Assessing the Relationship between Technological Factors and the Implementation of Human Resource Information System: A survey in the Municipal, Metropolitan, and District Assemblies in the Upper West Region of Ghana

Yahaya Haleem[1*], E. M George Ditsa[1]

ABSTRACT

Over the years, public sector organization such as Metropolitan, Municipal, and District Assemblies (MMDAs) in Ghana have been challenged by a significant number of factors that affect the implementation of Human Resource Management Information Systems (HRISs). The study focuses on assessing the technological factors affecting the implementation of the HRIS in the MMDAs in the Upper West Region of Ghana. The philosophical foundation of the study was positivism. A cross-sectional survey was employed in the study as part of a quantitative research design. The target population comprised of 187 Line managers. The study used a non-probability sampling technique known as purposive sampling. Self-administered questionnaires were used to collect primary data. The study also embraced descriptive and inferential statistics. Bivariate regression analysis and correlation coefficient were used to establish causal relationships between variables. Stepwise regression was also used to determine the most influential variables in implementing of HRIS. It was concluded that IT Infrastructure and Compatibility had a moderate level of acceptance as factors that affect the implementation of the HRIS. In contrast, Quality Information, System Quality, and Complexity had a low level of acceptance. The study also concluded that Complexity, Quality Information, Compatibility and System Quality had correlated with the acceptance of the HRIS, whereas IT infrastructure did not correlate with the acceptance of the HRIS. Lastly, it was concluded that IT Infrastructure, Complexity, Quality Information, Compatibility, and System Quality did correlate with the Effectiveness of the HRIS. The study recommends that, HRIS Software adopted and implemented at the LGS and its Agencies must be user-friendly. The LGS and its Agencies do not have a guide that support new technology implementation such as the HRIS. Hence the need to adopt the guide offered in this study.

INTRODUCTION

The digitization drive has made most organizations more reliant on information technology (IT) to conduct their businesses to remain competitive (Kraus *et al.*, 2021). This resulted in various modifications to the workflows of both the corporate and governmental sectors (Veldhoven & Vanthienen, 2022). According to Zahari *et al.* (2018), one of the areas in modern businesses that have been transformed from old approaches to a new innovative form is Human Resource Management (HRM). HRM is a process that supports organizational development by maintaining and enhancing the abilities of particular employees and encouraging collaboration and inter-employee communication (Siddiqua *et al.*, 2022). HRM aids the effective and efficient management of employees within a business (Galviso *et al.*, 2022). Kuepper *et al.* (2021) purport that the developments of digitization have heavily impacted the activities of HRM, which is changing the nature of work in the organization. Davarpanah and Mohamed (2020) assert that Information and Communication Technology has improved the productivity of both Human Resource (HR) and business which turned into Human Resource Information Systems (HRIS). The HRIS is used to manage HR processes and procedures to provide improved information for quality decision making (Sadiq *et al.*, 2022). Both public and private sector organisations are increasingly relying on HRIS system to increase the efficacy and efficiency of HRM by automating regular HR functions and increasing HR personnel productivity (Alkhwaldi *et al.*, 2022; Taamneh *et al.*, 2021). This is also evident in the breadth and depth of Human Resources functions, which range from payroll and personnel administration to talent management (recruitment and integration), performance management (annual and professional interviews), career management (development plans and training) and remuneration (Bensaid, 2023; Vardarlier, 2020).

In view of the HRIS in the Ghanaian context, the Public Service Commission (PSC) of Ghana following the Public Financial Management Reforms (PFMR) mandates all organisations under its umbrella to implement HRIS to ensure efficient Public Financial Management (PFM) (Kyei-Mensah-Bonsu, 2019). The Local Government Service (LGS) of Ghana also mandates all its agencies such as the Metropolitan, Municipal and District Assemblies (MMDAs) to implement the HRIS to enhance evaluation and performance appraisals of staff (PSC, 2012; LGS, 2015). Relative to the LGS, the HRIS was a component

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[1] Faculty of Information and Communication Technology, Simon Diedong Dombo University of Business and Integrated Development Studies, Ghana
[*] Corresponding author's e-mail: halimyahaya161@ubids.edu.gh

of the Financial Agreement reached on 16th September, 2011 between the European Commission and the Government of Ghana as part of the Decentralization Support Programme (Local Government Service-Ghana, 2014). The essence of the HRIS application was to enable the Local Government Service Secretariat (LGSS), the Regional Coordinating Councils (RCCs) and the MMDAs to make effective and efficient HRM decisions based on credible, reliable and dependable data emanating from the local level (Kessey, 2015).

Samy *et al.* (2023) defined HRIS as "the umbrella term that is used interchangeably by people to refer to one or more forms such as: electronic Human Resource Management (e-HRM), HR intranet, web-based HR, computer-based HRIS, virtual HR, Human Resource Management Information System (HRIS) and HR portals." HRIS is described as the collection of databases, computer applications, hardware, and software required to collect, store, manage, and manipulate HR data (Sharma *et al.*, 2023). Adel and Younis (2021) claim that HRIS acts as an Information System (IS) for HRM, which complements and reinforces the implementation of the overall corporate strategy of automation and information management that serves other organisational functions. HRIS is an integrated e-government program that provides a single interface for government personnel to complete HR functions and serves as a central database for the public sector (Zahari *et al.*, 2018). The HRIS, also known as the Human Resources Management System (HRMS), is simply a system for collecting, storing, maintaining, retrieving, and validating data about an organization's human resources, personnel activities, and organizational unit characteristics (Fashoto *et al.*, 2018). HRIS is mostly recognized as a change facilitator in HRM practice and it assists organizations in achieving strategic goals (Udekwe *et al.*, 2022). According to Bensaid (2023), the benefits of deploying an HRIS include improved communication between managers and their teams, as well as between HR and workers. The HRIS is a powerful performance and transformation lever that gives HRM policies concrete shape (Bensaid, 2023; Dida *et al.*, 2021). Boakye *et al.* (2020) pronounce that HRIS enhances HR activities such as employee recruitment and selection, training and development, HR planning and staff forecasts, data entry, data maintenance and paper reduction in most organisations.

Despite the favourable consequences of the implementation of HRIS, organizations are can not to measure the system's benefits, even though substantial sums of money are used to purchase HRIS (Udekwe *et al.*, 2021). Also, many businesses are spending millions of dollars to install various information systems (ISs) such as HRIS, but end-user usage rates remain inadequate, particularly in developing nations (Alkhwaldi *et al.*, 2022; Noutsa Fobang *et al.*, 2019). organisations must uphold continuous efforts to warrant those users, including HR, managers, and employees, embrace the HRIS (Hosain *et al.*, 2020).

Moreover, organisations are challenged with significant number of issues that affect the implementation of the HRIS (Rahman *et al.*, 2018). According to Myers (1995), implementation refers to all of the actions involved in bringing IT to an organisation at a specific stage of growth. Bensaid, (2023) opined that problem becomes apparent as soon as an information system such as the HRIS is being implemented. Researchers have discovered numerous factors affecting HRIS implementation, particularly in developing nations (Tamrakar & Shrestha, 2022). Parkar *et al.* (2021) indicated that an issue that developing nations have when implementing HRIS systems is the high cost of establishing HRIS systems, constructing sufficient IT infrastructure, purchasing computers that meet the requirements of the HRIS, software maintenance, and hardware maintenance. Dey and Saha (2020) specified that insufficient financial support, the unwillingness of top management and culture are the significant factors in the case of HRIS implementations. Vyas and Junare (2020) outlined the challenges of HRIS implementation to include: employee's sense of ownership and accountability, unreasonable expectations from top management, change management for process improvement, training needs, establishing the appropriate IT infrastructure for configuration and data transformation and quality support and timely maintenance.

Specifically, several previous studies indicated that technological issues constitute a barrier to the introduction of new technologies such as e-HRIS (Omar & Kiwango, 2021). According to Esfahani *et al.* (2018), the technological factors include the utilization of IT infrastructures which include a collection of physical equipment and software applications required to operate in an organisation. It also highlights the internal and external technologies, procedures and tools of an organisation that emphasize innovative characteristics or elements in the technology adoption research (Nilashi *et al.*, 2016). Masum *et al.*, (2020) indicated in a study that a well-established technological factors in IT innovation research include perceived compatibility, perceived complexity, competitive advantage, and IT infrastructure. Yoon *et al.* (2020) state that complexity is a trait of innovation that is frequently seen to affect how technology is implemented.

More so, it is also highlighted that, majority of studies on the implementation of HRIS have been conducted in developed countries (Al-Dmour & Zu'bi, 2014; Ngai & Wat, 2006) whiles studies in that regard in developing countries are limited (Al-Dmour *et al.*, 2017; Dmour *et al.*, 2015) and Ghana is no exception. These developed countries include United Kingdom and other European countries (Panayotopoulou *et al.*, 2007). However, a preliminary assessment in Ghana reveals that some researchers have attempted to explore HRIS on different dimensions. Arpoh-Baah *et al.* (2020) researched on the use of HRIS in Ghanaian Organisations, Nyame and Boateng (2015) studied the adoption and use of HRIS,

whiles Attatsitsey and Osei-Bonsu (2021) assessed the impact of information technology on Human Resource practices. This indicate that there is a significant gap in research in the area HRIS in the Ghanaian context and writers must address it.

The main objective of the study is to assess the technological factors affecting the implementation of the HRIS in the MMDAs in the Upper West Region. This was achieved through the following specific research objectives: First, to determine the level of acceptance of the technological factors affecting the implementation of the HRIS in the MMDAs. Second, to assess the correlation between the technological factors and the acceptance of the HRIS. Third, to assess the correlation between the technological factors and the effectiveness of the HRIS. Fourth, to determine the most influential technological factors on the acceptance and effectiveness of the HRIS.

However, the study is unaware of any empirical evidence assessing the HRIS that is implemented at the MMDAs in Ghana. Also, the study argues that the technological characteristics explored on the implementation of HRIS in some countries may not be the same in the Ghanaian context. As a result, the findings of those studies cannot be generalized in the study context.

And for these reasons, it is expedient to assess the technological factors affecting the implementation of the HRIS in the MMDAs. These would benefit the government and other stakeholders to be aware of such factors in order to design strategies to enable the seamless implementation of HRIS in public sectors (Kiwango *et al.*, 2021).

LITERATURE REVIEW

This section describes the theoretical foundation that underpins the research as well as the relevant empirical review.

Definitions of Human Resource Management Information System

Some scholars across the globe have holistically studied various aspects of HRIS. Others have attempted to define HRIS comprehensively by identifying the various activities involved in HRIS. Many researchers also tried to define HRIMS through its different objectives. Tigari (2017) mentioned in a study that, the alternatives names for HRIS includes Human Resource Management Systems (HRMS), E-Human Resource Information Systems (E-HRM), Human Resource Information System (HRIS), Employee Information System (EIS) and Personnel Management Information Systems (PMIS).

HRIS is a computer software designed to simplify and accelerate the HR management process as well as increase its quality through automation of fundamental objectives and operations in a business (Shaikh & Sayyed, 2018). According to Samy *et al.* (2023), HRIS "is an umbrella term that is used interchangeably when people refer to one or more forms such as e-HRM, Human Resource (HR) intranet, web-based HR, computer-based HRIS,

virtual HR and HR portals. Singh *et al.* (2022) also defined HRIS as "the most important transaction processor, editor, record keeper and functional application system which lies at the heart of all computerized HR work." HRIS is described as a systematic technique for gathering, storing, preserving, accessing and evaluating HR activity data required by an organisation (Kovach & Cathcart, 1999).

HRIS refers to materials, software, personnel, data and procedures that enable the acquisition, storage, processing, analysis, retrieval and dissemination of information on an organisation's HR (Moussa & El Arbi, 2020). HRIS is to include not only procedures, processes and documents but also personnel who are involved in gathering, storing, assessing or disseminating information about the company's HR (Lovrić & Horvat, 2016; Moussa & El Arbi, 2020). According to Alkashami (2023), HRIS is a software or web-based solution that covers the data entry, tracking and insight requirements of HR, payroll, management and accounting tasks in company. Wibawa *et al.* (2018) defined HRIS as a computer application software that organizes HR in corporation to support the decision-making process, which is also known as the Decision Support System (DSS). Johnson and Gill (2010) also defined HRIS as an electronic system that generally consists of a database or interconnected databases that tracks workers and employment-related information. Esangbedo *et al.* (2021) assert that HRIS "is an integrated system that assists with the planning and controlling of employees by aligning them with the organisation so that they efficiently work for the organisation."

Srivastava *et al.* (2021) comprehend HRIS as "a suite of software, database and cloud computing which provide an all-encompassing solution for managing every aspect of a workforce." Dissanayake and Nandasena (2020) explains HRIS as an interrelated system that collects, stores and interprets HR-related data in a firm. Bali (2019) maintains that HRIS is a system that is used to collect, record, store, analyse and retrieve, the data related to an organisation's HR. Ahmad *et al.* (2018) opine that HRIS is a system which provides a database for HR data and acts as business intelligence for top management to proactively make decisions. Dadhabai (2018) also defined HRIS as an integrated system used to gather, store and analyse information regarding an organisation's HR comprising databases, computer applications, hardware and software necessary to collect, record, store, manage, deliver, present and manipulate data for HR.

Zahari *et al.* (2017) argue that HRIS is a technology-based application that incorporates common standards in HRM. HRIS is an application envisioned to ease and fasten HRM activities and improve quality through computerization of the day-to-day activities of HR within a firm. According to Shukla and Kanna (2017), HRIS is the bridge to merge HR and IT.

Functions of Human Resource Information System

HRIS function has now become the most effective

instrument for maintaining the firm's competitive edge (Irum & Yadav, 2019; Muhammad *et al.*, 2021). Valcik *et al.* (2021) add that HRIS functions are designed to support organisational goals in sustaining and managing human capital, depending on the organisation's vision and strategy. Jayabalan *et al.* (2020) indicate in a study that HRIS is made up of three basic functional components: input, data management and output. Packiaraj and Romansingh (2021) assert that the function of the HRIS is to plan and analyse HR requirements such as workforce projections, task analysis, skill inventories, attrition analysis, organisational chart, policy and procedure development and organizing HR operations. Bah *et al.* (2022) emphasize that HRIS functions incorporate staff training and performance evaluation, which contains features such as employee training profiles, training requirement assessment and succession planning. Magagula (2020) explains that the most important function of the HRIS is to assimilate the technologies of HR to increase the efficiency and effectiveness of HR work. Hosain *et al.* (2020) purport that the function of HRIS is to keep track of all of the organisation employee's information. Masum *et al.* (2018) determine that the HRIS functions comprise all HRM activities (such as personal information, recruitment, training, career management, performance management, compensation and benefits administration, labour contracts and employee and employer relationships). Shah *et al.* (2020) proclaim that HRIS plays an important role in lowering organisational expenses and of course, in advancing the global trend. Hosain *et al.* (2020) pronounce that HRIS offers better and faster data transmission across all agencies concerned. Qadir and Agrawal (2017) add that the HRIS performs the following functions: Strategic Integration, HR Analysis, Personnel Development, Knowledge Management, Communication and Integration, Records and Compliance and Proactive planning. Mahadik and Ayarekar (2020) purport that HRIS provides employees with more broad value-added services in order to achieve enterprise-wide development. HRIS can benefit from practices that improve efficiency, effectiveness and technical support services (Quaosar & Rahman, 2021). Jayabalan *et al.* (2020) also stressed that HRIS allows users such as HR managers to store and track many types of data that are useful to HRM.

Factors Affecting the Implementation of HRIS

Amoako *et al.* (2023) conducted a study and confirmed that perceived usefulness, self-efficacy, compatibility and enabling circumstances have substantial favorable influence on the e-HRM implementation. Model *et al.* (2020) in a study discovered factors such as performance expectations, effort expectations and social influence as factors influencing the decisions to implement and use HRIS. Arifin and Tajudeen (2020) declare that technical training provides users with the appropriate system knowledge required for any IS to be implemented successfully. According to a study, top management commitment and training program are essential factors for effective e-HRM implementation. (Sawant & Vernekar, 2019). Rath and Das (2020) also concluded in a study that factors facilitating the implementation of HRIS include HRIS acceptance and privacy and security concerns related to HRIS. According to Puspitarini *et al.* (2018), the factors driving the success of HRIS implementation at the MSOE include technology, people, environment and organisation. It was also found that factors influencing HRIS implementation include, acceptance of HRIS , security and privacy problems related to HRIS (Rath & Das, 2020). Bhuntel (2021) found eight elements influencing the implementation of the e-HRM system in IT organisations and these factors include ease of use of technology, risk perception experience of information technology, secure systems, communication tools, usage intention and organisational support and technology usefulness. Haniff (2017) concluded in a study that the effective implementation of HRIS in county governments was influenced by leadership style, staff training, change management and organisational policy. According to Tursunbayeva *et al.* (2020), sufficient data preparation, training, effective communication and process analysis are factors that affect the successful HRIS implementation. Puspitarini *et al.*, (2018) stated information quality, service quality, system quality, compatibility, IT Infrastructure and complexity as the Technological enabling factors affecting the implementation of Human Resource Information systems.

Also, organisations particularly in developing and underdeveloped nations are unable to fully profit from HRIS due to constraints and challenges that prevent proper implementation (Ololade *et al.*, 2023). However, the implementation of HRIS is still a major challenge notwithstanding the huge investment by most organisations in HRIS activities (Hagan *et al.*, 2022; Mohamed, 2013; Raheem *et al.*, 2020; Tansley & Watson, 2000). Hikmawan and Santoso (2020) also claimed that the successful implementation of HRIS has emerged as a critical constrain for organisations. Arifin and Tajudeen (2020) postulate that implementing IS in most organisations is not quite as straightforward as it appears due to various constraints and barriers. Hence, researchers have discovered many obstacles impeding HRIS implementation, particularly in underdeveloped nations. (Tamrakar & Shrestha, 2022). Ololade *et al.* (2023) determine that the major impediments to efficient implementation of HRIS include management fear, employee privacy concerns, internal organisational opposition and conversion expenses. Alharthi *et al.* (2017) add that most of the obstacles and barriers that affect the implementation of the HRIS are triggered by humans, organisations, technology and the environment. According to research, a key impediment to successful implementation of IT is lack of acceptance and usage of IT by users (Perera & Jayawardana, 2022). Mulat (2013) carried out a study on identifying the challenges affecting the implementation of public sector organisations in

Addis Ababa and concluded that Lack of funds to buy, update and maintain important HRIS, a lack of IT competence to manage the HRIS and insufficient financial support are all issues that lead to poor HRIS implementation. Haniff (2017) conducted a research in kenya on the factors affecting the HRIS implementation in private sector organisations and found that expected technical capacity as well as personnel with traditional IT abilities are the factors affecting the implementation of the system (Kiwelu & Ngonzi, 2022).

According to Alam and Kashem (2022), the factors that affect the implementation of HRIS implementation includes leadership, planning and change management . Mutiku (2019) in a study identifies the availability of funds, lack of training and security as the critical elements that interrupt the implementation of HRIS by local authorities. Dey and Saha (2020) found that insufficient financial backing, senior management resistance and culture as important factors affecting HRIS implementation. It was also found that there was no clear monitoring strategy as well as the amount of stakeholder participation not well-defined, possibly restricting the HRIS's downstream deployment (Bhattacharyya et al., 2021).

Vyas and Junare (2020) also specified that employees' sense of ownership and accountability, unreasonable expectations from top management, change management for process improvement, training requirements, creating a suitable IT infrastructure for setup and data transformation and quality support and timely servicing are among the challenges of HRIS implementation. Bhatta (2020) opines that the inconsistencies connected with the HRIS are the fundamental impediment to the success of an HRIS. Furthermore, Ramirez and Tejada (2022) discovered that some of the constraints affecting the implementation of the HRIS in selected institutions were lack of top management commitment and insufficient funding. Dilu et al. (2017) declare that the barriers in the implementation of HRIS comprises inadequate logistics and supply, lack of competence, lack of stakeholder commitment and lack of financing. Bhatta (2020) in a study on HRIS implementation found lack of IT knowledge, IT structure, financial reluctance and top management support as factors that constrain the usage of HRIS for competitive advantage. Manivannan and Jayasakthivel (2016) stated a variety of concerns and obstacles associated with HRIS implementation, such as lack of competency, technical issues, a lack of finance, time consumption and so on.

Kananu and Nyakego (2016) cited a number of barriers to include lack of finance, insufficient knowledge, lack of Information Technology expertise in the implementation of the HRIS, insufficient funding and time management challenges during the implementation of HRIS. Malindadi (2015) in a study identifies acquiring costs and training costs as challenges affecting HRIS implementation. Ferdous et al. (2015) suggest that top management reluctance, employee privacy concerns, organisational internal opposition to HRIS deployment and the cost of conversion are four main challenges and restrictions to effective HRIS implementation. Rahman et al. (2018) establish that the constraints encountered during the implementation of e-HRM systems in developing nations include the high cost of establishing the e-HRM systems, constructing sufficient IT infrastructure, purchasing computers that meet the e-HRM system's requirements, software maintenance and hardware maintenance.

Types of Human Resource Management Information Systems

Vyas and Junare (2020) suggested that the HRIS consists of three (3) types namely: Operational Human Resource Information System (OHRIS), Tactical Human Resource Information System (THRIS) and Strategic Human Resource Information System (SHRIS). Some scholars distinguish three types of HRIS to include operational, relational and transformative (Barišić et al., 2022; Chakraborty & Mansor, 2013; Lepak & Snell, 1998). According to Galanaki et al. (2019), relational e-HRM gives managers and staff remote access to HR information, allowing them to do HR duties on their own and interact with other areas of the firm and outside firm. Transformational e-HRM enables employees to collaborate and share information across geographical borders, hence, facilitating virtual teams and network companies (Parry & Tyson, 2011). Whereas operational e-HRM is to improve efficiency or reduce expenses by automating administrative HR processes (Galanaki et al., 2019).

Barisic et al. (2019) maintain that many types of research make the distinction between operational, tactical and strategic HRIS facets, where operational HRIS provides data to support routine and repetitive HR decisions (Ruel and Magalhaes, 2008), tactical HRIS provides data to aid cost-effective decisions (Morrison et al., 2020) and strategic HRIS provides data to assist strategic decisions in workforce planning (Chauhan et al., 2011). Despite various types HRIS covered in literature, the study highlights on Vyas and Junare (2020) distinguished types of HRIS namely: Operational Human Resource Information System (OHRIS), Tactical Human Resource Information System (THRIS) and Strategic Human Resource Information System (SHRIS).

Firstly, OHRIS covers the management of data relating to employees pay as well as their personal data (Berber et al., 2018). Valcik et al. (2021) advocate that OHRIS relies on routine HR functions such as employee records management, monitoring hours, compensation, rewards, regulatory issues and conformity. OHRIS equips managers with the data they require to support normal and recurrent HR decisions (Tema, 2018). According to Priota, (2020), operational HRIS data is supplied in the event of planned and recurring human decisions. Ma et al. (2015) stated that administrative operations such as payroll and employee personal data, are associated with OHRIS. Magagula (2020) assert that OHRIS touches the following elements; employee data system, position control system, applicant placement IS and MIS. OHRIS

provides data to managers that supports routinely made HR decisions; a number of operational level information systems collect data regarding HR such as information about the organisation's positions, workforce and regulations from the government (Karikari *et al.*, 2015; Sadri & Chatterjee, 2003).

Secondly, THRIS offers information to assist with decisions regarding resource allocation (Barisic *et al.*, 2019). Magagula (2020) reveal that the THRIS has four major elements namely Job design and analysis include things like recruiting IS, pay and benefits IS and employee development systems. Hiring choices, job analysis and design decisions, training and development and staff remuneration plans were also identified as part of THRIS (Gayathri & Hariharan, 2019; Quaosar & Rahman, 2021). Lastly, SHRIS is a model implemented in most organisations to assist Strategic Human Resource Management (SHRM) (Muqaddim *et al.*, 2021). It assists top management in establishing the organisation's strategy (Vyas and Junare, 2020) and also aids in the collection of data from within and outside a firm (Gayathri & Hariharan, 2019). Athambawa (2020) assume that the extent of strategic HRIS use varies from every firm and most firms merely utilize HRIS to eliminate manual process procedures in order to reduce cost within the firm.

**The Impact of the Human Resource Information System**

The impact of HRIS on HRM is still unclear (Begum *et al.* 2020) although it is inevitable (Hosain *et al.*, 2020) and varies across organisations (Al-Dmour, 2022). The most noticeable is the liberation of HR personnel from traditional HR tasks (J & Ngirwa, 2020). De Alwis *et al.* (2022) claim that HRIS support the modernization and development of the HR function by utilizing the most advanced technical systems and tools available (Zhou *et al.*, 2022). Duangekanong (2020) reported that the deployment of HRIS resulted in a variety of technology-related tasks replacing administration with no increase in HRM services. Kumara and Galhena (2021) pronounce

that HRIS are used both internationally and locally to reduce administrative burdens on HR management and to provide better services to the organisation's stakeholders. According to Rahman *et al.* (2018), the implementation of e-HR enables the organisation to hire, choose the appropriate and competent candidates for the job, which reflects the organisation's performance, as well as offering these able workforce with additional training. Sharma *et al.* (2023) specified that HRIS shifted the strategic emphasis to three primary areas: organisational attention, technical responsiveness and change management. Wangui (2020) articulates that the HRIS is a technology-enabled system that gathers, saves, customizes, analyses, retrieves and shares useful HR information. HRIS supports to the modernization and development of the HR function by utilizing the most advanced technical equipment and systems (Satispi *et al.*, 2023). Zaman (2020) maintains that HRIS systems assist in streamlining daily functions, managing employee benefits, reducing the need for paperwork and physical recordkeeping and tracking the progress of all individual and job-related employee data, among other things.

ElNakib *et al.* (2021) add that HRIS also support in the elimination of duplication of work and the better organisation of the HR staff's work. It is an enabler in the planning and execution of managerial functions such as managerial decision-making in an organisation (Singh *et al.*, 2012). HRIS makes the most impact on employee planning via HRIS skills inventory, labour demand and supply assessment, training requirements analysis and HRIS performance appraisal (Tharushika *et al.*, 2021). Munir *et al.* (2020) claim HRIS assists the organisation in handling their HR and adds value to the HR function within organisations, which undoubtedly influences the competitiveness of the organisation.

Theoretical Underpinning
The HOT-Fit model is adoption and Implementation model in IS disclosed by Yusof *et al.* (2006). The framework was a modification of DeLone and McLean's
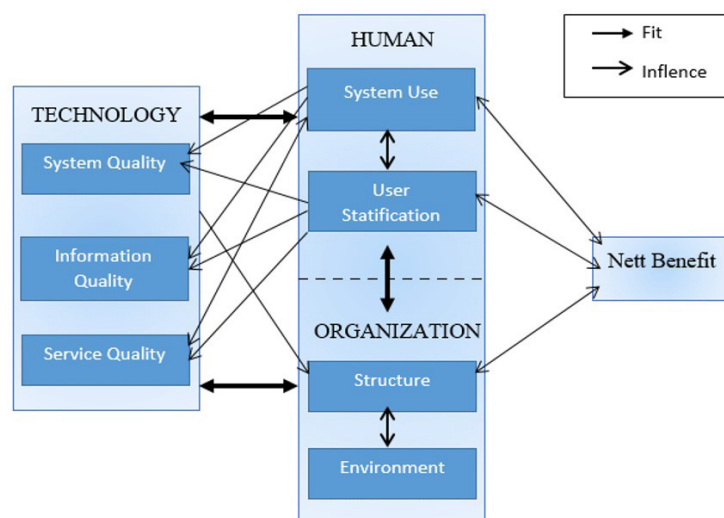

Figure 1: Human-Organisation- Technology Model
Source: Yusof et al., (2008)

success IS model (Agustini *et al.*, 2020; Suryana *et al.*, 2022). According to Erlirianto *et al.* (2015); Michaela and Lestara (2020), Yusof *et al.* (2008) combined Information System Success Model (ISSM) and IT Organisational Fit Model to build the HOT-fit model. The model incorporated vital components namely Human, Organisational and Technological in the evaluation of IS (Fauzan and Noviandi, (2020); SARI *et al.*, 2020). As compared to other models, the HOT-Fit model is the most complete and appropriate model for genuine issue scenarios since it combines organisational structure and environment variables that previous models did not (Michaela & Lestara, 2020). Salma (2022) concludes that the HOT-fit framework is an excellent paradigm for IS assessment research because it provides comprehensive guidance on how to improve an IS. However, the Human component of Hot-fit model is seen as the people (humans) who evaluate the IS from the standpoint of usage (system use) and can accept and refuse the system based on their training, experience, knowledge, expectations and attitudes (Triadiarti *et al.*, 2021). The second component known as organisation is understood by Putra *et al.* (2021) to analyse IS in terms of planning, management, system control, management support and finance based on its organisational structure and organisational environment. The last component is the technology which according to Irfan et a., (2020) assess " the system's quality, information quality and service quality."

Research Model
A suitable Research model was curved from Human-Organisation-Technology model to guide the research activities. The study adapted the Technology component of Human-Organisation-Technology model in order to acquire a thorough, increased grasp of the research objective This gives a comprehensive overview of predetermined technological factors explored from previous studies to assess the implementation of HRIS. The technological factors used for the assessment were: IT Infrastructure, Complexity, Quality Information, Compatibility and System Quality. All of these factors identified in this study were previously proposed in the literature and used in IT implementation studies. Quality Information and System Quality were adapted from HOT-fit model by Yusof *et al.*, (2008). Complexity and Compatibility were also adapted from the Diffusion of Innovation (DOI) by Rogers, (2003), whereas IT Infrastructure was also adapted from Kiwango *et al.*, (2021). Also, these variables were conceptualised and operationlised in some other previous studies such as IT Infrastructure (Butt, 2020), Complexity and Compatibility (Kiwango *et al.*, 2021), Quality Information and System Quality (Puspitarini *et al.*, 2018), Acceptance (Rath & Das, 2020) and Effectives (Dey & Saha, 2020). The figure 1 below presents the conceptual framework of the study. The study developed this framework with directed line specifying the relationship between the technological factors and the implementation of the HRIS.
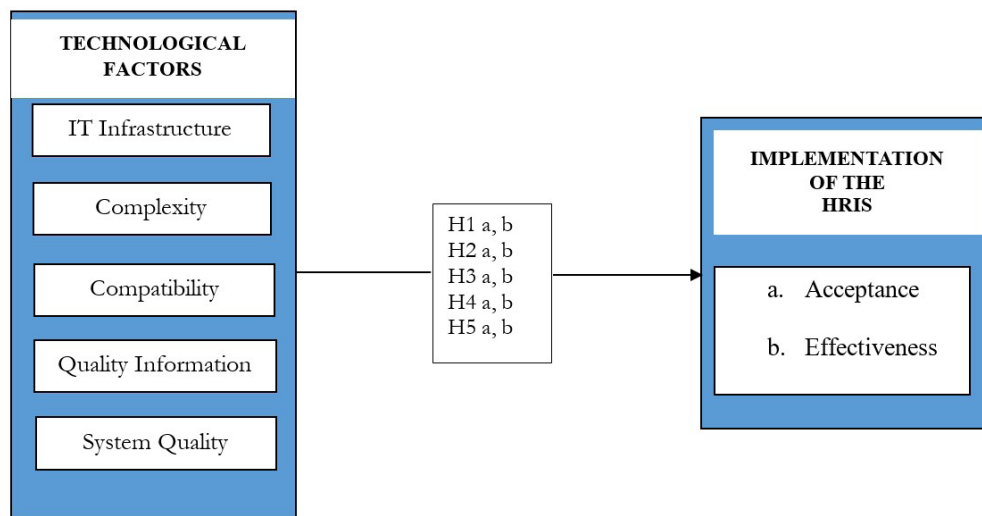
Figure 2: Research Model
Source: Researcher's Construct

Technological Factors
According to Alraja *et al.* (2022), the Technology context concerns the software, hardware and equipment. Esfahani *et al.* (2018) stress that the technological factors include the utilization of IT infrastructures which include a collection of physical equipment and software applications required to operate in an organisation.
This comprises internal and external technologies, procedures and tools of an organisation that emphasize

innovative characteristics or elements in the technology adoption research (Nilashi *et al.*, 2016). One of the required variables for the successful implementation of an e-learning system is technological considerations (Almaiah *et al.*, 2020). However, the Technology factors considered under the study to conduct the assessment of the implementation of the HRIS include: IT Infrastructure, Complexity, Quality Information, Compatibility and System Quality.

Implementation of the HRIS

HRIS deployment in most organisation still relies on the thriving sophistication of IT and the features of IT needs for HRM departments (Holland *et al.*, 2022). ElNakib *et al.* (2021) affirm that, the HRIS is intended to increase effectiveness by improving information accuracy or by employing technology to streamline operations. Noutsa Fobang *et al.* (2019) purports that HRIS is critical in contemporary top organisations. Despite, organisations have difficulties in integrating and utilizing these technologies (Agahi & Gulthawatvichai, 2021). The apparent unwillingness of organisations to adopt and implement HRISs poses a significant challenge to the continued usefulness of HRISs in organisations (Arpoh-Baah *et al.*, 2020). The study uses the following variables namely: Acceptance and Effectiveness under this construct to assess the implementation of the HRIS in the MMDAs in the Upper West Region of Ghana.

Acceptance of the HRIS is one of the major dependent variables used under the implementation of the HRIMS. Acceptance is a perceptual phenomenon that involves assessing new experiences and making a final choice about the merits and drawbacks of that encounter (Safi *et al.*, 2018). Taherdoost (2022a) claim that, the acceptance of any new technology by its users is critical to its effective implementation. Similarly Nycz and Pólkowski (2018) also buttress that, user acceptability is a crucial issue to consider in IT adoption, implementation and usage inside the organisation. Davis (1993) declares that user acceptability is a vital component in determining whether or not an IS deployment is successful and knowing the causes for user acceptance or rejection is key to a chance of effective implementation (Kamaludin & Zaki Kamaludin, 2017). The main obstacles in the implementation of HRIS is end-user non-acceptance of HRIS (Afifah & Sary, 2020). Organisations are more receptive to technology acceptance and their understanding of HRIS is progressively improving and becoming more innovative (Srivastava *et al.*, 2022). People have a characteristic inclination not to accept the new technology innovation when it is adopted based on their presumptions about change. According to Rogers (2003), poor system acceptability and utilization have been key impediments to effective implementation efforts, resulting in significant financial losses (Mauro & Borges-Andrade, 2020). Ali and Mahmood, (2020) in a study indicate that the major difficulty encountered by firms in the adoption of HRIS across all sectors in Pakistan is a lack of acceptance due to hesitation about change among junior employees.

Also, effectiveness is a variable considered under the implementation of the HRIS. It is important to first define what effectiveness is, as it means differently for each person, depending on the theoretical framework used (Supriadi & Sa'ud, 2017). Effectiveness is a measure of how well the learning objectives have been met (Handayaningrat, 1990). Effectiveness is the result of measuring the achievement of the predetermined goals (Masriah, 2021). The use of HRIS is intended to increase effectiveness, either in relation to data accuracy or by

adopting technology to automate operations (ElNakib *et al.*, 2021). Fobih *et al.* (2020) argue that an effective HRIS is required in today's businesses to address concerns such as increased organisational needs, more comprehensive use of information and a greater need for information, as well as the ongoing drive to reduce costs and make HRM a somewhat more strategic business partner.

Research Hypotheses

The first variable under the Technological construct is the IT infrastructure of the organisation. IT infrastructure refers to the shared IT capabilities that enable information flow throughout an organisation (Broadbent *et al.*, 1996). Havidz and Mahaputra (2020) stressed that an organisation's IT infrastructure consists of the hardware, software, databases and telecommunications required to conduct the organisation's operations. Qamari *et al.* (2022) maintain that an organisation's IT infrastructure consists of computers, email and own networks that are not connected to the internet such as Wired Local Area networks (WLAN), Wireless, Wide Area Network (WAN), Intranet and Extranet. Shet *et al.* (2021) indicate that a well-designed IT infrastructure is required for organiztions to deploy HRIS. Munir *et al.* (2020) suggested that before the implementation of the HRIS, organisations must consider the IT infrastructure, internet and so on. According to recent surveys, the most prevalent barrier in the implementation of IT-enabled applications in developing-country enterprises is a lack of IT infrastructure (Mothobi & Grzybowski, 2017). Therefore, in the context of the assessment, the following hypotheses were posited:

H1a: IT Infrastructure has significant influence on the Acceptance of the HRIS.

H1b: IT Infrastructure has significant influence on the Effectiveness of the HRIS.

Secondly, the Complexity was the next variable suggested. Complexity is "the degree to which an innovation is perceived as relatively difficult to understand and use"(Edwards Son & Al-Saqaf, 2022; El Mallouli & Sassi, 2022; Jensen, 2020; Rogers, 2003). Likewise, Gopalakrishnan and Damanpour (1994) define complexity as "the extent to which an innovation is perceived as difficult to understand and use considering various dimensions such as the extent to which an innovation can be implemented on a limited basis, the difficulty associated with understanding the innovation and the extent of the newness of the innovation." Yoon *et al.* (2020) state that complexity is a trait of innovation that is frequently seen to affect how technology is implemented. Udekwe *et al.* (2021) point out that, complexity is a technology factor that influences the effectiveness and implementation of the HRIS. In view of the above regarding the influence of complexity on the acceptance and effectiveness of the HRIS, the following hypotheses were posited:

H2a: Complexity has significant influence on the Acceptance of the HRIS.

H2b: Complexity has significant influence on the Effectiveness of the HRIS.

Thirdly, Compatibility is another essential variable used

under the technology construct. Al-Rahmi *et al.* (2019; Wu *et al.* (2022) distinct Compatibility "as the degree to which society trusts that the invention is well-matched with the old-style knowledge regarding existing values, past experiences and needs of the potential adopters." Whereas Leong *et al.* (2021) comprehend Compatibility as "as the degree to which the individual perceives the innovation as being aligned with his or her lifestyle, values, past experiences and needs." Regarding the influence of Compatibility on the acceptance and effectiveness of the HRIS, the following hypotheses were posited:

H3a: Compatibility has significant influence on the Acceptance of the HRIS.

H3b: Compatibility has significant influence on the Effectiveness of the HRIS.

Fourthly, Quality Information is another variable covered under the technological construct and it is well-defined as "the desirable characteristics of the system output"(DeLone & McLean, 2003). Al-Mamary *et al.* (2014) perceived Information Quality as the output of the system such as reports not the quality of the system performance. Bayraktaroglu *et al.* (2019); Yakubu and Dasuki (2018) claimed that the output of an IS should have desired qualities, such as being relevant, understandable, accurate, succinct, comprehensive, timely and usable. Assessing the quality of information from a system can be accomplished in three major ways: information must serve the desired purpose, information must arrive timely and information must be accurate (Hidayatullah *et al.*, 2019). Considering the influence of Quality Information on the acceptance and effectiveness of the HRIS, these hypotheses below were posited:

H4a: Quality Information has significant influence on the Acceptance of the HRIS.

H4b: Quality Information has significant influence on the Effectiveness of the HRIS.

Lastly, System Quality is a variable also used under technology construct. Bayraktaroglu *et al.* (2019) defined System Quality as " the ability of an IS to produce the required information." Yakubu and Dasuk (2018) indicate System Quality measurement features to include data quality, reliability, usability and integration. Al-Mamary *et al.* (2014) recommend that System Quality is the useful feature of an IS. According DeLone and McLean, (2003) as mentioned by Beatrix (2022), System Quality is the system's performance, which relates to how effectively the hardware capabilities, software, standards and processes of the information system can give information on user demands. Assessing the Quality System is typically associated with measuring the dependability of the system's fundamental features, such as effectiveness and the software interface and user interface (Achmadi & Siregar, 2021). In view of the above study regarding the influence of System Quality on the Acceptance and Effectiveness of the HRIS, the following hypotheses were posited:

H5a: System Quality has significant influence on the Acceptance of the HRIS.

H5b: System Quality has significant influence on the Effectiveness of the HRIS.

MATERIALS AND METHODS
Context of the Study
The study was conducted in the Upper West Region of Ghana, specifically in the MMDAs in the region. The study aims at assessing the technological factors affecting the implementation of the HRIS in the MMDAs in the Upper West Region of Ghana.

Profile of the Upper West Region
The Upper West Region is one of Ghana's 16 administrative areas and one of only five semi-arid administrative regions in the globe (Diko *et al.*, 2021).

Figure 3: The map of the Upper West Region of Ghana
Source: Forkuor & Korah, (2023)

The Upper West Region was carved from the then Upper Region in 1983 (Bob-Milliar, 2011). It is situated on Ghana's northwestern side. According to Baddianaah *et al.* (2023); Moomen and Odame-Appiah, (2023), the Upper West Region of Ghana covers 18,476 km² of Ghana's total landmass, accounting for 12.7 percent of the land in the country. The region is anticipated to have a total population of 901,502 residents (440,317 males and 461,185 females (Pienaah *et al.*, 2022)). The Dagaaba, Wala and Sissali are the three (3) largest ethnic groups and Birifor, Lobi, Chakali and Kasinas are among the other minority tribes (Delle Donpaala *et al.*, 2022). In the Upper West region of Ghana, 72.8% of the population who are economically active work in agriculture, forestry and fishing (Diko *et al.*, 2021).

Table 1: Population per District

MMDA	Population
Wa Municipal	200,672
Wa West District	96,957
Wa East District	91,457
Daffiama-Bussie-Issa District	38,754
Jirapa Municipal	91,279
Lambussie-karni District	51,118
Lawra District	58,433
Nadowli-Kaleo District	77,057
Nandom Municipal	51,328
Sissala East Municipal	80,619
Sissala West District	63,828

Source: Population and Housing Census Report, (2021)

Summary of the Study's Methodology
The table below highlights on the summary of the study's methodology and gives the research a roadmap to accomplish the study's objective (see table 2).

Table 2: Study's Methodology

Attribute	Characteristics
Research Design	Quantitative Survey
Research Approach	Quantitative
Research Paradigm	Positivism
Time Dimension	Cross-Sectional Study
Sampling: Purposive	Total population Sampling
Data Collection method	Survey
Data Collection Tool	Questionnaire
Data Analysis Tool	SPSS
Unit Analysis	The relationship between the Individual characteristics and the implementation of the HRIS (Individual level)
Unit of Observation	Individual Line Managers (Unit/Departmental Heads)
Unit of Measurement	Likert's Scale (5 point)

The objective of this study is to give empirically verified information on the predictive power of the technological factors affecting HRIS implementation at MMDAs in the Upper West region of Ghana. The study was a quantitative survey and a positivist research mindset. This study was based on primary data using closed ended questionnaire. The sample size consists of all the line managers (n=187) in the eleven (11) MMDAs. However, each MMDA consists of seventeen (17) line managers whose opinions were sought to determine the technological factors that affect the implementation of the HRIS in the MMDAs. Purposive sampling technique was used, in which 17-line managers were chosen from each MMDA in the Upper West region of Ghana. The scale of measurement employed in the study was a 5 Likert-Scale which was used to collect data from line managers where they were allowed to make choices to totally disagree (1) to totally agree (5). For the internal consistency of data, the study embraced the Cronbach value of 0.70 as the minimum value to determine the reliability of each variable and all were above 0.70. signifying all variables were reliable. The unit of analysis of this study was at the individual level. This study makes its analysis relying on the opinions given by respondents and finally the results were correlated to establish the relationships between the individual characteristics (Line Managers) and the implementation of the HRIS in the MMDAs. Numerical data was analysed using SPSS. The study used inferential statistics such as Spearman bivariate correlation to enable the researcher to test the research hypotheses developed. This study also used multiple stepwise regression technique to further explore the most influential technological variables on each the dependent variable of the study.

RESULTS AND DISCUSSIONS
Demographic Characteristics of Respondents
The table below highlighted data on the demographic characteristics provided by the respondents in the eleven (11) MMDAs in the Upper West Region of Ghana. The suitability of the responses for generalization is determined by the characteristics of the respondents in a given study picked from the target population (Ridzuan *et al.*, 2021). The characteristics used under this study included Gender, Age, Qualification, Work Experience and Status of the MMDAs (see Table 1).

The results of the demographic characteristics from Table 8 above showed that: On Gender, majority of the respondents were males representing 80% (N= 147) and minority of the respondents were females representing 20% (N=37). Also, results on the ages brackets of the respondents showed that, ages between 31- 40 years represented 64% (N=118), ages between 41-50 years represented 15 % (N=28), ages between 20-30 years represented 12% (N=22), ages between 51-60 were 9% (N=16) and none fell above 60 years. Furthermore, the results again revealed that, in terms of qualification of the respondents, majority of the respondents had first degree representing 63% (N=116), 33% (N=60) of the respondents having masters, 4% (N=8) of the

Table 3: Demographic Characteristics of Respondents

Demographics	Demographics	Frequencies	Percentages
Gender	Male	147	80%
	Female	37	20%
	Total	**184**	**100%**
Age	20-30	22	12%
	31-40	118	64%
	41-50	28	15%
	51-60	16	9%
	Over 60	0	0%
	Total	**184**	**100%**
Qualification	HND	8	4%
	Degree	116	63%
	Masters	60	33%
	Ph.D.	0	0%
	Total	**184**	**100%**
Work Experience	1-4	58	32%
	5-10	82	45%
	10 Above	44	24%
	Total	**184**	**100%**
MMDA Status	District	116	63%
	Municipal	68	37%
	Metropolitan	0	0%
	Total	**184**	**100%**

respondents having HND and none of the respondents had a Ph.D. It was also disclosed that majority of the respondents having work experience between 5-10 years represented 45% (N=82), 1- 4 years representing 32% (N=58) and 11 and above represented 24% (N=44). It is also clear from the results that, 63% (N=116) of the MMDAs were District assemblies whiles 37% (N=68) were Municipal Assemblies in the Upper West Region of Ghana.

Results on Objective One: To Determine the Level of Acceptance of the Technological Factors Affecting the Implementation of the HRIS
The Technological factors used to address this objective are: IT Infrastructure, Complexity, Quality Information, Compatibility and System Quality. The respondents were to rate their level of acceptance to determine the Technological factors affecting the implementation of the HRIS at the MMDAs in the Upper West Region of Ghana.

Their opinions were expressed in a Likert scale where; SA= "Strongly Agree," D = "Disagree," U= "Uncertain," A= "Agree," SD= "Strongly Disagree." Also, M=Mean representing the measure of central tendency and STD= Standard Deviation representing the measure of dispersion. The respondents' responses on each variable were described using frequencies, percentages as well as mean and Standard Deviation.

Table 4: Technological Factors

Technology	S D		D		U		A		S A		M	STD
	No	%	No	%	No	%	No	%	No	%		
IT Infrastructure	12	6.5%	62	33.7%	4	2.2%	86	46.7%	20	10.9%	2.8	1.2
Complexity	13	7.1%	17	9.2%	29	15.8%	80	43.5%	45	24.5%	2.3	1.1
Quality Information	19	10.3%	19	10.3%	31	16.8%	111	60.3%	23	12.5%	2.3	0.8
Compatibility	21	11.4%	27	14.7%	27	14.7%	93	50.5%	16	8.7%	2.7	1.2
System Quality	5	2.7%	17	9.2%	23	12.5%	83	45.1%	56	30.4%	2.1	1.0

N=184

Table 11 presented the following results

On IT Infrastructure with respect to the statement that, IT infrastructure facilitates the implementation of the HRIS, 74 (40.2%) of the total respondents disagreed while 106 (57.6%) agreed and 4 (2.2%) of the respondents were uncertain. IT infrastructure has a mean of 2.8 and a standard deviation of 1.2.

This denotes that MMDAs in the Upper West Region may have good IT Infrastructure which facilitates the implementation of the HRIS. Normalini *et al.* (2012) argues that, IT infrastructure affect the implementation of HRIS because the system is based on computer network availability and accessibility in most organisations (Matimbwa, Sebastian Masue, *et al.*, 2020). Al-Mobaideen *et al.* (2013) also discovered that, IT Infrastructure plays an important role in the effective implementation of HRIS in the setting of ASEZA. Mothobi and Grzybowski (2017) contended that, the most common hindrance in developing-country firms implementing IT-enabled applications is IT Infrastructure.

On Complexity, regarding the statement that, HRIS is hard to learn, 30 (16.3%) of the total respondents disagreed while 125 (68%) agreed and 29 (15.8%) of the respondents were uncertain. Largely, complexity has a mean of 2.3 and a standard deviation of 1.1. This implies that the HRIS at the MMDAs may be complex and difficult to use hence hindering the implementation process at the MMDAs. Kiwango *et al.* (2021) claimed that, the complexity of the present computerized system has a significant impact on the organisation's acceptance and implementation of a new system. Kashive (2011) also revealed that, the installation of HRIS in organisations with complicated processes that differ from present procedures affect the success of the implementation. Venkatesh *et al.* (2011) affirms that users unable to use the HRIS in government-owned businesses have been an obstacle in the HRIS implementation.

On Quality Information, it is possible to learn that, 19 (10.3%) of the total respondents disagreed with the statement that, HRIS relevance in decisions making aids its implementation while 134 (72.8%) agreed and 31 (16.8%) of the respondents were uncertain. Quality Information has a mean of 2.3 and a standard deviation of 0.8. This suggest that, the information on the HRIS may not be understandable, consistent, relevant and complete that users may consult any time. Wu and Wang (2006) asserts that, Information Quality is an important factor in ensuring successful HRIS implementation (Boro, 2022). Prasanna and Huggins (2016) also discovered that, Quality Information is one of the preliminary characteristics that influence symbolic adoption of a system.

In a similar manner, on Compatibility, regarding the statement that, HRIS compatibility with existing practice aids its implementation, 48 (26.1%) of the total respondents disagreed while 109 (59.2%) agreed and 27 (14.7%) of the respondents were uncertain. Compatibility had a mean of 2.7 and a standard deviation of 1.2. This signifies that, the HRIS features may be consistent and compatible with the previous system. Matthew *et al.* (2018) affirm that, the inconsistency and incompatibility of an organisation's existing system slows the implementation of a new system such as e-HRIS.

On System Quality, with reference to the statement that HRIS features and functions aid its implementations, 22 (11.9%) of the total respondents disagreed while 139 (75.5%) agreed and 23 (12.5%) of the respondents were uncertain. System Quality has a man of 2.1 and a standard deviation of 1.0. This may be as a result of processes of the system not matching their work processes. Noutsa *et al.* (2017) indicate that, Quality System is the only determinant of adoption of HRIS. Furthermore, Gattiker and Goodhue (2005) concluded that, System Quality is an important component in ensuring the success of an Enterprise Resource Planning (ERP) implementation

Results on Objective Two: To Assess the Correlation between Technological Factors and the Acceptance of the HRIS

The developed hypotheses below are to answer objective two of the study. The Technological factors consist of IT Infrastructure, Complexity, Quality Information, Compatibility and System Quality. The dependent variable used under the implementation of the HRIS was acceptance.

The Bivariate Correlation test and analysis was carried out to establish the strength of relationship between each Technological factor and the variable acceptance under the implementation of the HRIS. This objective was answered using the interpretation of correlation coefficient rule of thumb giving by Hinkle *et al.* (2003) below to establish the strength of correlation between each the technological factors and acceptance under the implementation of the HRIS. Table 1 below is the interpretation of correlation coefficient rule of thumb.

Table 5: Rule of thumb for interpretation of correlation coefficient

Size of Correlation	Interpretation
0.90 to 1.00 (−.90 to −1.00)	Very high positive (negative) correlation
0.70 to .90 (−.70 to −.90)	High positive (negative) correlation
0.50 to .70 (−.50 to −.70)	Moderate positive (negative) correlation
0.30 to .50 (−.30 to −.50)	Low positive (negative) correlation
0.00 to .30 (.00 to −.30)	negligible correlation

Source: Hinkle et al., (2003)

The following Hypotheses below table 2 were established to answer objective two.

Table 6: Bivariate Correlation between Technology variables and Acceptance

Hypotheses	Correlation weights	Correlation Coefficients (rho)	p-value (p)	Hypotheses support
H1a	A1 → A	0.139	0.061	Rejected
H2a	A2 → A	0.398	0.000	Accepted
H3a	A3 → A	0.187	0.011	Accepted
H4a	A4 → A	0.323	0.000	Accepted
H5a	A45 → A	0.265	0.000	Accepted

*Note. Sig level: * p < 0.05 **p < 0.01(2-tailed). A1: Infrastructure, A2: Complexity, A3: Quality Information, A4: Compatibility, A5: System Quality, A: Acceptance*

On H1a

It was hypothesized that, IT Infrastructure has significant influence on the acceptance of the HRIS. The results indicate that, there is negligible correlation between IT infrastructure and the acceptance of the HRIS. This correlation is statistically insignificant at a 5% significance level since the p-value is greater than the level of significance (rho = 0.139, p-value > 0.05). Therefore, H1a was rejected. The findings of the study do not support the hypothesis. The findings of the study imply that, the MMDAs may not have goof IT Infrastructure. This may hinder the acceptance of the HRMIS at the MMDAs. The conclusions of the study contradicts the findings of Al-Mobaideen *et al.* (2013) who claim that, IT Infrastructures have a positive and significant impact on HRIS acceptance as compared to other factors. This contradicts the findings of Alshamaila (2013) who report that, IT Infrastructure has huge impact of on the acceptance of technologies

On H2a

It was hypothesized that Complexity has significant influence on the Acceptance of the HRIS. The results indicate that, there is low positive correlation between Complexity and the acceptance of the HRIS. This correlation is statistically significant at a 5% significance level since, the p-value is less than the level of significance (rho = 0.398, p-value < 0.05). Hence H2a was accepted. The findings of the study supports the findings of Venkatesh and Davis (2000) as well as Moore and Benbasat (1991).The findings contradict the previous studies by Grover (1993), Tidd and Bessant (2020) who purport that the acceptance of IS innovations has been revealed to be negatively affected by complexity

On H3a

It was hypothesized that, Information Quality has significant influence on the Acceptance of the HRIS. The results indicate that, there is negligible correlation between Information Quality and the acceptance of the HRIS. This correlation is statistically significant at a 5% significance level since, the p-value is less than the level of significance (rho = 0.187, p-value < 0.05). Therefore, H3a was accepted. The findings are consistent with the research by Beatrix (2022) who demonstrates that user satisfaction is significantly impacted by the Information Quality.

On H4a

It was hypothesized that, Compatibility has significant influence on the Acceptance of the HRIS. The results indicate that, there is low positive correlation between Compatibility and the acceptance of the HRIS. This correlation is statistically significant at a 5% significance level since, the p-value is less than the level of significance (rho = 0.323, p-value < 0.05). Hence, H4a was accepted. This study findings are in agreement with the findings by Duxbury and Corbett (1996) who affirm that compatibility with existing systems is positively related to the acceptance of technology

On H5a

It was hypothesized that, System Quality has significant influence on the Acceptance of the HRIS. The results indicate that, there is negligible correlation between System Quality and acceptance of the HRIS. This correlation is statistically significant at a 5% significance level since, the p-value is less than the level of significance (rho = 0.265, p-value < 0.05). Hence, H5a was accepted. The study's findings related to those of Muda and Ade Afrina (2019) who discover that System Quality had a significant and beneficial influence on user satisfaction. The findings are congruent with those of Kuo *et al.* (2018) who find that System Quality has great impact on the acceptance of the HRIS.

Results on Objective Three: To Assess the Correlation between Each Technological Factor and the Effectiveness of the HRIS

This part highlighted the hypotheses developed to answer objective three of the study. The Technological variables (Independent variables) consist of IT Infrastructure, Complexity, Quality Information, Compatibility and System Quality. The dependent variable used under the implementation of the HRIS was effectiveness. The Bivariate Correlation test and analysis was carried out to establish the strength of relationship between each Technological factor and the variable "effectiveness" under the implementation of the HRIS. This objective was answered using the interpretation of correlation coefficient rule of thumb giving by Hinkle *et al.* (2003) above to establish the strength of correlation between each the technological factors and effectiveness under the implementation of the HRIS.

Table 7: Bivariate Correlation between Technology Factors and Effectiveness

Hypotheses	Correlation weights	Correlation Coefficients (rho)	p-value (p)	Hypotheses support
H1b	A1 → B	0.157	0.033	Accepted
H2b	A2 → B	0.583	0.000	Accepted
H3b	A3 → B	0.202	0.006	Accepted
H4b	A4 → B	0.481	0.000	Accepted
H5b	A45 → B	0.427	0.000	Accepted

*Note. Sig level: * p < 0.05 **p < 0.01(2-tailed). A1:IT infrastructure, A2: Complexity, A3: Quality Information, A4: Compatibility, A5: System Quality, B: Effectiveness*

The Hypotheses in table 3 were established to answer objective two.

On H1b

It was hypothesized that, IT Infrastructure has significant influence on the Effectiveness of the HRIS. The results specified that, there is negligible correlation between IT infrastructure and effectiveness of the HRIS. This correlation is statistically significant since, the p-value is less than the significance level (rho = 0.157, p-value < 0.05). Hence, H1b was supported. This implies that, the MMDAs may have good IT Infrastructure that enhances the activities of the HRIS and in that regard, it may aid the HRIS effectiveness. These findings are in line with the findings of Harshith (2022), Jayadeva *et al.* (2022) as well as Normalini *et al.* (2012).

On H2b

Complexity has significant influence on the Effectiveness of the HRIS. The results indicate that, there is moderate positive correlation between Complexity and the effectiveness of the HRIS. This correlation is statistically significant since, the p-value is smaller than the significance level (rho = 0.583, p-value < 0.05). Hence, H2b was supported. The finding is related to the findings of the study by Matimbwa *et al.* (2021).

On H3b

Quality Information has significant influence on the Effectiveness of the HRIS. The results from the study indicated that, there is negligible correlation between Quality Information and the effectiveness of the HRIS. This correlation is statistically significant since, the p-value is less than the significance level (rho = 0.202, p-value < 0.05). Hence H3b was supported. This conclusion is aligned with Savalam and Dadhabai (2018) who found that, there is an association between Quality Information and the Effectiveness of the HRIS.

On H4b

It was hypothesized that Compatibility has significant influence on the Effectiveness of the HRIS. It was found from the study that, there is low positive correlation between Compatibility and the effectiveness of the HRIS. This correlation is statistically significant since, the p-value is less than the significance level (rho = 0.481, p-value < 0.05). The proposed hypothesis H4b was supported. The study's findings are consistent with those of Masue, *et al.* (2020) who agree that compatibility of a system with existing processes ease use hence, effective.

On H5b

It was hypothesized that System Quality has significant influence on the Effectiveness of the HRIS. The results indicate that, there is low positive correlation between System Quality and the effectiveness of the HRIS. This Correlation is statistically significant since the p-value is less than the significance level at 5% (rho = 0.427, p-value < 0.05). Hence, H5b was supported. The findings of the study are supported by Savalam and Dadhabai (2018) who argued that there is association between System Quality and the effectiveness of the HRIS.

Objective Four: To Determine the Most Influential Technological Factors on the Acceptance and the Effectiveness of the HRIS

To answer objective four (4) of the study, the study used stepwise regression in that regard. Stepwise Regression was used to determine the most influential variables on each dependent variable in the study. Ma *et al.* (2021) claim that, "Stepwise regression is the step-by-step iterative construction of a regression model that involves the selection of independent variables to be used in a final model." The results below were obtained.

Table 8: Stepwise Regression Analysis of the Technological Factors on Acceptance

Variables Entered	Beta Coefficient	R Square Change (ΔR²)	F Change	Sig. F Change
Complexity	0.272	0.074	14.563	0.000

*Note Sig at * p < 0.05, **p < 0.01. Dependent Variable: Acceptance*

Results from Table 4 above showed that, Complexity is the only most significant predictor ($\beta = 0.272$; $p < 0.01$) on the Acceptance of the HRIS, which contributed about 7.4% ($\Delta R^2 = 0.074$, $F (1,182) = 14.563$; $p < 0.01$) of variance in acceptance of the HRIS. The results of the study indicate that, complexity emerged as the first most significant predictive of the acceptance which contributed about 7.4% of variance in acceptance.

Table 9: Stepwise Regression Analysis of the Technological Factors on the Effectiveness

Variables Entered	Beta Coefficient	R Square Change (ΔR^2)	F Change	Sig. F Change
Complexity	0.403	0.163	35.353	0.000

*Note Sig at * $p < 0.05$, **$p < 0.01$. Dependent Variable: Acceptance*

From Table 5 below. Complexity emerged as the only most significant predictor ($\beta = 0.121$; $p < 0.01$) on effectiveness of the HRIS, which contributed about 16.3% ($\Delta R^2 = 0.163$, $F (1, 182) = 35.353$; $p < 0.01$) of variance in effectiveness of the HRIS. The results of the study indicate that, complexity emerged as the only most significant predictive of the effectiveness which contributed about 16.3% of variance in effectiveness

CONCLUSION
The research objective one was to assess the technological factors affect the implementation of the HRIS at the MMDAs in the Upper West Region. It was concluded that IT Infrastructure and Compatibility had a moderate level of acceptance as factors that affect the implementation of the HRIS whereas Quality Information, System Quality, and Complexity had a low level of acceptance. The study also concluded that Complexity, Quality Information, Compatibility, System Quality had correlation with the acceptance of the HRIS whereas IT infrastructure had no correlation with the acceptance of the HRIS. Lastly, it was concluded that IT Infrastructure, Complexity, Quality Information, Compatibility, System Quality had correlation with the Effectiveness of the HRIS. On the Stepwise Regression analysis carried out on the acceptance of the HRIS, the study concluded that, Complexity is the only influential factor on Acceptance. Also, the Stepwise Regression analysis carried out the effectiveness of the HRIS, the study concluded that, the most influential factors on effectiveness was only Complexity. On the Stepwise Regression analysis carried out on the acceptance of the HRIS, the study concluded that, Complexity is the only influential factor on Acceptance. Also, the Stepwise Regression analysis carried out the effectiveness of the HRIS, the study concluded that, the most influential factors on effectiveness was only Complexity.

RECOMMENDATION
The study recommends that, HRIS Software adopted and implemented at the LGS and its Agencies must be user friendly. The LGS and its Agencies do not have a guide that support new technology implementation such as the HRIS. Hence the need to adopt the guide offered in this study.

Contributions and Implications
Research in HRIS has appreciated as result of e-governments on various economies across the globe. Yet researchers are advocating for more research to exhume new findings in this field to enhance literature. In effect, the study was conducted to assess the implementation of then HRIS at the MMDAs in the Upper West Region of Ghana. Debatably, the researcher is unaware of any study conducted on the LGS HRIS in the study's context and this may be the first of its kind hence, will add value to existing literature in the field of HRIS. Methodologically, the research will contribute to the formulation of policies and regulations that will lead to the successful implementation of new technologies in the MMDAs. Practically, it will serve as a guide to guarantee the proper implementation of any new Information Technology at the MMDAs and beyond.

LIMITATIONS
There are some limitations to this study.
This study was a cross-sectional survey on the assessment of the implementation of the HRIS at the MMDAs in the Upper West Region. The study was carried out in Upper West Region of Ghana with respondents mainly from the MMDAs. The opinions gathered were mainly line mangers of the MMDAs hence non-managerial staff were not part of the survey. Therefore, more research should be carried out considering all employees of the MMDAs to have a holistic position to aid generalization of the findings.

Furthermore, the current study's findings may not apply to other MMDAs in Ghana owing to differences in geographical locations, cultural or institutional features, economic, workforce numbers, internal business operations and procedures, among other factors. As a result, more research must be carried out in other MMDAs embracing different theoretical models of measurement to get a deeper knowledge of the problem and to support generalisability of the study findings.

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