Information System (HRIS) on improving human resource practices performance at Mbeya Water Supply and Sanitation Authority (Mbeya UWSA). Specifically, the study examined the influence of Employee Self-Service, ICT infrastructure, and HRIS-supported career development on human resource practices performance. The study was guided by the Resource-Based View (RBV) Theory and the Technology Acceptance Model (TAM), which explain how strategic organizational resources and users' acceptance of technology contribute to organizational performance. The study adopted a descriptive research design and employed a mixed-methods approach, integrating quantitative and qualitative data collection techniques. Primary data were collected using structured questionnaires and interviews. The target population comprised employees of Mbeya UWSA, from whom a representative sample was selected using appropriate sampling procedures. Quantitative data were analyzed using descriptive statistics and multiple regression analysis with the aid of SPSS version 25, while qualitative data were analyzed using thematic analysis. The reliability of the research instrument was confirmed using Cronbach's Alpha coefficient ($\alpha = 0.859$), while validity was established through the Kaiser-Meyer-Olkin (KMO) measure and Bartlett's Test of Sphericity. The findings revealed that Employee Self-Service significantly improves accessibility, efficiency, transparency, and convenience in HR operations by enabling employees to perform HR-related tasks independently. The study further established that adequate ICT infrastructure, including reliable internet connectivity, computers, servers, and technical support, enhances the effective implementation and utilization of HRIS, thereby improving HR practices performance. In addition, HRIS-supported career development positively influences employee performance by facilitating training, career planning, performance monitoring, and professional development. Regression analysis indicated a strong positive relationship between the independent variables and HR practices performance, with an R^2 value of 0.870, implying that Employee Self-Service, ICT infrastructure, and career development jointly explain 87% of the variation in HR practices performance at Mbeya UWSA. The study concludes that effective implementation of HRIS significantly enhances human resource practices performance through improved operational efficiency, employee satisfaction, transparency, communication, and organizational effectiveness. It recommends that Mbeya UWSA continue investing in Employee Self-Service systems, strengthen ICT infrastructure, expand HRIS-supported career development initiatives, provide continuous employee training, and improve technical support to maximize the benefits of HRIS. The study also recommends that organizations integrate HRIS into strategic human resource management to enhance service delivery and organizational performance.

Keywords: Human Resource Information System (HRIS), Mbeya Water Supply, Technology Acceptance Model (TAM), organizational performance, Employee Self-Service systems.

1. INTRODUCTION

Human Resource Information Systems (HRIS) have become essential tools for enhancing Human Resource (HR) operations and improving HR practices in public organizations. The Human Resource Information System (HRIS) contributes to the modernization and development of the HR function by utilizing the most advanced technological equipment and systems (Alwis et al., 2022). HR functions such as recruitment and selection, payroll administration, training and development, performance appraisal, attendance monitoring, and employee data management are integrated through HRIS using information technology. Recent empirical studies indicate that effective adoption of HRIS improves the speed, accuracy, and transparency of HR procedures. As a result, it enhances efficiency in HR operations, supports better decision-making, and contributes to improved HR practices within organizations.

Human Resource (HR) practices refer to the policies, procedures, and activities that organizations implement to manage their human resources effectively in order to achieve organizational goals (Armstrong, 2020). These practices typically include recruitment and selection, training and development, performance appraisal, compensation and rewards, employee relations, and career development. According to Michael Armstrong, HR practices are systematic approaches used by organizations to manage employees and improve their performance and commitment. Effective HR practices help organizations enhance employee productivity, motivation, and job satisfaction while supporting overall organizational performance (Armstrong, 2020). In modern organizations, these practices are increasingly supported by technological systems such as Human Resource Information Systems (HRIS), which help streamline HR activities, improve information management, and enhance the efficiency and effectiveness of HR operations (Dessler, 2020).

The management of human resource information has evolved from traditional personnel management practices, where tasks were assigned based on individual abilities, to more structured systems for maintaining employee records. By the early twentieth century, organizations mainly relied on manual, paper-based systems to store information such as employee names, addresses, and employment history. These systems were time-consuming, inefficient, and difficult to update or retrieve (Faruk, 2019). With advancements in information and communication technology, Human Resource Information Systems (HRIS) were developed to enhance the efficiency of managing employee information and to support improved human resource practices.

In the public sector, the adoption of HRIS has expanded significantly as part of broader reforms aimed at strengthening accountability, transparency, and efficiency in public institutions. Governments have increasingly integrated HRIS to improve human resource functions and support service delivery (Obeidat, 2022). Empirical studies from African countries such as South Africa, Nigeria, Ghana, and Kenya indicate that HRIS improves payroll accuracy, reduces administrative errors, and enhances transparency in HR processes, thereby contributing to improved HR practices and employee performance. However, despite these benefits, several challenges continue to hinder the effective utilization of HRIS, including inadequate ICT infrastructure, limited technical skills among employees, resistance to technological change, and insufficient training (Mensah et al., 2024; Mutua & Were, 2023). These findings suggest that while HRIS has the potential to improve HR practices, its effectiveness depends on institutional readiness, proper implementation, and continuous system usage.

Despite the growing adoption of HRIS, empirical evidence across African countries presents mixed results regarding its effectiveness in improving HR practices and employee performance. In Nigerian public sector organizations, HRIS enhanced payroll management and improved the accuracy of employee records; however, low user competency and inconsistent system usage significantly limited its impact on employee performance (Adebayo & Akinwale, 2021). Similar findings were reported in South African public institutions, where HRIS improved administrative efficiency but had no direct influence on employee performance due to system complexity and lack of continuous training (Meyer & Botha, 2022). Furthermore, research conducted in Ghana indicates that HRIS improves employee performance only when employees possess adequate ICT skills and receive regular system training; otherwise, the system remains underutilized (Owusu & Mensah, 2023).

Additional evidence from Ethiopia shows that frequent system outages and inadequate technical support reduce employee trust in HRIS, limiting its contribution to performance outcomes (Tadesse & Worku, 2024). These findings across African countries demonstrate that although HRIS improves administrative efficiency, its influence on HR practices performance

and employee outcomes is not consistent and is highly dependent on factors such as ICT infrastructure, management support, employee training, and continuous system usage. Without these supporting conditions, organizations may fail to fully realize the benefits of HRIS.

With increasing digital transformation and e-government initiatives, HRIS adoption has accelerated in countries such as Kenya, Uganda, Rwanda, and Tanzania. Studies indicate that HRIS enhances employee record management, attendance tracking, payroll processing, and performance appraisal, thereby improving efficiency, accountability, and overall HR effectiveness (Wambui & Ombui, 2021; Nuwagaba et al., 2022). In Tanzania, public sector organizations have increasingly integrated information systems into HR functions over the past fifteen years due to the growing use of ICT, resulting in improved efficiency and better utilization of the workforce (Mathew et al., 2023).

However, despite these improvements, several challenges persist. In Kenya, HRIS adoption has improved transparency and reduced absenteeism, but resistance to change and limited integration of HRIS modules have constrained its effectiveness in improving employee productivity (Kiptoo & Rotich, 2022). Other studies highlight ongoing challenges such as low ICT literacy, inadequate training, poor system integration, and frequent system outages (Kiprotich & Kimosop, 2023; Mukama & Kato, 2024). These issues continue to limit the effective utilization of HRIS and reduce its potential impact on HR practices performance.

In Tanzania, HRIS has been implemented in public institutions to manage payroll employee records, attendance, promotions, and performance appraisal. Studies indicate that HRIS adoption has improved payroll management, increased accuracy of employee data, and reduced administrative inefficiencies (Mollel & Mulongo, 2021; URT, 2022). Nevertheless, evidence on its influence on HR practices performance and employee outcomes remains mixed. While some studies suggest improvements in productivity and transparency, others highlight persistent challenges such as inadequate training, low user awareness, unstable ICT infrastructure, and resistance to system use (Ngowi & Matilu, 2023; Kihombo & Magesa, 2024). These challenges often result in underutilization of HRIS and limit its effectiveness in improving HR practices performance.

However, despite the adoption of HRIS, challenges such as limited ICT skills, system downtime, inadequate training, and inconsistent utilization of HRIS modules can reduce its effectiveness in improving HR practices. Understanding the extent to which HRIS contributes to the enhancement of HR processes such as recruitment, payroll administration, performance appraisal, training, and employee data management within Mbeya Urban Water Supply and Sanitation Authority (Mbeya UWSA) is therefore crucial. Assessing the role of HRIS in strengthening these HR practices will provide insights into how technology can support more efficient, accurate, and transparent human resource management in public sector organizations.

2. STATEMENT OF THE PROBLEM

2.1 Statement of the Problem

Human Resource Information Systems (HRIS) have been widely adopted in public organizations to improve the efficiency, transparency, and effectiveness of human resource management. By automating HR processes and providing data-driven insights, HRIS is designed to enhance key HR functions such as recruitment, payroll management, performance appraisal, training, and career development. Empirical studies indicate that when effectively implemented, HRIS can significantly improve the quality, speed, and accuracy of HR operations, thereby strengthening organizational HR practices (Bondarouk & Brewster, 2022; Stone et al., 2023). However, evidence from developing countries suggests that the full potential of HRIS to improve HR practices is often constrained by challenges such as inadequate ICT infrastructure, limited technical skills, resistance to technological change, and insufficient training (Adebayo & Akinwale, 2021; Mensah et al., 2024). These challenges can hinder effective system utilization and reduce HRIS's ability to streamline and modernize HR processes.

In Tanzania, HRIS was introduced as part of broader public sector reforms aimed at enhancing HR management, accountability, and service delivery. While studies report improvements in administrative efficiency, recordkeeping, and payroll management, many public organizations continue to face challenges related to unstable ICT infrastructure, low user competency, and inconsistent use of HRIS modules (Mollel & Mulongo, 2021; Ngowi & Matilu, 2023). At Mbeya Urban Water Supply and Sanitation Authority (Mbeya UWSA), HRIS is used to manage employee records, payroll, and attendance, recruitment, and performance appraisals. Despite these capabilities, HR processes are still hampered by delays in accessing HR information, data inconsistencies, and system reliability issues, which can limit the system's contribution

to improving overall HR practices. Furthermore, limited empirical evidence exists on how HRIS-supported employee self-services, ICT infrastructure, and training influence the effectiveness of HR processes in public utility organizations. Therefore, this study assesses the role of HRIS in improving HR practices at Mbeya UWSA by examining how HRIS implementation, ICT infrastructure, and system utilization strengthen the efficiency, accuracy, and transparency of human resource management.

2.2 Theoretical Literature Review

2.2.1 Resource-Based View (RBV) Theory

The Resource-Based View (RBV) theory, originally proposed by Birger Wernerfelt (1984) and further developed by Jay Barney (1991), posits that organizations achieve sustainable competitive advantage and superior performance when they possess and effectively utilize strategic resources that are valuable, rare, inimitable, and non-substitutable (VRIN). Barney (1991) later emphasized that these resources must also be effectively organized within the organization to maximize their contribution to organizational performance, a concept commonly referred to as the VRIO framework (Valuable, Rare, Inimitable, and Organized). The theory argues that internal organizational resources are more important than external market conditions in determining organizational success because they enable firms to develop capabilities that competitors cannot easily replicate. Therefore, the RBV theory directly underpins this study by explaining that Employee Self-Service, Career Development, and ICT Infrastructure are strategic HRIS resources which, when effectively managed and integrated, enhance HR practices, the dependent variable of this study. The theory thus provides a logical explanation of how internal technological and human resource capabilities contribute to improved HR effectiveness and organizational performance.

2.2.2 Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM) was developed by Fred D. Davis (1986, 1989) to explain how users' perceptions influence the acceptance and use of information systems. The model is rooted in the Theory of Reasoned Action (TRA) and proposes that an individual's intention to use a technology is primarily determined by two key constructs: perceived usefulness (PU) and perceived ease of use (PEOU). Perceived usefulness refers to the degree to which an individual believes that using a particular technology will improve job performance, while perceived ease of use refers to the degree to which an individual believes that using the technology will be free of effort (Davis, 1989). According to TAM, when users perceive a system as useful and easy to use, they develop a positive attitude toward it, which increases their behavioral intention to use the system and ultimately leads to its actual utilization. HRIS-supported employee self-services enhance the efficiency and transparency of HR processes, HRIS-enabled career development strengthens HR planning and staff development, and robust ICT infrastructure ensures reliable system performance and usability. However, when ICT infrastructure is weak or users lack skills and support, the potential benefits of HRIS in strengthening HR practices may not be realized. Although global studies support the role of HRIS in enhancing HR operations, empirical evidence from Tanzanian public sector organizations, particularly water supply and sanitation authorities such as Mbeya UWSA, remains limited. Therefore, this study applies these theories to examine how HRIS-supported functions, ICT infrastructure, and system utilization influence HR practices in the Tanzanian public sector context. Specifically, RBV explains the strategic value of the independent variables (Employee Self-Service, Career Development, and ICT Infrastructure), while TAM explains how employees' acceptance and effective utilization of these HRIS functions contribute to the improvement of HR practices, which is the dependent variable of this study.

Conceptual Frame Work

A conceptual framework is a structure, which is used by researchers to explain a natural phenomenon to be studied by exploring the relationship between variables. It also offers explanations on how research problems should be explored. This structure aims to aid and provide a visual picture of how ideas in the study relate to one another, Grant et al., (2019). In this study, the conceptual framework is based on the Resource-Based View (RBV) Theory and the Technology Acceptance Model (TAM). The framework proposes that Employee Self-Service, Career Development, and ICT Infrastructure as components of the Human Resource Information System (HRIS) positively influence HR Practices Performance. The study does not include any moderating variables; therefore, the conceptual framework illustrates only the direct relationships between the independent variables and the dependent variable.

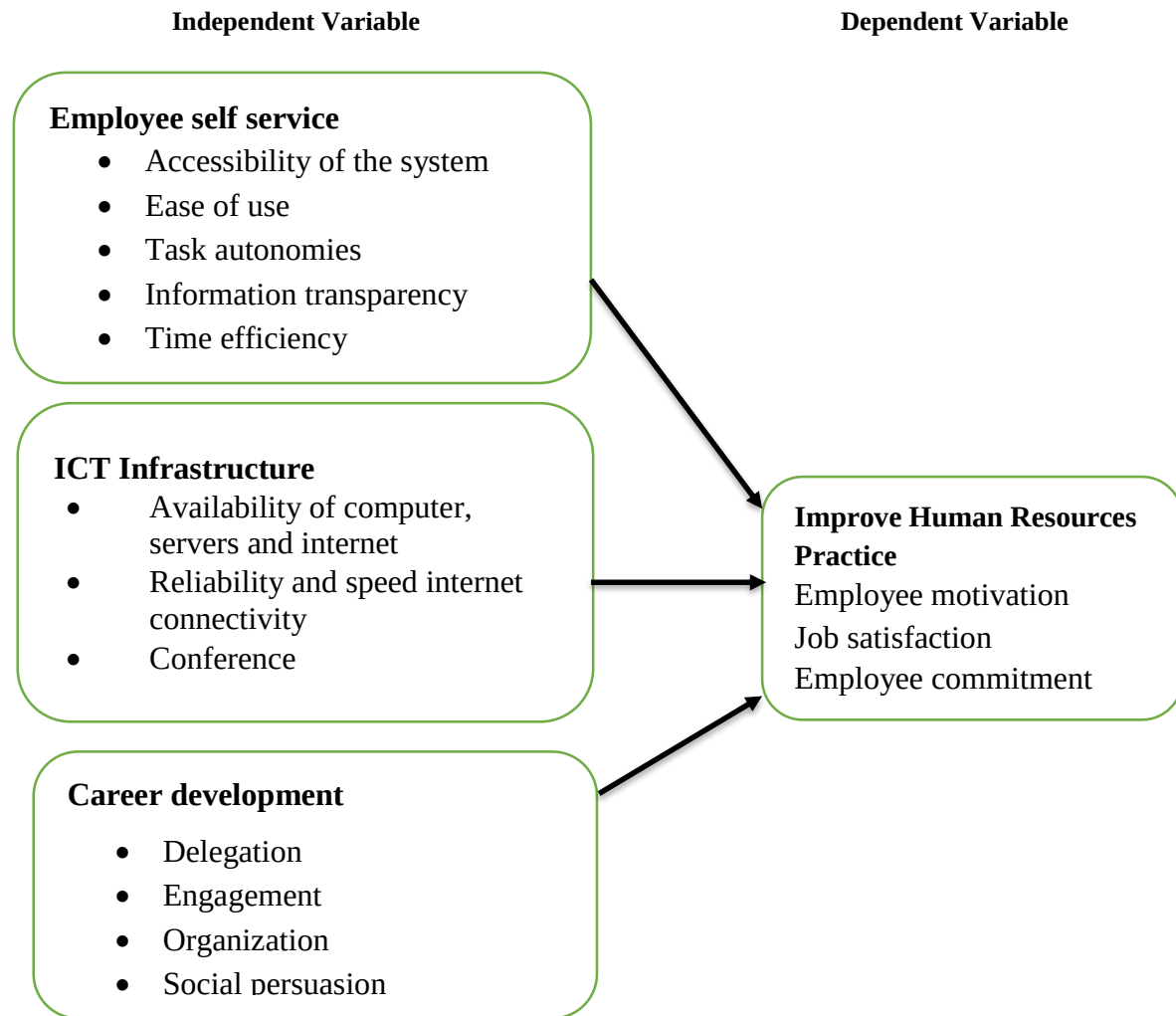


Figure 2.1 Conceptual Framework

Table 2.1 Operationalization of Variables

Code	Items.	Measurement Scale
Variable	Indicators	
Employee self service	Accessibility of the system	Ordinal
	Ease of use	Ordinal
	Task autonomies	Ordinal
	Information transparency	Ordinal
	Time efficiency	Ordinal
Training	Availability of computer, servers and internet	Ratio
	Reliability and speed internet connectivity	
Career Development	Delegation	Ratio
	Engagement	Ratio
	Organization	Ratio
	Social persuasion	
Improve Human Resources Practice	Employee motivation	Ratio
	Job satisfaction	Ratio
	Employee commitment	Ordinal
	Leadership structure	Ordinal

3. RESEARCH METHODOLOGY

3.1 Research Design and Approach

The study employed a mixed-methods research approach, combining quantitative and qualitative methods. The quantitative approach enabled the measurement of respondents' perceptions regarding HRIS and its contribution to human resource practices, while the qualitative approach provided additional insights into employees' experiences and perceptions.

A descriptive research design was adopted to assess the influence of HRIS components on human resource practices performance at Mbeya UWSA. The study focused on Employee Self-Service, ICT infrastructure, and career development as key HRIS components.

3.2 Study Area

The study was conducted at Mbeya Water Supply and Sanitation Authority (Mbeya UWSA) in Tanzania. Mbeya UWSA is a public sector institution that utilizes HRIS to support human resource operations, including recruitment and selection, payroll management, training and development, performance appraisal, attendance monitoring, and employee recordkeeping.

3.3 Population and Sample Size

The target population consisted of 195 employees from different cadres at Mbeya UWSA. The study selected a sample of 130 employees. Participants were selected using simple random sampling and purposive sampling techniques.

The respondents were drawn from departments including human resources, finance, marketing, maintenance and security, administration, and operations.

3.4 Data Collection

Primary data were collected using structured questionnaires and interviews. The questionnaire was the main instrument used to collect quantitative data from employees. Interviews were conducted to obtain additional qualitative information regarding employees' experiences and perceptions of HRIS. The use of both questionnaires and interviews enabled the study to obtain quantitative evidence while also gaining a deeper understanding of the practical contribution of HRIS to HR operations.

3.5 Data Analysis

Quantitative data were analyzed using descriptive statistics and multiple regression analysis with the aid of SPSS. Descriptive statistics included frequencies, percentages, means, standard deviations, and other measures used to summarize respondents' perceptions. Qualitative data collected through interviews were analyzed using thematic analysis. The reliability of the research instrument was assessed using Cronbach's Alpha, which produced a coefficient of 0.859, indicating strong internal consistency. The study also used the Kaiser-Meyer-Olkin measure and Bartlett's Test of Sphericity to assess the suitability and validity of the research data.

4. SUMMARY OF FINDINGS

The study examined the influence of Human Resource Information Systems (HRIS) on improving human resource practices at Mbeya Water Supply and Sanitation Authority (Mbeya UWSA), with particular emphasis on Employee Self-Service, ICT infrastructure, and HRIS-supported career development.

The findings indicated that Employee Self-Service improved the accessibility and efficiency of HR services. Employees were able to access HR-related information and perform tasks such as leave applications, payroll inquiries, and communication with the HR department more conveniently. The system also enabled employees to perform certain HR tasks independently, improved transparency through timely and accurate information, reduced delays associated with manual procedures, and saved time.

The study further established that ICT infrastructure was essential for the effective utilization of HRIS. The availability of computers, servers, internet connectivity, adequate system speed, and technical support facilitated the smooth operation of HRIS. Reliable ICT infrastructure enhanced employees' ability to access HR services and contributed to greater efficiency in performing HR-related activities.

International Journal of Novel Research in Humanity and Social Sciences

Vol. 13, Issue 5, pp: (1-11), Month: September - October 2026, Available at: www.noveltyjournals.com

Regarding HRIS-supported career development, the findings showed that HRIS facilitated employee participation in training and development activities, career planning, and access to career-related information and feedback. The system also supported the monitoring and coordination of employee development activities, thereby contributing to professional growth and improved employee performance.

Overall, the descriptive findings showed that HRIS contributed positively to improving human resource practices at Mbeya UWSA. Respondents generally reported that HRIS improved employee motivation, job satisfaction, commitment, transparency, communication, coordination, and access to information for management decision-making. The findings therefore demonstrate that effective utilization of HRIS can enhance the efficiency, accessibility, and overall effectiveness of human resource practices within the organization.

4.1 Descriptive Statistics

Descriptive statistics were computed to summarize the central tendency and dispersion of responses regarding the influence of Human Resource Information System (HRIS) on improving human resource practices performance at Mbeya Water Supply and Sanitation Authority. The analysis focused on the key study variables, namely Employee Self-Service, ICT Infrastructure, Career Development, and HR Practices performance. The descriptive statistics included the number of respondents (N), minimum and maximum values, mean, variance, skewness, and kurtosis for each variable. These statistics helped to describe the general pattern of responses and assess the distribution characteristics of the study data.

Table 4.1: Descriptive Statistics

Research variables	N	Range	Minimum	Maximum	Sum	Mean	Std. Deviation	Variance	Skewness	Kurtosis			
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Employee SelfServices	130	2	3	5	567	4.36	.053	.605	.366	-.945	.212	.740	.422
ICT infrastructure	130	2	3	5	536	4.13	.040	.459	.211	-.047	.212	.060	.422
Career Development	130	2	3	5	528	4.06	.051	.576	.332	-.696	.212	.855	.422
HR Practice	130	2	3	5	532	4.09	.050	.574	.329	-.209	.212	-.814	.422
Valid N (listwise)	130												

Table 4.1 presents descriptive statistics for the major variables examined in the study, including Employee Self-Service, ICT Infrastructure, Career Development, and HR Practices. All 130 respondents provided complete responses, with scores ranging from 3 (Neutral) to 5 (Strongly Agree), indicating generally positive perceptions of HRIS and its contribution to human resource practices performance at Mbeya UWSA.

Employee Self-Service recorded the highest mean score ($M = 4.36$, $SD = 0.605$), followed by ICT Infrastructure ($M = 4.13$, $SD = 0.459$), HR Practices ($M = 4.09$, $SD = 0.574$), and Career Development ($M = 4.06$, $SD = 0.576$). The relatively low standard deviations indicate a general consistency in respondents' views.

Overall, the findings show that respondents had positive perceptions of the contribution of HRIS to improving human resource practices performance. The high mean scores suggest that Employee Self-Service, ICT Infrastructure, and HRIS-supported Career Development were perceived as important factors in enhancing HR practices at Mbeya UWSA. The distribution measures further indicated that responses generally leaned toward agreement and were reasonably consistent across respondents.

4.2 Discussion of Findings

The findings indicate that HRIS has positively contributed to improving human resource practices performance at Mbeya UWSA. The discussion focused on Employee Self-Service, ICT infrastructure, HRIS-supported career development, and the overall contribution of HRIS to human resource practices.

4.2.1 Employee Self-Service

The findings showed that HRIS Employee Self-Service improved employees' access to HR services, transparency, independence, and efficiency. Most respondents reported that they could easily access the HRIS to perform tasks such as leave applications and payroll inquiries. The system was also perceived as user-friendly, enabling employees to complete

routine HR activities independently. Furthermore, HRIS improved access to timely and accurate information and reduced the time required to perform HR-related tasks. These findings suggest that Employee Self-Service enhances the efficiency and quality of HR service delivery by reducing administrative delays and dependence on manual processes.

4.2.2 ICT Infrastructure

The study found that ICT infrastructure plays an important role in supporting the effective utilization of HRIS. Respondents generally agreed that the availability of computers, servers, reliable internet connectivity, adequate system speed, and technical support facilitated efficient HR operations. Reliable ICT infrastructure enabled employees to access and use HRIS more effectively while reducing interruptions in HR-related activities. The findings therefore highlight the importance of adequate technological resources in ensuring the successful implementation and utilization of HRIS.

4.2.3 HRIS-Supported Career Development

The findings further revealed that HRIS-supported career development contributed positively to employee development and performance. The system facilitated participation in training and development programs, supported career planning, enabled the monitoring of development activities, and provided access to career-related information and feedback. However, some respondents expressed neutral or negative views regarding their involvement in career planning, suggesting the need for greater awareness and support in this area. Overall, the findings indicate that HRIS can strengthen employee development by improving access to information, monitoring progress, and supporting professional growth.

4.2.4 Influence of HRIS on Human Resource Practices

Overall, the findings indicate that HRIS positively contributed to human resource practices performance at Mbeya UWSA. Respondents perceived that the system enhanced employee motivation, job satisfaction, transparency, employee commitment, leadership effectiveness, and organizational coordination. By providing timely and accessible HR information, HRIS supported more efficient decision-making and improved the management of HR activities. The findings therefore suggest that continuous improvement and effective utilization of HRIS can strengthen human resource management practices and contribute to improved organizational performance.

Conclusion and Recommendations

The study concludes that Human Resource Information System (HRIS) contributes positively to improving human resource practices performance at Mbeya Water Supply and Sanitation Authority (Mbeya UWSA). The findings indicate that Employee Self-Service enhances accessibility, efficiency, transparency, and convenience by enabling employees to access HR services and perform routine tasks independently. ICT infrastructure was also found to be essential for effective HRIS utilization, as reliable technological facilities, internet connectivity, and technical support facilitate efficient HR operations. Furthermore, HRIS-supported career development improves access to training, career planning, professional development, and the monitoring of employee progress. Overall, the findings suggest that effective HRIS utilization enhances employee satisfaction, motivation, communication, coordination, transparency, and organizational efficiency.

Based on these findings, the study recommends continuous improvement of HRIS through investment in reliable ICT infrastructure, employee training, technical support, and the integration of additional HR services into the system. Mbeya UWSA should also strengthen the use of HRIS for employee development, performance management, and strategic decision-making while ensuring adequate data security and confidentiality. Future studies may examine HRIS implementation in other organizations and investigate additional factors influencing its effectiveness.

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