ADOPTION AND USE OF HUMAN RESOURCE INFORMATION SYSTEM (HRIS) WITH SPECIAL REFERENCE TO BANKING AND INSURANCE COMPANIES IN INDIA

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This is to certify that

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2. She was admitted for the PhD Programme through open advertisement, written test and viva-voce.
3. She has fulfilled all the prescribed/mandatory regulations under UGC (Minimum Standards and Procedure for Award of M.Phil./Ph.D Degrees) Regulations, 2018 for pursuing PhD Programme in Management.
4. She has also published research papers in the refereed journals which is mandatory prior to submission of PhD thesis under the said UGC Regulations 2018.

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DECLARATION

I, Moneswari Boro, hereby declare that the subject matter of this thesis is the record of work done by me, that the contents of this thesis did not form basis of the award of any previous degree to me or to do the best of my knowledge to anybody else, and that the thesis has not been submitted by me for any research degree in any other University/Institute.

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF GRAPHS

LIST OF FIGURES

LIST OF ABBREVIATIONS

Sl. No.	Acronym	Description
1	ABS	Abstract
2	ACIS	Australasian Conference on Information Systems
3	ADP	Automatic Data Processing, Inc.
4	AFHRL	Air Force Human Resource Laboratory
5	AGFI	Adjusted Goodness of Fit Index
6	AI	Aartificial Intelligence
7	AIA	American Insurance Association
8	AIG	American International Group
9	AIHR	Academy to Innovate HR
10	ANOVA	Analysis of Variance
11	API	Application Programming Interface
12	ATS	Applicant Management System
13	BMJ	British Medical Journal
14	BNP	Banque Nationale de Paris
15	BSC	Bahrain Shareholding Company
16	CFA	Confirmatory Factor Analysis
17	CFI	Comparative Fit Index
18	CODAP	Comprehensive Occupational Data Program
19	CRAN	Comprehensive R Archive Network
20	CSB	Catholic Syrian Bank
21	CSV	Comma-Separated Values
22	CTBC	China Trust Bank Company
23	CWTS	Center for Science and Technology Studies
24	DBS	Development Bank of Singapore
25	DC	District of Columbia
26	DCB	Development Credit Bank
27	DE	Descriptive or Descriptor Keywords
28	DOI	Digital Object Identifier
29	DPO	Data Processing Officer
30	DSS	Decision Support Systems
31	EE	Enterprise Edition
32	EECSI	Electrical Engineering and Computer Science, Indonesia.
33	ERP	Enterprise Resource Planning
34	FOSS	Free and Open Source Software
35	GFI	Goodness of Fit Index
36	GRH	Gestion des Ressources Humaines

37	HDFC	Housing Development Finance Corporation Limited
38	HDI	Hannover Re, Deutsche Bank and Iffco-Tokio
39	HR	Human Resources
40	HRIS	Human Resource Information System
41	HRM	Human Resource Management
42	HRMS	Human Resource Management System
43	HSBC	Hongkong and Shanghai Banking Corporation
44	IBM	International Business Machines Corporation
45	ICICI	Industrial Credit and Investment Corporation of India
46	ICITSI	Information Technology Systems and Innovation
47	ICRIIS	International Conference on Research and Innovation in Information Systems
48	IDBI	Industrial Development Bank of India
49	IDFC	Infrastructure Development Finance Company
50	IEEE	Institute of Electrical and Electronics Engineers
51	IFFCO	Indian Farmers Fertiliser Cooperative
52	IJLTEMAS	International Journal of Latest Technology in Engineering, Management & Applied Science
53	IOMA	The Institute of Management & Administration
54	IRDAI	Insurance Regulatory and Development Authority of India
55	ISSN	International Standard Serial Number
56	IT	Information Technology
57	JSC	Joint-Stock Company VTB Bank
58	KEB	Korea Exchange Bank
59	KMO	Kaiser-Meyer-Olkin
60	KMT	Krejcie and Morgan Table
61	LIC	Life Insurance Corporation of India
62	LMS	Learning Management System
63	MFI	McDonald Fit Index
64	MIS	Management Information System
65	MPRA	Munich Personal RePEc Archive
66	MRAN	Microsoft R Application Network
67	MS	Microsoft
68	MSA	Measure of Sampling Adequacy
69	MUFG	Mitsubishi UFJ Financial Group Bank, Limited
70	NBD	Emirates National Bank of Dubai
71	NERIST	North Eastern Regional Institute of Science and Technology
72	NFI	Bentler-Bonett Normed Fit Index

73	NJ	New Jersey, USA
74	NNFI	Bentler-Bonett Non-normed Fit Index
75	OA	Open Access
76	OAS	Open Access Sources
77	OBC	Oriental Bank of Commerce
78	OLAP	Online Analytical Processing
79	PGFI	Parsimony Goodness of Fit Index
80	PMC	PubMed Central
81	PNB	Punjab National Bank
82	PNFI	Parsimony Normed Fit Index
83	PQDT	ProQuest Dissertations & Theses
84	PRISMA	Preferred Reporting Items for Systematic Reviews and Meta-Analyses
85	PRS	Proof Reading Service
86	PSC	Public Shareholding Company
87	PT	Perseroan Terbatas
88	PWS	Pacific Western Systems
89	QBE	Quality, Excellence, and Beyond
90	RBI	Reserve Bank of India
91	RBL	Ratnakar Bank Limited
92	RFI	Bollen's Relative Fit Index
93	RMSEA	Root Mean Square Error of Approximation
94	RNI	Relative Noncentrality Index
95	ROI	Return on Investment
96	SAP	Systems, Applications, and Products in Data Processing
97	SBI	State Bank of India
98	SBM	State Bank of Mauritius Bank
99	SD	Standard Deviation
100	SEM	Structural Equation Modeling
101	SEML	Structural Equation Modeling in Jamovi
102	SHRM	Strategic Human Resource Management
103	SIGMIS	Special Interest Group on Management Information Systems
104	SLR	Systematic Literature Review
105	SME	Small and Medium-sized Enterprises
106	SPSS	Statistical Package for the Social Sciences
107	SQL	Structured Query Language
108	SRMR	Standardized Root Mean Residual
109	TBK	Terbuka

110	TLI	Tucker-Lewis Index
111	TPS	Transaction Processing Systems
112	TTF	Task Technology Fit
113	UCO	United Commercial Bank
114	UK	United Kingdom
115	URL	Uniform Resource Locator
116	USA	United States of America
117	UTAUT	Unified Theory of Acceptance and Use of Technology
118	VOS	Visualization of Similarity
119	VTB	Joint-Stock Company VTB Bank
120	WOS	Wholly Owned Subsidiary
121	WRI	World Congress on Computer Science and Information Engineering

CHAPTER 1
HUMAN RESOURCE INFORMATION SYSTEM (HRIS)

1.1 Introduction

In the era of challenging and evolving human resource management approach for organizational development, HRIS drives successful organizational learning, appreciable efficiency and above all sustainability (Oruh, 2013). Organizational management procedures have undergone a revolution as a result of the quick development of new concepts and technology. The efficiency of management procedures and increased technological knowledge, which are essential for improved managerial performance inside organisations, have been evaluated by a number of studies (Wilcox, 1997; Maund, 2001; Lippert and Swiercz 2005; Troshani et al., 2011).

HRM has recently shifted its focus on knowledge-sharing and strategic workforce analysis and has been increasingly evolving into a significant contributor in the strategic management of organisations (Peres and Abok, 2015). This shift is seen as an outcome of advent of HR technologies i.e., HRIS, which is believed to be a system of procedures and functions for acquiring, storing, manipulating, retrieving, analysing and disseminating pertinent information concerning organisational HR. To increase the effectiveness of HRM, organisations are becoming increasingly reliant on HRIS (Ball, 2001; Troshani et al., 2011). HRIS's core objective is to procure data, process this data to generate information and disseminate the same to its intended users for their specific purposes. With the growth in the number of employees and management objectives, different departments in an organisation now cannot afford to operate in isolation. They require sharing common information about one personnel employed in one department with another department of the organisation quite often. For instance, to prepare an employee's salary for a particular month, finance wing of the organisation would require inputs related to his/her attendance, overtimes, leaves, incentives, etc. from the HR department. This task would be hassle free only if an efficient HRIS is in place and being used efficiently. Today, HRIS would be more accurately viewed as a hybrid of several classical types of information systems. Along with office automation system (OAS) capabilities, current

HRIS include features of transaction processing systems (TPS), decision support systems (DSS), communication systems with elements of artificial intelligence (Kovach et al., 2002).

In order to efficiently carry out HR duties and address current and future issues of HR in today's knowledge-driven economy, HRIS have acquired a crucial role. Specialized information and expertise have emerged as a result of the expansion and development of organisational operations, necessitating the use of an information system (IS) for better data management. This system could make it possible to use the data for HRM purposes more effectively. In practical every organisation, the development of HRIS software is seen as essential for HR Departments (Aletaibi, 2016). The value of HRIS to organisations states that HRIS is an organization's "soul" and a key piece of intellectual property. Its contribution to the organization's achievement of its strategic goals cannot be disputed. From an organisational standpoint, HRM constantly aspires to use the most recent developments in HRIS, which will allow them to manage conventional processes utilising the most recent technology (Lee, 2008).

HRIS supports basic processes such as employee recruitment to termination, compensation, attendance, performance and succession planning, etc. (Kumar and Parumasur, 2013). HR practitioners recognise that information technology and information systems together can develop and facilitate better HRM programmes (Shiri, 2012). HRIS is normally used for two purposes: one for simple automation of HR processes for administrative advantage and the other use is for analytical decision making (Kovach and Cathcart, 1999). Payroll and benefits administration and the keeping of employee and absence records electronically was ‘unsophisticated’, because of its electronic replication of the contents of the HR department’s filing cabinet (Ball, 2001).

According to Chmeilecki (2012) "Futurists think one thing is certain - HR professionals will play a critical role in helping business organisations compete". Organisations started to electronically automate many of its daily operations by implementing HRIS in order to decrease the regular transaction and traditional HR tasks and to cope with the difficult transformational ones. Organizations' use of HRIS coincides

with a rising demand for HR to meet the changing expectations of HR managers (Floyd and Lane, 2000). As evidenced by several HR-related publications, interest in the development of HRIS has therefore been dependent on certain significant problems connected to its usage and acceptance (Strohmeier, 2007).

1.1.1 Background of the study

In the 21st century, the global economic crisis, a declining labour force, and the increasing use of technology in conducting corporate operations are just a few of the causes that have contributed to business uncertainty. These have an impact on HR managers who may soon face unforeseen challenges (Aletaibi, 2016). People and information, two crucial organisational resources, have a big impact on how well a corporation performs overall, thus managing both is essential for corporate success (Martinsons, 1994; Teo et. al., 2007). To generate and supply human resource functionality in order to automate and inform human resource management, human resource information systems (HRIS) may be thought of as a configuration of several interacting systems (Strohmeir and Kabst, 2009). The economy and the development of networks inside organisations are driven by knowledge, which places a premium on skilled, committed, and experienced workers. Additionally, it has ushered in a new era of human resource management (HRM), which has fueled the growth of analytic data processing. These are seen to be crucial in helping HRM managers meet the rising expectations placed on them. Similar to other organisational and industrial phenomena, HRM has profited from technical and knowledge advancements, which has resulted in the fusion of management and technological processes and the creation of HRIS (Aletaibi, 2016).

In many organisations, HR and IT are interlinked to each other especially those that are inclined to use them as strategic weapons to achieve a competitive advantage in the market (Powell and Dent, 1997). To improve organisational performance, HR managers are eager to take advantage of the synergy between these two crucial organisational assets. As a result, HRIS are seen as an essential instrument for ushering in

the new era of HRM. Similar to this, Armstrong (2006) found that HRIS can efficiently manage an organization's assets. Organizational managers and leaders value these resources because they enable them to accomplish the corporate goals of their particular organisations. Human resource management (HRM) and information systems are integrated through HRIS. Although these systems may operationally rely on centralised hardware resources, they are increasingly managed, supported, and maintained by a small number of IS professionals working inside the people department. Planning, administration, decision-making, and control are supported by HRIS. Applications including hiring and placement of employees, payroll, benefit and pension administration, intake and training predictions, career-pathing, equality monitoring, and productivity evaluation are supported by the system. These information systems boost administrative effectiveness and generate reports that can facilitate better decision-making (DeSanctis, 1986). Lee (2008) stated that HRIS and its contribution to the organization's achievement of its strategic goals cannot be disputed. From an organisational standpoint, HRM constantly aspires to use the most recent developments in HRIS, which allows them to manage conventional procedures utilising the most recent technology. Mejia et al., (2001) assert that HRM is concerned with overseeing personnel employed by a particular organisation. According to Theriou and Chatzoglou (2008), institutions and commercial companies only have access to one significant resource that may secure their success and survival in this difficult environment: the employees of that particular firm. Therefore, the goal of the desire to enhance HRM practises is to manage these individuals to get the best results.

Abu Tayeh (2010), emphasises that HRM determines how effective an organisation may be, HR practises have a significant impact on the entire performance of any organisation. The organization's overall performance will improve as the HR practices in planning become better. Integration of an IS and HR functions can increase the efficacy of HR services. Dessler (2011) emphasises the significance of HRM practises in organisations since they operate at a period of fast technological development, numerous global crises, and increased internal and external rivalry. Therefore, in order to

successfully handle the issues in information management, organisations must create superior HRIS. Mejia et al. (2001) assert that HRM is concerned with overseeing personnel employed by a particular organisation. Institutions and commercial companies only have access to one significant resource that may secure their success and survival in this difficult environment: the employees of that particular firm (Theriou and Chatzoglou, 2008). Therefore, the goal of the desire to enhance HRM practises is to manage these individuals to get the best results.

Similar to this, since 1990, the number of IT systems in various organisations has grown rapidly. The enormous rise of IT services is a direct outcome of the acceptance and popularity of IT tools and the Internet in every aspect of life. Positive effects of these phenomena include enhanced employee engagement, improved working environment, and increased worker productivity (Baloh and Trkman, 2003). Researchers and practitioners agree that HR managers play a crucial role in an organization's strategic growth and success when they serve as internal service providers (Rogers and Wright, 1998; Iwu et al., 2013). Organizational leaders and managers believe that IT is the sole instrument that can give their companies the necessary capabilities and efficiencies to give them a competitive edge (Tansley and Watson, 2000). This fact is recognised by HR managers, who are in charge of carrying out HR duties, and more attention is being paid to the adoption and usage of HRIS (Bokhari, 2005).

Furthermore, as HR is required to meet the changing expectations of HR managers, HRIS development inside organisations is accompanied by this requirement (Floyd and Lane, 2000). As evidenced by several HR-related publications, interest in the development of HRIS has therefore been dependent on certain significant problems connected to its usage and acceptance (Strohmeier, 2007). In many organisations, particularly those that are willing to employ them as strategic weapons to gain a competitive edge in the market, HR and IT are entwined (Powell and Dent, 1997). To improve organisational performance, HR managers are eager to take advantage of the synergy between these two crucial organisational assets.

As a result, HRIS are seen as an essential instrument for ushering in the new era of HRM. Similar to this, Armstrong (2006) found that HRIS can efficiently manage an organization's assets. Organizational managers and leaders value these resources because they enable them to accomplish the corporate goals of their particular organisations. Armstrong continued by saying that since an organisation is made up of many different individuals, improving the performance of any organisation depends on hiring these individuals, developing their various skills, enhancing their motivation to achieve higher levels of achievement, and assuring them that their levels of commitment will be maintained. According to Lee (2008), who evaluated the value of HRIS to organisations, HRIS is an organization's "soul" and a key piece of intellectual property. Its contribution to the organization's achievement of its strategic goals cannot be disputed. From an organisational standpoint, HRM constantly aspires to use the most recent developments in HRIS, which will allow them to manage conventional procedures utilising the most recent technology (Lee, 2008).

India, which is growing as a significant investor in IT, is seeing a number of changes in its IT sector. There may be a number of obstacles that prevent the successful adoption and deployment of HRIS in their organisations due to the expansion of IT in various public and government banks and insurance businesses. A unique opportunity to investigate the adoption and usage of HRIS and how it impacts the tasks of HR is provided by the recent application of IT in the HR Departments of public and private banks and insurance companies in India (Singh, 2017).

This study's main goal is to pinpoint the critical elements that influence the adoption and use of HRIS software and how these elements impact HRM operations in both public and private banks as well as insurance firms. These elements are extremely important for two reasons. The first provide a thorough analysis of the adoption and application of HRIS by banks and insurance firms. This is expected to provide people a greater grasp of HR procedures, the state of HRIS usage, and the benefits and challenges associated with HRIS installation. In order to change their HR Departments, a number of public and private banks and insurance organisations have decided to include IS into HR

responsibilities. Second, as government and these companies' administrations become more determined to update their HRIS, the proliferation of IS has prompted the need to analyse the costs and benefits of these applications, including how the system can affect the functions of HRM in public and private banks and insurance companies. The administration departments of banks and insurance firms need to be informed about the benefits and drawbacks of their investments in HRIS systems. In order to prepare their particular organisations for the effective and successful implementation of HRIS and to address any potential challenges, they need also be aware of the origins of its usage and acceptance.

This study focused only on the variables that affect the adoption of HRIS systems and how HRM functions may be impacted by their use, as seen through the eyes of the employees who work for both public and private banks and insurance organisations. The conceptual framework, which was created based on a survey of the literature, suggests that a number of antecedents have an impact on how HRIS applications are adopted and used at the organisational level. The study challenge, importance, and aims will thus be presented in depth in the next section.

1.2 Evolution of HRIS

Recent technological advancements in organisations have made it possible to originate self-service, interactive, and real-time information-based workplace. In recent years, increasingly complicated reporting and decision-making systems have replaced the automated employee record keeping of the 1960s in personnel information systems (DeSanctis, 1986). Today, managers and workers are taking on tasks that were formerly seen as the purview of administrative and human resource specialists. This marks a considerable departure from the past but also an increase in organisational performance as a whole. As a result, when given the power and the information needed to make decisions, both managers and staff react to developments more swiftly (Lengnick-Hall, 2002).

Use of technology in HR has expanded spectacularly and is continuing to change HR management activities with executives, managers, and employees, and has grown in popularity since 1960s (Nath and Satardekar, 2015). 60% of the Fortune 500 companies in late 90s used HRIS to support their daily HRM operations (Ball, 2001). HRIS has evolved from being a transactional HR management aid into a vital tool to deal with more complex HR management activities. In 1990s, 'social networking' was non-existent, and hence all the recruitment functions in HR relied upon newspaper advertisements and other publication mediums. But now in the presence of modern means of communication, social network plays a significant role in recruitments. It was in the late 1990s when SAP, PeopleSoft, and others gained popularity (Onlineitguru, Blog).

Table 1.1 below, demonstrate how the function of HRIS is evolving and improving over time.

Table 1.1: Evolution of HRIS

Phase & Era	Year	Emerging roles of HRIS	Representation
Phase I: Pre-World War II Era	Early 20th century	Record keeping	Reactive, caretaking action; outside of the core of business; maintenance of records and personnel care.
Phase II: Post-World War II Era	1945- 1960	Technology evolved to make preserving worker information easier.	Employee morale is crucial, people expenses are a component of operations, but they are still not commonplace, payroll automation is important, and the defence sector was one of the first to adopt mainframe computers for personnel management.
Phase III: Social Issues Era	1963- 1980	Development of MIS for HRM	Social concerns, new laws HR; additional paperwork and reporting requirements; employee protection; the arrival of IBM/360; and a greater integration of HR into daily activities.
Phase IV: Cost-effectiveness Era	1980-early 1990s	Transition to shopper server technologies from mainframe computers	The increasing government regulation of the 1980s increased HR's function and paperwork; the arrival of microcomputers and HR software boom; the cost of HRIS

			capabilities is falling, making it more accessible to smaller businesses; HR is now a component of the company strategy process; R&D for HR is being prioritised more, especially utility analysis.
Phase V: ERP and Strategic HRM	1990-2010	Due to technological advancements, businesses have switched from client-server to web-server browser technology.	Since the year 2000, the Human Resource Information System has included all operational HR operations such as recruiting and selection, learning and development, time management, compensation and benefit management, and performance management. The beauty of this generation of human resource information systems was that even workers could enter data and make updates to their personal information. Online portals assist in compiling personnel data in one location.
Phase VI: Technological Advancement Era	2010-present	"The cloud" and Mobile Technologies	Relationship between technology, strategy, and environmental realities. The shift to new technologies presents challenges for HR professionals.

(Source: Kavanagh et al. 2012; Johnson and Carlson, 2021)

Phase I

During the early 20th century, human resource management was termed as personnel management, and its sole purpose was documentation of employee information. Then personnel management was isolated from core organisational functions, like operations, marketing, accounting and finance, and research & development (Bhuiyan et al., 2014). During this period the concept of 'scientific management' had already come into existence and all the management efforts were directed towards enhancing the employee productivity. It is during this period when the price-rate wage system was seen as the best way to motivate employees to achieve higher productivity. In the absence of government intervention in enforcing conducive employment relations and employment

terms, cases of unsafe working conditions, child labour, and other such malpractices became common. There was no computer technology to automate employee record-keeping during those days, and hence all of that was done manually on paper. Paper record of employee information is still prevalent though (Kavanagh et al., 2012; Johnson and Carlson, 2021).

Phase II

After the World War II ended, the period of 1945-1960 marked the commencement of an era where managers realised the importance of employee productivity and motivation for their organisation's profitability. They recognised that employees were not motivated by money alone, but they were also motivated to perform better in expectations of recognition of work and other social and psychological factors (Kavanagh et al., 2012; Johnson and Carlson, 2021). It is during this phase when computers were introduced to facilitate storage and retrieval of employee information. Because of the growing number of people from military services had increased, need for a systematic classification of individuals on the basis of tasks, duties and experience was felt.

There emerged the term 'job description'. Job description was useful in improving the recruitment and selection process. The defence industry during this phase used computers to store and retrieve job analysis and classification data to plan better strategies. For example: the U.S. Air Force conducted a thorough and systematic job analysis and classification through its Air Force Human Resource Laboratory (AFHRL), which resulted in comprehensive occupational structure. The AFHRL collected data from thousands of airmen in jobs within the Air Force and through the use of computer software program called the Comprehensive Occupational Data Program (CODAP), it was able to more accurately establish a job description classification system for air force jobs (Kavanagh and Thite, 2009). Use of computers was still restricted to billing and inventory control, with very little focus on HR functions except for payroll. Large companies opted for HRIS to manage their work through HRIS and reap its benefits. But acquisition or in-

house development of the HRIS software was perceived too costly and hence they mostly preferred to outsource the task to professional vendors. Due to atrocities and abusive work practices prior World War II, employees started forming trade unions which helped them have a say during collective bargaining with the employers. Union- management bargaining over employment contracts dominated the activities of personnel department and these negotiations were not computer based (Kavanagh et al., 2012; Johnson and Carlson, 2021).

Phase III

The era spanning from 1963 to 1980 is occasionally known as the "age of social issues". During this time, there existed an unprecedented number of regulations related to labour that governed the employment relationships. Due importance was given to employee health and safety at workplace, abolition of discriminatory practices, retirement benefits and taxation. As a result, in order to comply with the legislation, a lot of data pertaining to recruitment, training, compensation, appraisal, of all the employees had to collected, analysed and stored for necessary future correspondence. This called for an updated and automatic system for data collection, analysis and reporting.

It was about this time that personnel departments were beginning to be called human resources departments and the field of human resource management was born. Fear of being penalised for unfair HR practices and the need to comply with the strict regulations prompted HR managers to consider effective and correct HR practices as the bottom line. This instigated the need for more recognised HR departments (Kavanagh et al., 2012; Johnson and Carlson, 2021). The managers looked at computer technology as an aid to solve management issues. HR managers' reliance on technology and rise in the number of software vendors led to the development of a comprehensive management information system (MIS) for HRM. Adoption of HRIS was further fuelled by increasing cost of HR management and decreasing cost of computer systems. But, adoption of HRIS was still very slow. So, the major issue at this time in the historical development of HRIS

was not the need or capabilities of technology, but how to best implement it (Kavanagh and Thite, 2009).

Phase IV

The years 1980 and early 1990s marked the beginning of stiff competition for the U.S. economy from emerging European and Asian economies. People started banking on automation of HR processes to save time and money. In addition, there was a growing realisation within management that people costs were a very significant part of their budgets. Some companies estimated that personnel costs were as high as 80% of their operating costs (Kavanagh and Thite, 2009).

Computers and computer-based HR systems became more affordable during this era, even for the small and medium size organisations. Management thinkers started believing in achieving more than automation of HR processes from these systems. They envisaged beyond transactional record keeping to transformational activities which could potentially add value to the organisation (Kavanagh et al., 2012; Johnson and Carlson, 2021).

Phase V

The year 1990 marked the emergence of strategic HRM. It was in the early 1990s when internet revolutionised the way people did business. Internet-enabled technological breakthroughs paved way for a business concept which knew no geographical boundaries. Business process re-engineering exercises became more common and frequent, with several initiatives, such as right sizing of employee numbers, reducing the layers of management, reducing the bureaucracy of organisational structures, autonomous work teams, and outsourcing (Kavanagh and Thite, 2009).

People management function became strategically important in contemporary business because it was now believed by managers worldwide that innovative and creative employees hold the key to sustainable competitive advantage. Human resource management now held strategic importance. These developments have led to the creation of the HR or workforce scorecard as well as added emphasis on return on investment (ROI) of the HR function and its programs (Thite et al., 2012). With the growing

importance and recognition of people and people management in contemporary organisation, strategic HRM (SHRM) became critically important in management thinking and practice (Kavanagh and Thite, 2009).

SHRM derived its theoretical significance from the resource-based view of the firm that treats human capital as a strategic asset and a competitive advantage in improving organisational performance (Becker and Huselid, 2006). The success of SHRM was contingent on several factors, such as national and organisational culture, size, industry type, occupational category and business strategy (Kavanagh and Thite, 2009). It is a fit between the HR architecture and the strategic capabilities and business processes that implement strategy that is the basis of HR's contribution to competitive advantage (Becker and Huselid, 2006). HRIS today plays significant role in human resource planning as a decision support system (DSS) and it is now being developed into an expert system (ES).

Phase VI

Over the past few years, the field of human resources (HR) has experienced significant changes driven by technology advancements and regulatory requirements. One notable development was the passing of the Patient Protection and Affordable Care Act in 2010, which introduced new healthcare regulations for organizations. Consequently, organizations had to adapt and implement various data requirements to ensure compliance with this act, leading to an increased demand for data management within organizations (Kavanagh et al., 2012; Johnson and Carlson, 2021).

Furthermore, HR technology has been rapidly evolving. Instead of relying on traditional enterprise resource planning (ERP) systems, organizations are increasingly adopting cloud-based HR systems. These modern systems are accessible through mobile devices and make use of machine learning, social networking, and Web 2.0 tools. This shift to new technologies presents challenges for HR professionals as they need to familiarize themselves with these tools and manage data distributed across different devices and platforms (Johnson and Carlson, 2021).

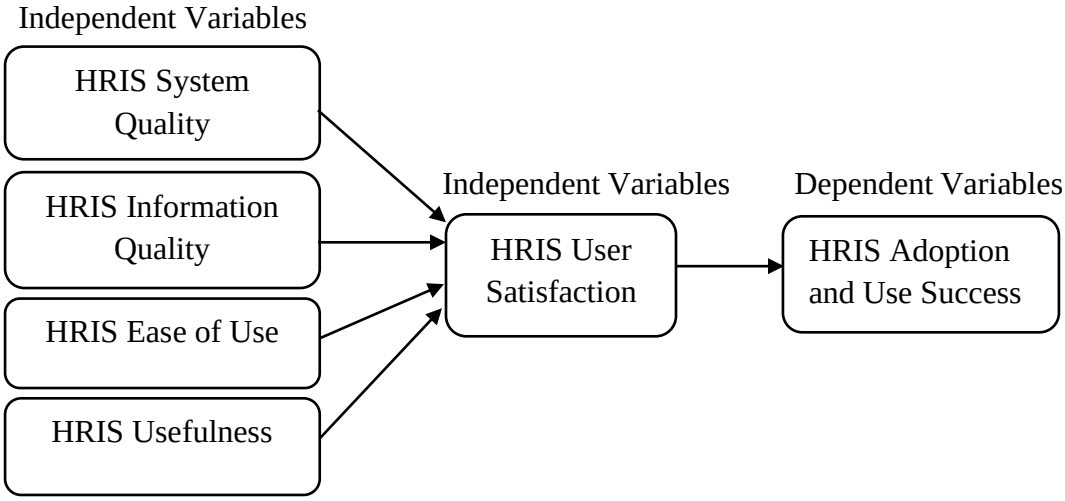
However, it is important to note that competitive advantage in HRM (human resource management) is not solely determined by having the best technology and strategy. Rather, it is the alignment between the organization's environment, technology, and strategic practices that ultimately leads to a competitive edge (Johnson and Carlson, 2021).

1.2.1 DeLone and McLean IS Success Model

One of the most often utilised models to describe IS effectiveness in various organisational setups was developed by DeLone and McLean in 1992. DeLone and McLean's (1992) model was designed primarily to decrease the number of factors that had been generated to explain the adoption and performance of HRIS. It was challenging to compare the findings of related research and to compile a comprehensive body of empirical information since there were so many distinct dimensions used to gauge the effectiveness of HRIS adoption (DeLone and McLean, 1992).

DeLone and McLean's (1992) assessment of other authors' IS research from 1981 to 1987 resulted in the development of the model, which served as the basis for the taxonomy of an IS success model. As illustrated in Figure 1, the model proposed six interconnected characteristics to gauge the effectiveness of IS: system quality, information quality, ease of use, HRIS usefulness, user satisfaction and HRIS adoption and use success. The six criteria are interrelated however system and information quality can have a combined or separate impact on user satisfaction and utilisation. Numerous scholars have examined HRIS adoption, acceptability, and success using the DeLone and McLean model since its creation in 1992 (Landrum and Prybutok, 2004; Hosnavi and Ramezan, 2010; Al-Shibly, 2011).

Figure 1.1: HRIS success model



(Source: Adopted from the DeLone and McLean, 1992)

The concept of information quality is used to assess the output of the IS, and it is often assessed by taking into account elements like originality, usefulness, clarity, dependability, readability, relevance, correctness, precision, completeness, and report format. The total effectiveness of IS tools is assessed using the system's quality by comparing it to factors including dependability, adaptability, job completion time, reaction time, resourcefulness, and simplicity of use. The "usage" construct is the one that is most frequently used to gauge an IS's effectiveness. The number of sessions the user spends using IS tools, the number of hours per day, the number of days per week, the number of reports generated, the cost of use, the frequency of the time spent and the number of functions used to complete a single task are some examples of the metrics used to measure this. Organizations that require the usage of the IS have reported having trouble assessing the "use" dimension. The quality of the system and the information become the less preferable options in such circumstances.

The perception of the HRIS's usefulness is an intriguing element because it is extremely individualised and needs to make sense to the employee. Together, these elements influence user satisfaction and ultimately the success of the HRIS. User satisfaction is therefore the most crucial component of the IS success model (DeLone and

McLean, 1992). User satisfaction is often calculated by building a multi-item scale and taking into account factors like users' degree of satisfaction with the result of the IS. Another component known as adoption and use success is utilised to gauge how much an IS user's utilisation has an influence on the organization's overall success. The efficacy of decisions, the amount of time spent making decisions; knowledge retention, learning and task efficiency are a few of the factors that are used to gauge an individual's influence.

The IS success model developed by DeLone and McLean (1992) has been widely applied, either in its original form or after being modified, to make significant contributions to the literature on HRIS success. DeLone and McLean (1992) came to the conclusion that information flows through a number of states from its production to its use or consumption to its effect on individual and/or organisational performance based on Shannon and Weaver's (1949) findings. The three-construct model developed by Shannon and Weaver (1949), which includes system quality at the technical level, information quality at the semantic level, and usage, user satisfaction, individual impact, and organisational impact at the effectiveness level. DeLone and McLean's (1992) approach was utilised by Rai, Lang, and Welker (2002) to analyse an organization's effective adoption of IS. Their findings bolster the contention made by DeLone and McLean (1992) that in order to explain adoption success, HRIS success models need be properly tailored to a particular situation.

DeLone and McLean (1992) were utilised by Shin (2003) to assess the impact of HRIS success on user satisfaction in a data warehouse in terms of system quality, information quality, and service quality. They demonstrated that the DeLone and McLean (1992) model is able to explain the efficacy of HRIS success using survey questionnaires and interviews with respondents. Thatcher and Oliver (2001) used product quality, manufacturing efficiency, and business productivity to examine the effects of technology expenditures on organisational performance. The conclusions of Thatcher and Olivers (2001) are thorough and explain whether IS investment enhances performance.

1.3 HRIS Software and applications

1.3.1 HRIS software

HRIS software is usually a relational database package created on certain programming language platform such as SQL, MS-Access, Oracle, JAVA, etc. Here the user input several detail pertaining to their employment, modify, retrieve, share and generate reports and use it to arrive at correct decisions based on the information available. HRIS software can be classified mainly into two types – a proprietary HRIS and an open source HRIS (Singh, 2017).

Proprietary HRIS

The term 'proprietary' is derived from the Latin word properties meaning property. A proprietary HRIS is software whose ownership is retained by the developer, be it an individual or a company. There are restrictions on its use, copying, distribution and its original source code is not disclosed for reference or modifications to anybody else. It is therefore, known as a closed-source software as well. Such HRIS is a copyright protected. The users of a proprietary HRIS or a commercial HRIS get the rights to use the software only after paying a license fee. These licenses are usually valid for a definite period of time only (Singh, 2017).

A proprietary HRIS further has two facets. Organisations with employees of high technical competency opt for developing their own HRIS. This suits their requirements because that way they can build an HRIS which is unique to their organisational system and can be customized according to the requirements any time. That organisation will not have to depend on services of third-party professional vendors. But not all organisations can be equally comfortable with in-house development of HRIS. Such firms, therefore, have to procure HRIS software from professional developers (Singh, 2017).

These HRIS vendors sell the HRIS software and charge fees for usage license and after-sales services. Proprietary HRIS being the first of its kind has enjoyed the first-mover's advantage in the HRIS market for years now and understandably possesses a significant market share. There are a number of proprietary HRIS vendors competing today on a global scale. Some of the more popular ones are SAP, PeopleSoft, ADP, Oracle, Lawson and Sage (IOMA, 002c) (Onlineitguru, Blog). These houses are known to bring

out an entire business enterprise solution; HRIS being one of those many solutions in the package.

Open Source HRIS

In the 1970s proprietary software was the only choice. The advent of free and open source (FOSS) software was due to the fact that modifications were not possible with proprietary software by other professional developers or users. Richard Stallman pioneered the open-source movement through his general public license model (in the 1980s), in which a software is allowed to be freely modified with a condition that if someone improves a FOSS software the developer should mention and highlight all those modifications to the open-source community (Pande and Gomes, 2012). Smaller firms in terms of number of employees and capital typically used general software applications such as Microsoft Excel and Microsoft Access to create customised applications to take care of their HRIS requirements. Most of the times these applications were stand-alone solutions with restricted or sometimes absolutely no integration into the larger HRIS (Hendrickson, 2003).

Unlike its proprietary counterpart a free and open source HRIS carries no license fee it is available as a free download and source code of the software is made available to the users. Users may download the source code and are free to modify it further for customisation. That way a scope of further improvement in the software is created. This gives the users a big reason to consider it as a deserving alternative to meet their HRIS needs. It is a popular choice for organisations that do not have internal expertise to consider ‘for-profit’ distribution of HRIS. This point finds even more relevance in a sluggish economic scenario. During the economic slowdown of 2001-2002, many IT staffs opted for open-source Linux over costly proprietary operating systems for their data centres (Arnold, 2007).

In proprietary HRIS, the buyer needs to purchase the complete package, irrespective of the fact that they might not be needing all of the built-in features. But unlike this counterpart, open-source vendors are now coming up with the idea of ‘add-on’

modules e.g., leave management module, time and attendance module, recruitment module etc. This implies that the buyers now pay only for the HRIS module which they intend to use. These way smaller firms need not purchase the entire software package and thereby can save money (People Managing People, Blog; Singh, 2017).

1.3.2 HRIS applications

HRIS applications are useful for assisting with important HR activities and projects. HRIS is made up of all the software programmes used to track and save information about personnel, their actions, and their productivity. Managers can use it to more effectively in order to use the organization's human resources (Harry, 2006). Any software programme that may meet a company's fundamental requirements for data storage and retrieval is available for purchase. However, HRIS, which consists of a sophisticated and complicated collection of software programmes with a number of linked modules to support the many HRM functions, cannot be categorised under the heading of these straightforward solutions (Vosburgh, 2007). Positive outcomes for an organisation may be replicated by systems that are completely created to be integrated with the knowledge and capabilities of HRM. Their primary responsibilities revolve around information dissemination, data processing, and analysis.

At the traditional level, also known as functional level, HRIS can keep track of information concerning applicant/employee qualifications and demographics, recruitment, professional development, performance evaluation, payroll, retention and attrition (Karikari et al., 2015). HRIS fulfils the requirements of many organisational stakeholders. Three groups typically make up the company's HRIS users: (1) HR experts, (2) managers in functional areas (production, marketing, engineering, etc.), and (3) workers (Anderson, 1997). In order to do their jobs (regulatory reporting and compliance, salary analysis, payroll, pension, and profit-sharing administration, skill inventory, benefits administration, etc.), HR professionals rely on the HRIS. As a result, even the most basic work functions are increasingly being completed by the HRIS for the HR professional. Functional managers anticipate that the HRIS will provide the capability

needed to help the unit achieve its goals and objectives as human capital plays a bigger part in competitive advantage. Additionally, managers rely on the HRIS's capacity to deliver improved data collection and analysis, particularly for performance management and assessment.

It also involves management training; resume processing, team and project management, skill testing, assessment, and development, recruiting, and retention (Fein, 2001). Ultimately, each employee starts using several HRIS programmes. Employee understanding of HRIS capabilities has risen as a result of the complexity of employee benefit options increasing and the accompanying requirement to monitor and adjust category selections more regularly. For the majority of employees, web-based access and self-service alternatives have made it easier to make changes and improved the usability of many benefit packages.

1.3.3 Functions of HRIS

There are several HRIS software and system types. All independent functionalities are a component of the system since an HRIS includes all HR-related functions. The below functions of HRIS have been use as independent variables in order to measure employees' attitude towards company's overall performance of HRIS (Vulpen, 2022). These features consist of:

(i) *Applicant Management System (ATS)*: This programme takes care of all the business' hiring requirements. It keeps track of applicant data and resumes, enabling recruiters to connect job vacancies with qualified applicants from the applicant pool of the business, and aids in directing the recruiting process (Vulpen, 2022; Aletaibi, 2016).

(ii) *Payroll*: The payroll system automates how employees are paid. This system is frequently used to input contractual data as well as information on new recruits, sometimes combining it with time and attendance data, and at the end of each month, payments orders are generated (Krishna and Bhaskar, 2011).

(iii) *Benefits management*: Benefits for employees are a crucial component of pay and are also controlled under this system. Employees have the option to choose the benefits they want in this situation. If one wants a more expensive business automobile, the other one might desire more paternity leave (Pande and Gomes, 2015; Krishna and Bhaskar, 2011).

(iv) *Time and Attendance*: Employees' time and attendance information is collected by this module. These are especially important for shift workers who clock in and out of their shifts. Employees used to frequently record their working hours on a sheet of paper in the past. The data would then be manually entered by the manager into a time tracking programme. Payment orders were created and distributed to all employees based on this data. Workers frequently use their fingerprints or cards that are synchronised with an HRIS to check in for work these days. This provides the precise arrival and departure times (Srinivasa, 2016; Krishna and Bhaskar, 2011).

(v) *Employee self-service*: Organizations are putting more and more emphasis on letting staff members and their immediate managers handle their own data. A request for a holiday can be made by the employee directly. These are instantly saved into the system after receiving approval (and registered to track for payroll and benefits purposes). Employees can update their personal information, examine pay scales, and submit leave applications in databases, but they are only given restricted access to these resources (Vulpen, 2022; Aletaibi, 2016).

(vi) *Training*: When it comes to personnel management, learning and growth are important components. This module enables HR to keep track of the employees' training, credentials, and abilities as well as a list of the courses the organisation offers to its employees. This module is frequently referred to Learning Management System (LMS). An LMS typically has accessible e-learning options as well as additional courses that employees may take (Aletaibi, 2016; Srinivasa, 2016).

1.4 HRIS Users

A contemporary HRIS is a system involving a set of computer hardware which runs the HRIS software, and it includes people who interact this duo and get their information requirements fulfilled (GreytHR, Blog). The various HRIS Users for the present study are mentioned below.

(I) **Managers:** HRIS provides a manager with data for performance management, recruiting and retention, team management, project management and employee development (Bedell et al., 2008). The HRIS must also provide the information necessary to help the functional manager make decisions that will contribute to the achievement of unit's strategic goals and objectives (Hendrickson, 2003). Easy access to accurate employee data enables the manager for each employee to view and engage in employee life cycle changes such as salary decisions, job requisitions, hiring, disciplinary actions, promotions and training program enrolment (Bedell et al., 2008).

(II) **Data processing officer:** The data processing officer (DPO) is responsible for the upkeep, management, and security of the whole bank information system, offline terminals, and to make sure that no external hard drives are connected to the system for security or secret reasons. DPO makes sure that every general ledger account is balanced at the end of the daily processing cycle (Baxter, 2016).

(III) **Internal auditor:** Information systems auditors and financial auditors are sub-positions that fall under the purview of internal auditors. Information systems auditor assesses information processing, disaster recovery plans, and data security for the bank (Baxter, 2016).

(IV) **Employees:** All the employees in an organisation may have an interface with the HRIS through a self-service web portal or secure kiosk, eliminating requirement of an HR clerk or staff member assisting with many routine HR record modifications (Bedell et al., 2008). Employees may log on to the system

using their personal user Ids and passwords to access and update information related to their employment in the organisation (GreytHR, Blog).

1.5 Features of HRIS

User-friendly: Depending on the technology that an organisation is already utilising Spreadsheets made in Excel will serve as the "HR software" for many expanding teams. User friendliness is nearly completely ignored in situations like these. Users virtually always risk destroying anything when they utilise something they have seen previously in a way that is utterly out of character for them. HR software must be user-friendly, both for those working in HR and for all other employees who will be using it (Aletaibi, 2016).

Reliability: Self-service, reporting, and automatic record keeping are all made possible by the HRIS. This can result in more accurate and current information management that boosts productivity and offers employees convenience and simplicity of use (Oracle India, Blog; Aletaibi, 2016).

Efficiency: Switching to an HRIS can help organisations avoid work overload, fatigue, or attrition instead of employing complicated paper-based processes or several, disjointed HR systems. With productivity and efficiency at the forefront of any HRIS, a contemporary human resource information system also continuously updates the solution in response to feedback or modifications in business regulations to fit the changing demands of HR teams, workers, and the employer (Freshworks, Blog)

Security: The protection of employee data privacy and security is one of the main issues with administering an HRIS. Numerous sensitive and private data sets are present in these systems, which must be safeguarded. Access to certain records and data is restricted under HRIS security (Aletaibi, 2016).

Clarity: Three primary kinds of access levels for the sake of clarity while using HRIS are (Technology Advice, Blog):

- Level 1: Ability to see, modify, and remove data throughout the whole tool at (Executive and Administrative access)

- Level 2: Possesses the ability to view, amend, and delete both personal data and data pertaining to subordinate employees. Possess the ability to view data throughout the whole tool. (Director and manager access)
- Level 3: Can access, read, modify, and delete personal data. It may examine contacts and records for the whole team. (Access by Representatives and Private Contributors)

Consistency: The correctness and consistency of the data are the definition of data integrity. It is simple for data integrity to be lost if a company is converting a manual system to an automated one during HRIS installation. The accuracy of multiple pieces of information can be compromised by a single inaccurate number or calculation. Throughout the installation phase, it's crucial to take the required precautions to protect data integrity. Simple data errors might significantly affect the workplace (Aletaibi, 2016).

Maintainability: To get the most out of HRIS systems, maintenance is a crucial but sometimes disregarded component. HRIS maintenance offers a continuous chance to solve current problems and requirements and raise the system's return on investment (ROI) for your business. You can correct these flaws by introducing the features that didn't fit your budget or arrive on time through routine HRIS maintenance (St-Jean, 2020).

Accuracy: Improved accuracy is likely assuming data are entered and manipulated correctly (Bruce, 2014). Information may be stored, retrieved, and reported with ease. In the programme, information became easily accessible. In a short period of time, more analysis was feasible. After the programme was launched, analysis, despite the dispersed locations and employees across the nation, became quite simple. Accurate dates were guaranteed.

1.6 Selected service sectors for the study- An Overview

There are three sectors in any economy. The primary sector includes extractive industries like mining, agriculture, and fishing. The secondary sector includes manufacturing, while the third sector is the tertiary sector (service sector). The service industry is one of the most competitive on the global scale due to major cost reductions

and advancements in the speed, dependability, and transmission of information today and in the future. The majority of jobs in India are in the service industry. The service sector includes - insurance, government, tourism, banking, retail, education, and social services. In the service sector, knowledge is more important than manual labour. As opposed to the industrial sector, which has less direct consumer contact than the service sector does, there is direct engagement between the external client and the employees (Mukherjee, 2013).

By encouraging Indians to save money and providing financing to Indian businesses, Indian banks and insurance companies have contributed significantly to the growth of the Indian economy. For the present study Indian banking sector and Indian insurance companies were selected.

1.6.1 The Indian financial services industry

Indian financial services industry encompasses a diverse range of organizations that manage money, including banks, insurance companies, asset management companies, credit card companies, consumer finance companies, stock brokerages, investment funds, and government-sponsored enterprises. This sector is highly developed in India, with top companies from the United Kingdom, United States, and other countries already active in India's financial markets, including Merrill Lynch, Oppenheimer, J.P. Morgan, Morgan Stanley, Grindlays, Standard Chartered, Hong Kong and Shanghai Banking Corporation, and others. Local financial institutions such as the Industrial Development Bank of India (IDBI), Industrial Credit and Investment Corporation of India (ICICI), Industrial Finance Corporation of India, Unit Trust of India, and the Shipping Credit and Investment Corporation of India have raised billions of dollars through advanced financial instruments like Deep Discount Bonds. The two main segments of the Indian financial services industry are banking and life insurance (Investopedia, 2021).

Indian Banking Sector

According to the Banking Regulation Act of India of 1949, “Banking is defined as the acceptance of deposits of money from the general public for the purposes of lending

or investing those funds, repayable on demand or otherwise, and withdrawn by check, draught, order, or other means". With the founding of the General Bank of India in 1786, one could argue that modern banking (i.e., in the form of joint-stock firms) had its origins in India (Bank Bazaar, 2021).

The Indian economy has benefited greatly from the efforts of Indian banks, which have encouraged a culture of saving among the populace and provided financing to the country's industries. The banking system in India is highly developed and was established by Indian entrepreneurs and visionaries before India gained independence. The purpose was to offer financial assistance to traders, farmers, and emerging Indian industrialists. Indian banks fall into three main categories: nationalized banks or public sector banks, private banks, and foreign banks (Mukherjee, 2013).

Public Sector Banks in India

In India, the bank has a crucial function in sustaining the entire economy, and it achieves this by effectively managing transaction records. Through government banks, individuals can efficiently conduct financial transactions. The Reserve Bank of India is an exemplary central bank that performs various tasks to regulate all other banks in India. Nevertheless, on 30th August 2019, the Finance Minister, Nirmala Sitharaman, announced the merger of multiple series of government banks in India. Consequently, many banks joined, resulting in India having 12 public sector banks. All public sector banks, also referred to as nationalized banks, have a government stake of over fifty percent (Economic Times, 2019). Below is a list of the twelve government banks.

Table 1.2: List of Public Sector Banks in India

Sl. No.	Name of the Bank	Sector	Year of Establishment
1	State bank of India	Govt.	1955
2	Punjab National Bank	Govt.	1894
3	Bank of Baroda	Govt.	1908
4	Bank of India	Govt.	1906
5	Bank of Maharashtra	Govt.	1935

6	Union Bank of India	Govt.	1919
7	Canara Bank	Govt.	1906
8	Central Bank of India	Govt.	1911
9	Indian Bank	Govt.	1907
10	Indian Overseas Bank	Govt.	1937
11	Punjab and Sind bank	Govt.	1908
12	UCO bank	Govt.	1943

(Source: https://m.rbi.org.in/scripts/bs_viewcontent.aspx?Id=3657)

Private Banks in India

When the Reserve Bank of India promoted the establishment of private banks as part of its objective of liberalising the Indian Banking Industry, the private sector banking in India gained a boost. Private Banks have been crucial to the growth of the Indian banking sector. They improved customer service and efficiency in banking. They have outpaced public sector banks in growth and continue to do so by leveraging new financial equipment and innovative services. The result has been that public sector banks have been shaken out of their complacency and compelled to up their game (Bhatt, 2022).

The Indian banking system comprises 21 privately owned banks which are listed below.

Table 1.3: List of Private Sector Banks in India

Sl. No.	Name of the Bank	Sector	Year of Establishment
1	Axis Bank	Private	1993
2	Bandhan Bank	Private	2015
3	CSB Bank	Private	1920
4	City Union Bank	Private	1904
5	DCB Bank	Private	1930
6	Dhanlaxmi Bank	Private	1927
7	Federal Bank	Private	1931
8	HDFC Bank	Private	1994
9	ICICI Bank	Private	1994
10	IndusInd Bank	Private	1964
11	IDFC FIRST Bank	Private	2015
12	Jammu & Kashmir Bank	Private	1938
13	Karnataka Bank	Private	1924
14	Karur Vysya Bank	Private	1916

15	Kotak Mahindra Bank	Private	2003
16	IDBI Bank	Private	1964
17	Nainital bank	Private	1922
18	RBL Bank	Private	1943
19	South Indian Bank	Private	1929
20	Tamilnad Mercantile Bank	Private	1921
21	YES Bank	Private	2004

(*Source: https://m.rbi.org.in/scripts/bs_viewcontent.aspx?Id=3657)*

Foreign Banks in India

A foreign bank refers to a financial establishment that offers financial services to customers residing outside its country of origin. A foreign bank branch can be described as an overseas bank that operates under the regulations and laws of both its home country and the country in which it is located. As per the information provided by the Reserve Bank of India (RBI), the number of foreign banks in India reached 45 by the year 2022 (Department of Financial Services).

The introduction of foreign banks to India has brought with it the latest technologies and banking practices, leading to increased competition and efficiency within the Indian banking system. To further expand the presence of foreign banks in India, the government has established a two-phase roadmap. The first phase, occurring between March 2005 and March 2009, allows foreign banks to establish a presence by creating a Wholly Owned Subsidiary (WOS) or converting existing branches into a WOS. The second phase, commenced on April 2009, that involved a review of the experiences gained in phase one, in consultation with all stakeholders in the banking sector. The review will address issues like national treatment to WOS, stake dilution, and permitting mergers and acquisitions of private sector banks in India by foreign banks. Major foreign banks currently active in India are listed below (Kashyap and Kumar, 2013).

Table 1.4: List of Foreign Banks in India

Sl. No.	Name of the Bank	Headquarters	No. of Banking Branches (in India)
1	AB Bank Ltd.	Dhaka, Bangladesh	1
2	Abu Dhabi Commercial Bank Ltd	Abu Dhabi, United Arab Emirates	1
3	American Express Banking Corporation	New York, USA	1
4	Australia and New Zealand Banking Group Ltd.	Melbourne, Australia	3
5	Barclays Bank	London, United Kingdom	3
6	Bank of America	Charlotte, North Carolina, United States	4
7	Bank of Bahrain & Kuwait BSC	Manama, Bahrain	4
8	Bank of Ceylon	Colombo, Sri Lanka	1
9	Bank of China	Beijing, China	1
10	Bank of Nova Scotia	Toronto, Canada	2
11	BNP Paribas	Paris, France	5
12	Citibank N. A	New York, United States	35
13	Corporative Rabobank	Utrecht, Netherlands	1
14	Credit Agricole Corporate & Investment Bank	Paris, France	5
15	Credit Suisse A. G	Zürich, Switzerland	1
16	CTBC Bank Co. Ltd.	Nangang District, Taipei, Taiwan	2
17	DBS Bank India Limited	Singapore	**
18	Deutsche Bank	Frankfurt, Germany	17
19	Doha Bank	Doha, Qatar	3
20	Emirates Bank NBD	Dubai, United Arab Emirates	1
21	First Abu Dhabi Bank	Abu Dhabi, United Arab Emirates	1
22	FirstRand Bank Ltd	Johannesburg, South Africa	1
23	HSBC Ltd	London, England, UK	26
24	Industrial & Commercial Bank of China Ltd.	Xicheng District, Beijing, China	1
25	Industrial Bank of Korea	Jung-gu, Seoul, South Korea	1
26	J.P. Morgan Chase Bank N.A.	New York, USA	4
27	JSC VTB Bank	Moscow, Russia	1
28	KEB Hana Bank	Seoul, South Korea	2
29	Kookmin Bank	Seoul, South Korea	1

30	Krung Thai Bank Public Co. Ltd.	Watthana, Bangkok, Thailand	1
31	Mashreq Bank PSC	Dubai, United Arab Emirates	1
32	Mizuho Bank Ltd.	Chiyoda City, Tokyo, Japan	5
33	MUFG Bank, Ltd.	Chiyoda City, Tokyo, Japan	5
34	NatWest Markets Plc	London, United Kingdom	1
35	PT Bank Maybank Indonesia TBK	Senayan, Jakarta, Indonesia	1
36	Qatar National Bank (Q.P.S.C.)	Doha, Qatar	1
37	Sberbank	Moscow, Russia	1
38	SBM Bank (India) Limited	Port Louis, Mauritius	**
39	Shinhan Bank	Jung-gu, Seoul, South Korea	6
40	Societe Generale	Paris, France	2
41	Sonali Bank Ltd.	Dhaka, Bangladesh	2
42	Standard Chartered Bank	London, England, UK	100
43	Sumitomo Mitsui Banking Corporation	Chiyoda City, Tokyo, Japan	3
44	United Overseas Bank Ltd	Singapore	1
45	Woori Bank	Jung-gu, Seoul, South Korea	3

(Source: https://m.rbi.org.in/scripts/bs_viewcontent.aspx?Id=3657)

***Note**: ** SBM Bank (India) Limited, a subsidiary of SBM Group, and DBS Bank India Limited, a subsidiary of DBS Bank Ltd., were granted licenses on December 6, 2017, and October 4, 2018, respectively, to conduct banking operations in India through the Wholly Owned Subsidiary (WOS) mode. They began operating as WOS from December 1, 2018, and March 1, 2019, respectively (Department of Financial Services).*

Standard Chartered Bank, a financial institution based in London, England, is a British multinational banking and financial services company. As stated by the Reserve Bank of India, Standard Chartered Bank holds the position of being among the largest foreign banks operating in India. The inception of Citibank traces back to 1812 when the City Bank of New York commenced its operations in New York, USA. This marked the initial stage of what would eventually evolve into Citibank. In 1902, Citibank extended its presence to India, aiming to offer a comprehensive range of services to its customers, including banking, investment, consulting, risk management, and transaction services (Forbes, 2021).

HSBC Bank India, a subsidiary fully owned by The Hong Kong and Shanghai Banking Corporation, operates in Mumbai and offers an extensive array of financial

services and products. These encompass retail banking, personal banking, debit and credit cards, loans, and foreign exchange facilities. Deutsche Bank originated in Frankfurt, Germany, and was initially established in Mumbai, India, which is known as the financial center of the country. Since its establishment in 1980, the Indian subsidiary of the bank has grown and extended its presence across various regions in India. Presently, Deutsche Bank operates in 17 different locations throughout the country and serves a notable customer base of 5 lakh customers (HSBC, 2022).

Indian Insurance Companies

In India, there are three main types of insurance companies: those that provide *life insurance*, those that provide *health insurance*, and those that provide *general insurance*. The insurance industry in India has evolved over time, largely influenced by other countries, particularly England (Department of Financial Services).

Life Insurance

Life Insurance refers to an agreement made between an individual who holds an insurance policy and an insurance company. The insurer undertakes to pay a specified amount of money to the policyholder in exchange for a premium, either after a fixed duration or upon the death of the insured individual. Essentially, there exists just a solitary state-owned life insurance corporation, which is LIC (Nena, 2013).

The following is a roster of life insurance companies in India, encompassing both publicly-owned and privately-owned insurance providers.

Table 1.5: List of publicly-owned and privately-owned insurance providers.

Sl. No.	Name of Insurance company	Sector	Year of Establishment
1	Life Insurance Corporation	Public	1956
2	AVIVA Life Insurance Co. India Ltd.	Private	2002
3	Aegon Life Insurance Co. Ltd	Private	2008
4	Aditya Birla Sun life Insurance Co. Ltd.	Private	2000
5	AGEAS Federal Life Insurance Company Limited	Private	2008
6	Bharti AXA Life Insurance Co. Ltd.	Private	2006
7	Bajaj Allianz Life Insurance Co. Ltd.	Private	2001

8	Canara HSBC Oriental Bank of Commerce Life Insurance Company Limited	Private	2008
9	Pramerica Life Insurance Limited	Private	2008
10	Edelweiss Tokio Life Insurance Co. Ltd.	Private	2011
11	Exide Life Insurance Company Limited	Private	2000
12	Future Generali India Life Insurance Co. Ltd	Private	2007
13	HDFC Life Insurance Co. Ltd	Private	2000
14	ICICI Prudential Life Insurance Co. Ltd	Private	2001
15	IndiaFirst Life Insurance Company Limited	Private	2010
16	Kotak Mahindra Life Insurance Company Limited	Private	2001
17	Max Life Insurance Co. Ltd	Private	2001
18	PNB Metlife Insurance Co. Ltd.	Private	2001
19	Sahara India Life Insurance Co. Ltd.	Private	2004
20	SBI Life Insurance Co. Ltd.	Private	2001
21	Shriram Life Insurance Co. Ltd.	Private	2005
22	Star Union dai-ichi Life Insurance Co. Ltd.	Private	2009
23	TATA-AIA Life Insurance Co. Ltd.	Private	2001
24	Reliance Nippon Life Insurance Company Ltd.	Private	2001

(Source: https://irdai.gov.in/list-of-life-insurers)

General Insurance

General insurance refers to insurance contracts other than those related to life insurance. It covers various areas such as fire, marine, motor, accident, and other types of non-life insurance (Gupta, 2021; Rao & Pandey, 2013). Below is a list of private and public insurance companies in India that offer general insurance.

Table 1.6: List of Public and Private General Insurance Providers

Sl. No.	Name of Insurance company	Sector	Year of Establishment
1	National Insurance Co. Ltd.	Public	1906
2	The New India Assurance Co. Ltd	Public	1919
3	The Oriental Insurance Co. Ltd.	Public	1947
4	United India Insurance Co. Ltd.	Public	1938
5	Acko General Insurance Limited	Private	2016
6	Bajaj Allianz General Insurance Co Ltd	Private	2001
7	Bharti AXA General Insurance Co Ltd	Private	2007
8	Cholamandalam MS General Insurance	Private	2001
9	Edelweiss General Insurance Co Ltd	Private	2016
10	Future Generali India Insurance Co Ltd	Private	2007

11	Go Digit General Insurance Limited	Private	2016
12	HDFC Ergo General Insurance Co Ltd	Private	2002
13	ICICI Lombard General Insurance Co Ltd	Private	2000
14	IFFCO-Tokio General Insurance Co Ltd	Private	2000
15	Kotak Mahindra General Insurance Co Ltd	Private	2015
16	Liberty General Insurance Ltd	Private	2013
17	Magma HDI General Insurance Co Ltd	Private	2009
18	Navi General Insurance Ltd	Private	2016
19	Raheja QBE General Insurance Co Ltd	Private	2008
20	Reliance General Insurance Co Ltd	Private	2000
21	Royal Sundaram General Insurance Co Ltd	Private	2001
22	SBI General Insurance Co Ltd	Private	2009
23	Shriram General Insurance Co Ltd	Private	2008
24	Tata AIG General Insurance Co Ltd	Private	2001
25	Universal Sompo General Insurance Co Ltd	Private	2007

(*Source: https://irdai.gov.in/list-of-life-insurers)*

Health Insurance Company

Health insurance is a type of insurance that provides coverage for an individual's medical and surgical expenses. It either pays the healthcare provider directly or reimburses the insured person for expenses related to illness or injury. In certain circumstances, health insurance policyholders can receive medical care from network hospitals and clinics without having to pay anything out of their own pockets. In addition, health insurance plans also provide other advantages such as coverage for pre and post hospitalization expenses, reimbursement for daycare expenses, and attractive yearly tax benefits (Binny and Gupta, 2017).

Table 1.7: List of Private Health Insurance Providers

Sl. No.	Name of Insurance company	Sector	Year of Establishment
1	Aditya Birla Health Insurance Co. Ltd.	Private	2015
2	Care Health Insurance Ltd	Private	2012
3	Manipal Cigna TTK Health Insurance Co. Ltd.	Private	2014
4	Niva Bupa Health Insurance Co. Ltd.	Private	2008
5	Star Health & Allied Insurance Co. Ltd.	Private	2006

(*Source: https://irdai.gov.in/list-of-life-insurers)*

Selected Banking and Insurance companies for the study

In recent times, mergers and amalgamation have become increasingly common in the Indian banking industry, especially among public sector banks. The banks that have undergone mergers now function as integrated entities within the anchoring banks. The customers of the merged banks have been treated as customers of the anchor banks into which they have merged. Over the past five years, several mergers involving public sector banks have taken place. For instance, in 2017, the State Bank of India, the country's largest public lender, acquired five of its associate banks and Bharatiya Mahila Bank. In 2014, Kotak Mahindra Bank merged with ING Vysya Bank, and in 2008, HDFC Bank merged with Centurion Bank of Punjab Ltd. The merger of State Bank of India and its associate banks commenced with the merger of its subsidiary, State Bank of Saurashtra, on August 13, 2008. Subsequently, the State Bank of Indore was consolidated with the State Bank of India on August 27, 2010. The remaining subsidiaries, namely State Bank of Bikaner and Jaipur, State Bank of Hyderabad, State Bank of Mysore, State Bank of Patiala, State Bank of Travancore, and Bharatiya Mahila Bank, were merged with the State Bank of India, effective from April 1, 2017. Vijaya Bank and Dena Bank were merged into Bank of Baroda in 2018. As of January 2019, IDBI Bank was reclassified as a privately managed bank.

The Central Government of India has announced the merger of several public sector banks in order to enhance the effectiveness of the banking system. On March 4, 2020, the consolidation of Public Sector Banks was approved by the Union cabinet, with the effective date set as April 1, 2020. As part of this initiative, the Oriental Bank of Commerce (OBC) and United Bank of India were amalgamated into Punjab National Bank (PNB), Syndicate Bank merged with Canara Bank, Andhra Bank and Corporation Bank merged with Union Bank of India, and Allahabad Bank merged with Indian Bank. Prior to this, in January 2019, the cabinet had approved the unification of Vijaya Bank, Dena Bank with Bank of Baroda. The data were collected from top ten companies of each service sector and are as following: -

Table 1.8: Top Ten Companies of each financial sector

Service Industry (Category)	Public	Private
Insurance	1. Life Insurance Corporation of India 2. Agriculture Insurance Company of India 3. National Insurance Company of India 4. New India Assurance 5. The Oriental Insurance company 6. United India Insurance company 7. General Insurance Corporation of India	1. HDFC Standard Life Insurance Co. Ltd. 2. Max Life Insurance Co. Ltd. 3. ICICI Prudential Life Insurance Co. Ltd. 4. Kotak Mahindra Life Insurance Co. Ltd. 5. Aditya Birla Sun Life Insurance Co. Ltd. 6. TATA AIA Life Insurance Co. Ltd. 7. SBI Life Insurance Co. Ltd. 8. Exide Life Insurance Co. Ltd. 9. Bajaj Allianz Life Insurance Co. Ltd. 10. PNB MetLife India Insurance Co. Ltd.
Banking	1. State Bank of India 2. Bank of Baroda 3. Punjab National Bank 4. Canara Bank 5. Bank of India 6. Union Bank of India 7. Central Bank of India 8. Indian Bank	1. HDFC Bank 2.ICICI Bank 3. Axis Bank 4. Kotak Mahindra Bank 5. Yes Bank 6. Federal Bank 7. IndusInd Bank 8. RBL Bank 9. Karur Vysya Bank 10. Bandhan Bank

Sources:

1. https://m.rbi.org.in/scripts/bs_viewcontent.aspx?Id=3657
2. https://financialservices.gov.in/insurance-divisions/Public-Sector-Insurance-Companies
3. https://irdai.gov.in/list-of-life-insurers
4. https://www.mapsofindia.com/my-india/business/top-10-largest-public-sector-banks-in-india-2019#

Table 1.8 shows insurance companies that are selected as per the list given by Insurance Regulatory and Development Authority (IRDA). All the public and private banks which are selected for the study are listed under Reserve Bank of India (RBI) and are ranked as per their economic performance as per RBI Bulletin Sept., 2019.

The banks and insurance companies selected may change in the near future as the environment of banking and insurance is highly dynamic. Currently, mega mergers are taking place. Therefore, banks selected for the study may change but the top ten banks will remain. Similarly, the case may take place for insurance companies also.

1.6.2 Role of HRIS in Banking and Insurance sector

Information systems and information technology (IT) are now the most important components of any organisation (Troshani et al., 2011; Bal et al., 2013). Because of this, it appears difficult for any organisation to operate without them. In fact, in order to maintain its high quality and raise their success rate, both public and private organisations have made significant financial investments in this field, particularly in areas like computer hardware and software (Seddon et al., 2002). It has become a crucial component of development in all contemporary fields that demand improvement, therefore the amount of money and effort invested in its development and implementation is vital (Al-Gahtani, 2003).

In order to accomplish the goals of the HR, the human resource information system has established itself as a crucial multidisciplinary instrument. In handling financial services and maintaining organised records in the database, the HRIS is crucial. Additionally, it guarantees the financial sectors' high level of security and dependability (Rahman et al., 2016). The banking industry contributes significantly to the country's economy and serves as its foundation. The bank provides a range of financial services, including credit and deposits for the right consumers. Banking organisations have to handle a lot of transactions, most of which are drawn-out and complicated (Troshani et al., 2011).

Customers expect transactions to be completed quickly so they may utilise their money with ease. By offering the safe databases to access the information, the HRIS system enables the bank to complete a lot of transactions in a relatively short period of time. The HRIS databases created for the banks encompass every facet of client identification and demand analysis. Information is kept secure throughout banking operations with the aid of the customer database and services offered to account holders. According to earlier researches, the HRIS primarily concentrates the many ratios and indices used in banking operations (Rahman et al., 2016).

1.6.3 Advantages of HRIS adoption in financial service industry

In today's rapidly changing work landscape, where remote work is becoming increasingly necessary, technological advancements are crucial, and employees require constant adaptation to effective strategies and workflows, it is essential to stay alert and responsive. If a bank desires to maintain the effectiveness and enthusiasm of its employees, the HR department will be responsible for various tasks, starting from recruitment and orientation to engagement and departure. To accomplish this, implementing an appropriate HR management system (HRMS) can greatly facilitate the process. Once the HRMS is in place, numerous tasks can be automated and streamlined for greater efficiency (Singh et al., 2011; Al-Qatawneh, 2012; Tuteja et al., 2019).

The implementation of HRMS in the banking industry enables efficient and automated management of all HR processes, eliminating the need for manual interventions. HRMS proves to be a valuable asset not only in banking but also in other industries that require effective handling of a substantial workforce. Below are some of the major advantages of adopting HRIS in banking sector found from various articles e.g., GreytHR, Pocket HRMS, Embee and Open HRMS.

1. *Data storage*: Banks have variously sized branches and multiple departments tailored to each location's needs. Consequently, both the HR department and employees require a wealth of information regularly to efficiently carry out their work. Traditional paper-based documents are outdated, and spreadsheets are no

longer practical for larger organizations that are rapidly expanding. To address these documentation challenges, a centralized document repository offers the ideal solution for banks. By digitizing and storing documents in a single location, it becomes effortless for individuals to access the necessary information when needed. Additionally, HR can establish different levels of access permissions, thereby streamlining the documentation process and ensuring the security of information and assets.

2. *Genuine mechanism*: The HRMS system gathers and analyzes data, ensuring precise payroll calculations without any mistakes. The automated process is the key factor responsible for achieving such accurate and essential results. Therefore, organizations can now obtain reliable and indisputable information about their employees.
3. *Technology oriented*: With the aid of technology, communication has become incredibly convenient, even for individuals who are not physically in close proximity. Distance is no longer an obstacle when it comes to exchanging information. Furthermore, employees deployed in remote locations can stay connected through a self-service portal, which also facilitates remote applications for reimbursements and leaves. As a result, technology has played a crucial role in enabling us to redefine ourselves and revolutionize the entire business workflow.
4. *Error elimination*: Process automation is a key advantage offered by an HRMS, providing numerous benefits. Through thorough research and effective implementation, an HRMS can automate a wide range of tasks associated with payroll management and filing. This automation not only saves time but also reduces the occurrence of common errors like inaccurate salary calculations, duplicate credits, overlooked deductions, and more. Such errors can result in financial losses for small companies.

1.7 Key conceptual definitions

Using a programme called Human Resource Information Systems (HRIS), the HR professional to offer a quicker, higher-quality, seamlessly integrated service, thereby assisting the company in gaining a strategic edge. There are a number of definitions provided for HRIS.

Table 1.9: Authors definitions of HRIS

Sl. No.	Author	Year	Definitions
1.	Tannenbaum	1990	"Technology-based system used to acquire, store, manipulate, analyze, retrieve and distribute pertinent information regarding an organization's human resources."
2.	Broderick & Boudreau	1992	**"**A composite of database, computer applications, hardware and software necessary to collect/record, store, manage, deliver, present, and manipulate data for human resources".
3.	Walker	1993	"A computer-based method for collecting, storing, maintaining, retrieving and validating certain data needed by an organization about its employees, applicants and former employees."
4.	Kovach et al.	2002	A well-known method for keeping, storing, gathering, and retrieving data on an organisation is employed by this system. The system handles organisational functions and HR aspects
5.	Hendrickson	2003	"An HRIS is not only limited to the computer hardware and software applications that comprise the technical part of the system it also includes the people, policies, procedures, and data required to manage the HR function."
6.	Nagendra & Deshpande	2013	"HRIS is a system used to acquire, store, manipulate, analyze retrieve and distribute information related to human resources. HRIS contributes to human resource administration functions of an organization. HRIS deals with employees' personal data, which is sensitive; it should ensure data security while transferring information."

(Source: Secondary data)

1.7.1 Selected variables for the study

In research, investigators frequently aim to determine the impact and manner in which an independent variable causes changes in other variables. When examining the connections among elements of a study, researchers commonly seek to identify the factors that prompt changes in the dependent variable and the manner in which they do so. Independent variables have the ability to influence dependent variables, whereas the reverse relationship does not hold true.

Independent variables: An independent variable that remains unaffected by the other measured variables or factors (Cramer et al., 2004; Penslar et al., 2010).
Dependent variables: A variable that is dependent on and can be influenced by other measured factors (Cramer et al., 2004; Penslar et al., 2010).

Table 1.10: List of variables

Sl. No.	Independent variables	Dependent variables
1	Characteristics of HRIS implemented ● Features of HRIS ● Employee self-service ● Payroll process through HRIS ● Training and learning HRIS	Adoption of HRIS
2	User-satisfaction ● Towards work using HRIS ● Towards service quality	Use of HRIS
3	Information quality	
4	Subjective norms	
5	Comparison of HRIS and Manual HR practices	

(Source: Author's compilation)

1.8 Significance and scope of the study

Today's world of business and economies around the world are deeply interrelated. As many businesses need to take a global view on their operations rather than a local or regional information systems that they use have to be designed in order to meet the needs of global business processes adequately. Human Resources Information Systems (HRIS)

is no exception to this. A global company needs to have an HRIS in place that functions properly in all its branches across the global, meaning that these systems should meet needs of users in different political, economical and cultural settings. This is a major challenge for many global companies.

Boateng (2007) revealed that HR professionals not only consider HRIS usage as a support for strategic HR tasks but also perceive it as an enabling technology. The study also indicates that large firms are most likely to experience considerable HRIS usage in support of strategic HR tasks. Moreover, there was no significant difference in proportion to the size of a company regarding HRIS usage in support of commitment management and managing trade union relations with organisations.

Globalisation, increased competition, fast changing technology, rising costs, mergers and acquisitions, retaining top performers, employee relationship management, the heightened demand for communication via multiple electronic communication channels, in addition to traditional print formats; are forcing the employers and employees to align HR strategies and functions with company's overall goals. Having a global scope is no longer a competitive advantage; it is now a necessary component of doing business. Information management is the key to employee productivity, competitive strength and corporate excellence. Therefore, the shift from industrial society to information society is desirable in the developed world. HRIS provides solution for all these challenges.

Most of the Indian organisations which have implemented HRIS system by spending huge amount on the purchase of software are not able to get the desired results as were originally designed and perceived at the time of making a case for the purchase of HRIS. Therefore, a need arises to explore the adoption and use of HRIS in companies so that employer and employees should know the use and actual benefits of implementing HRIS.

1.9 Research gap

Upon reviewing the existing literature on HRIS (Human Resource Information Systems), it is evident that there is a lack of systematic research comparing the adoption

and usage of HRIS in both public and private sector service industries. While there have been studies on various aspects of HR such as strategies and management, there is a significant gap in understanding the adoption and utilization of HRIS.

As Internet technology continues to permeate every aspect of our lives, professionals are increasingly concerned about their career growth and have higher expectations. Employers have a responsibility to assist their employees in defining clear career and development plans, which can be facilitated through an effective HRIS. It is crucial to investigate the adoption and usage of HRIS in the banking and insurance sectors, both in the public and private domains.

The global competition in these industries has led to experienced professionals frequently leaving their current organizations in search of more lucrative opportunities. Indian service industries face the constant threat of losing their experienced personnel due to factors like relatively lower salaries and unfavourable working environments. Hence, organizations must develop robust HR policies and strategies for talent management, utilizing HRIS to its full potential.

Therefore, this study aims to examine the adoption, usage, and satisfaction levels of HRIS among employees and employers in various public and private banking and insurance companies in India. By addressing these issues and filling the gaps in knowledge, it is anticipated that overall employee performance will improve, ultimately contributing to the achievement of organizational goals. The study will assess the effectiveness and technical advantages of HRIS specifically within this sector.

1.10 Research Design

1.10.1 Statement of the problem

People are the most important organisational asset. An organisation's people define its character, affect its capacity to perform and represent the knowledge-base of the organisation. One of the major problems faced by many organisations in today's fast paced market is how to grasp and retain workforce that is of the best calibre. In the highly

competitive business environment, the best talent quickly gets swept up by employers eager to strengthen the quality and efficacy of their employees.

Employees touch every aspect of the business as they are the most valuable asset in any organisation. It's time to automate HR operations and human capital management system to support all the employee interactions. From recruitment to retirement, from stable economies to rapidly changing environments, one need to track, manage and analyse employee programs, policies and cost. With HRIS in place the organisation can effectively and economically streamline human resource processes across organisations entire operation, saving money and increasing employee morale. Using HRIS software, one can have total control over the entire human resource management cycle. From human capital management to employee performance and talent management systems to planning and scheduling software, the organisation will have full insight into every aspect of employee management.

Introducing new technology into the workplace presents both opportunities and challenges. Human Resource Information System (HRIS) has the potential to transform HR into a more efficient and strategic function by allowing HR to move beyond simple administrative tasks to strategic applications. However, while HRIS are the norm rather than the exception in national organisations, HR has not transformed (David, 2009). Globalization is forcing HR to expand its horizons, perspectives and use of technology. This has led to the information of global HRIS in a number of multinational organisations and different HRIS opportunities and challenges have emerged.

1.10.2 Objectives of the study

The primary objective of this research is to examine the adoption and use of HRIS (Human Resource Information Systems) and its potential impact on the overall effectiveness of financial sectors specially banking and Insurance. In order to accomplish this aim, the study aims to attain the following specific objectives:

1. To study the current level of use and adoption of HRIS in banking and insurance sector.

2. To examine the appropriate dimensions of HRIS that influences the use and adoption of HRIS.
3. To propose a conceptual HRIS framework for examining the adoption and use of HRIS.
4. To test empirically the proposed conceptual framework of HRIS.
5. To identify the problem areas and difficulties in the adoption and use of HRIS.

1.10.3 Hypotheses

Hypothesis 1: Use of the HRIS is expected to make a significant difference to the user satisfaction.

Hypothesis 2: Characteristics of the HRIS is likely to significantly affect the user satisfaction.

Hypothesis 3: Information quality of HRIS is expected to significantly affect the user satisfaction.

Hypothesis 4: Subjective norms of HRIS is poised to significantly affect the user satisfaction.

Hypothesis 5: Comparison of HRIS and Manual HR practices is likely to significantly affect the user satisfaction.

Hypothesis 6: User satisfaction is expected to significantly affect the adoption of HRIS.

Hypothesis 7: Use of HRIS is likely to positively affect the adoption of HRIS.

1.11 Methodology

Method

The study is approached as an exploratory and cross-sectional field survey study.

Area of Study

The study area is banking and insurance sector consisting of both public and private. These industries are the predominant contributors to the economy of India.

Population & Sample Unit

The study population consists of employees from the Banking and Insurance sectors in India. To ensure a more manageable and reliable estimation of the number of operating Banking and Insurance companies in India, the study opted to focus on a subset of the population. Therefore, the leading companies in both the sector i.e., the top ten companies from both the public and private sectors in the banking and insurance industries in India were selected as the sampling unit. This approach was adopted due to the large size of the overall population and the potential for anomalies in obtaining accurate figures.

Sampling Technique

Given the requirements defined by the research objectives and the hypotheses, the researcher is adopting the stratified sampling technique for the study. This method involves dividing the population into distinct strata or subgroups based on relevant characteristics such as public banks and private banks. Similarly, public insurance companies and private insurance companies in India. The strata or subgroups is shown in chapter 3, figure 3.1(selected banks and insurance companies in India).

Data Collection

Both primary and secondary sources were used to collect the data. Primary data was collected through online survey method with a questionnaire made in Google Form to obtain information regarding the use, adoption and to assess the perception towards Human Resources Information System (HRIS). The questionnaire was designed using the scales adopted from various authors like DeLone and McLean, 2003; Davis, 1989; Urbach et al., 2010; Sabherwal and King,1991, Almutairi and Subramanian, 2005; Urbach et al., 2010, Ajazen, 1991; Venkatesh and Davis, 2000 (detailed in chapter 3).

Secondary Information related to HRIS was collected from web sites, journals, books, HRIS articles and management publications, databases, rbi.org, blogs, news articles.

Data Analysis

The data analysis was meticulously conducted utilizing the Jamovi software, a powerful statistical analysis tool. This software was chosen for its user-friendly interface and robust capabilities, allowing for a comprehensive examination of the dataset. The analysis process involved employing various statistical techniques and tests available in Jamovi, ensuring a rigorous exploration of the research variables. The utilization of Jamovi facilitated seamless data manipulation, exploration, and visualization, enabling a thorough understanding of the underlying patterns and relationships within the dataset. The outcomes of the data analysis, encompassing key findings and insights, are comprehensively presented in Chapter 4, providing a detailed account of the research outcomes and contributing to the overall narrative of the study. The use of Jamovi underscores the commitment to employing cutting-edge tools for robust statistical analysis, enhancing the credibility and reliability of the study's results. The tools used are multifarious consisting of bibliometric analysis, chi square test, regression analysis (multiple and linear), ANOVA, confirmatory factor analysis and structure equation modelling.

1.12 Thesis structure

This thesis is structured into five chapters, each containing specific content which is summarized in a concise manner.

Chapter 1: In this chapter the research problem and the justification for doing this research are introduced. It draws attention to and supports the reason behind the study's goals, objectives, and significance of the study. The remaining chapters, which are broken up into five chapters, are likewise summarised in this chapter. In order to understand the research problem, the background of the study is presented and discussed in depth. The research hypothesis along with the research objectives is described to provide better understanding of the purpose of the research. The conceptual description of the human resources information system is presented in order to give detailed understanding of its deployment in banking and insurance companies.

Chapter 2: This chapter offers a comprehensive evaluation of prior research studies conducted in the realm of HRIS. It critically reviews the existing literature from Scopus database only. The chapter gives a clear figure of PRISMA checklist for inclusion and exclusion criteria and Bibliometric analysis to see various networks created. It identifies the limitations and gaps present in the research concerning the adoption and utilization of HRIS.

Chapter 3: In chapter III, the research methodology is focused on description of survey instrument (questionnaire) developed, tested and implemented. The chapter also outlines the approach taken to conduct the research. It covers various aspects such as the research philosophy, research design, methods used for data collection and analysis, rationale behind the chosen research techniques, and the validity of the selected tools.

Chapter 4: This chapter showcases the research findings derived from tools used to measure data gathered from respondents about their attitudes, experiences, or opinions towards adoption and use of HRIS. The findings provide insights into the antecedents affecting HRIS usage. Additionally, this chapter presents the quantitative analysis that establishes the relationship between various dimensions of the proposed HRIS model in terms of its usage and user satisfaction. The results presented in this chapter are based on the quantitative research approach conducted for this study.

Chapter 5: Lastly, the thesis concludes with the last chapter V, in which findings, conclusions and suggestions are discussed. This chapter offers recommendations for Banking and Insurance companies on effectively implementing HRIS. It also includes suggestions for future studies in this area.

At the end of the thesis, references and a set of appendices are included that contain the questionnaire of the survey forms used to collect primary data for this work.

1.13 Summary

This chapter mainly aims to explain the rationale for the selection of the research topic and to emphasise its significance to the field. It presented an overall summary of the subject matter and an explanation of its uniqueness. The research backdrop included clear

references to other studies, highlighting the research gap and illuminating the intense interest in the topic.

The following order is the description of the research topics: To explain why these businesses were chosen for the study, the research backdrop is first provided in order to acquaint potential readers with the history and current state of development of HRIS in the public and private sectors of banks and insurance firms. Second, the research issue was thoroughly covered and provided with references to the work of other scholars. In order to make it clear if the investigation's findings could be used practically, the goal and goals were stated in the third place. Additionally, the study's importance was thoroughly described and examined, and conceptual definitions were provided to eliminate any misunderstanding in the language used in the study. As a result, the next chapter will present a thorough analysis of prior research in the HRIS area and develop the theoretical framework for the current study.

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CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

Human Resource Information System (HRIS) has fostered effective organisational learning, noticeable productivity, and, above all, sustainability in a period of demanding and changing human resource management approaches for organisational growth and development of information technology. The current study combines bibliometric analysis with a systematic literature review (SLR). The systematic review is used methodically to collect available material and then evaluate it against established criteria (Tranfield et al., 2003). The current study examines peer-reviewed articles from the year 2001 to 2021 from Scopus database. Specific keywords are used to find articles with the different search string resulting in articles which were undertaken for further study after inclusion and exclusion criteria. This review-based work aims to provide qualitative insight into HRIS's overall evolutionary trend, knowledge structure, and literature gaps and suggests some future research possibilities with special reference to the financial sector by using open-source software. The study offers a clear insight into the benefits of implementing HRIS in the financial sectors and also a comprehensive picture of the advancement of publications and research diversification within the domain. Furthermore, it gives scholars and practitioners an analytical idea to implement HRIS in different sustainable sectors.

However, very few review studies are available on the subject. The study thoroughly evaluated the content of the existing HRIS literature to increase comprehension of the current state of knowledge in order to get over the restriction. The current study examines the HRIS publishing trend, significant publications, and most productive and significant writers. Then, to find topic clusters, a bibliometric analysis was done using VOS Viewer. The creation of the network map utilising co-citation analysis and bibliographic coupling uncovers intriguing themes and trends in the area of HRIS. The present study helps to clarify the HRIS in banking and insurance companies.

The current study is an amalgamation of Systematic Literature Review (SLR) and Bibliometric Analysis. SLR is used in the study because the procedure it involves is systematic, reproducible, transparent, and iterative. Electronic databases are becoming more widely available, making it simpler for academics to conduct systematic research in a timely way. Therefore, SLR is conducted strictly following the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) statement, i.e., PRISMA checklist and flow diagram. The PRISMA declaration also guarantees the research's accuracy and completeness (Mother et. al., 2010). In the present study, for new systematic reviews, the PRISMA 2020 flow diagram is utilised, which solely includes database and registry searches. To begin with a database search, it is important to establish the scope of the study and to choose the suitable keywords that are to be utilised during the search.

2.2 Database

Scopus

It is a website that provides access to databases and information on citations in the social, physical, and health sciences. Scopus may be accessed through Elsevier, but a subscription is required. It encompasses three different sources: trade journals, book series, and journals. In addition, searches of patent databases are included in Scopus searches. Kudroli et al., (2020), notes that journals indexed by Scopus are more reliable than those indexed by other sources and that direct access to the Scopus database provides a significant amount of reference material. There are around 69 million records. The coverage period spans from 2004 until the present.

Although Scopus permits downloading more data in a single petition, the number of records that may be downloaded is just 2,000. The only formats accessible for bibliometric purposes are the RIS or CSV formats, despite the fact that there are other possibilities for other data exporting formats. It is important to note that Scopus restricts the output to just citation data, but enables downloads of the first 20,000 entries of a query in CSV format. Falagas et. al., (2008), states that for citation analysis, Scopus offers

around 20% greater coverage than Web of Science (WoS). As a result, SLR is conducted with Elsevier Publishing's Scopus, as advised by Fahimnia et al., (2015). Due to SCOPUS' extensive coverage of peer-reviewed journals throughout many academic subjects, including social science, several writers have suggested using it.

2.2.1 Bibliometric analysis

The number of times an article is referenced by other publications is utilised in bibliometric analysis to find relationships between research articles and subjects. Garfield (1979) defined bibliometric analysis as an objective and quantitative tool for determining the intellectual creation of a scientific subject of study. In order to study the bibliometric analysis an open source software called VOSviewer is used in the study.

VOSviewer

For the present study, VOSviewer (tool) is used for constructing and visualizing bibliometric networks. VOSviewer is a comprehensive bibliometric analysis tool based on Visualization of Similarities (VOS) technology created by Van Eck and Waltman (2009). It has a distinct advantage in that it can combine disparate data from many domains based on their similarity and relatedness. VOSviewer can load and import data from a wide variety of sources and has excellent viewing capabilities. Through the Open Academic Graph, it enables access to the various snapshots of the entire dataset.

It is software created for building and displaying bibliometric networks based on co-citation, bibliographic coupling, or co-authorship links, with journals, researchers, or individual publications as players (Van-Eck and Waltman, 2010). Using text mining capability, it also provides the option of creating co-occurrence networks of significant phrases taken from a corpus of scientific literature. It was created by Leiden University's Center for Science and Technology Studies (CWTS) (The Netherlands). From bibliographic data, it may extract bibliographic networks (co-authorship, co-occurrence, and citation-based). The files from WoS, Scopus, Dimensions, PubMed, and RIS format are used to add this data. Additionally, the Crossref, Europe PMC, and MA APIs may be

interactively searched in VOSviewer; if we have a collection of DOIs, the Semantic Scholar, Open Citations, and WikiData APIs can be used to get the data. Three steps are involved in the construction of a map using VOSviewer (Van-Eck and Waltman, 2010) based on a co-occurrence matrix: (i) similarity matrix, to apply the VOS mapping technique (Waltman; Van-Eck; Noyons, 2010), using the association strength (Van- Eck and Waltman, 2007b) (ii) VOS mapping technique, to construct a map reflecting the similarity measure between items; and (iii) translation, rotation. With regards to visualisation capabilities, this programme offers three options: network, overlay, and density. The ability to zoom, scroll, and use a sophisticated labelling system to eliminate label overlap is impressive. The zoom and scroll functions are included in VOSviewer to make it easier to examine the produced map in detail. Finally, all of the created visuals may be saved in several graphics file formats, including bitmap and vector. It is simple to use this option to include the analysis results in any print or digital format.

2.2.2 Scopus Database search

Search Language: Boolean pattern, a form of search that enables users to combine keywords with operators like AND, NOT, and OR to further create more pertinent results, is supported by the SCOPUS Search API. By doing this, the search results would be restricted to only documents that contained the two keywords.

URL encoding: The query string option 'query' is used to submit a Boolean search. The search results must be supplied with their contents URL-encoded, just like all other query string arguments. It should be noted that the '+' character, which acts as the space character's (%20) counterpart in query string values, has a specific role. A literal character '+' must be correctly URL-encoded (i.e., %2B) in order to be sent.

Boolean operators: The logic of databases and mathematical sets is based on Boolean operators. They link the search terms together to either increase or decrease the number of results received. The three fundamental Boolean operators are: AND, OR, and NOT. Boolean operators are used to link numerous bits of information to locate exactly what

researchers are looking for and to focus a search, especially when the topic involves many search phrases.

Search order

1. **AND:** Use AND to further refine the search results AND to instruct the database that all search phrases must be in the entries that are returned. AND searches only return outcomes containing both terms.
2. **OR:** Connecting two or more related ideas with OR in a search may extend results by informing the database that any of the search phrases may be included in the records that appear. OR searches return results with either phrase in them.
3. **NOT:** To omit terms from your search, use NOT while conducting a search. By directing the database to disregard any notions that could be inferred by your search phrases, you can focus your search.

2.3 Search Process

With content from top publishers, Scopus is the biggest abstract and citation database of peer-reviewed literature. A good technique to locate articles pertinent to the research is using keyword searches (Almeida, 2018; Kaushik and Rahman, 2014). The search process starts on 30thOctober, 2022 therefore refining results were limited to 2001 to 2021.The last search for the topic was performed on 10th November which was then finalised for further analysis. To get the most reliable, relevant, and up-to-date research articles on Human Resource Information Systems (HRIS) from Scopus; articles can be searched by the options document, author, and affiliation which are listed below: -

Search by Document: Scopus enables you to look for articles using keywords related to particular sections of a text (e.g., title, author, keywords, ISSN).

Search by Author: Even if the author is inconsistently listed, using the author search you may still locate papers published by that exact individual in Scopus.

Search by Affiliation: A list of institutions is produced by an affiliation search, together with links to papers and an overview of the study fields, partnerships, and publications of each institution.

In order to start exploring about the topic Human Resource Information System (HRIS), data required for the study was acquired from the Scopus database only and a thorough investigation was searched in the Title, Abstract, and Keywords which were merged to find the most pertinent study in the field. At first, documents were collected using search string and Boolean operators into the Scopus database. All the documents collected were without refining open access, year of publication, author name, subject area, document type, source title, publication stage, keyword, affiliation, funding sponsor, country/territory, source type and lastly language. The below table shows the list of all the search documents in the Scopus database with different search strings with the help of Boolean operators.

Use of Double Quotation: the researcher has used double quote marks to search phrases. The reason behind using quotation mark is to narrow down the results. Scopus gives more than 229,000 document results if the topic is written into the search box without the quotation marks. Scopus will search for the appropriate results where the topic is used as a phrase if the double quotation mark is used which lowers the results to slightly over 105,000 documents (Scopus_ContentCoverage).

Table 2.1: List of searched queries

Sl. No.	Name	Query	Documents
1.	human resource information system" and "insurance companies	TITLE-ABS-KEY ("human resource information system" AND "insurance companies")	1
2.	human resource information system and business organisations	TITLE-ABS-KEY ("human resource information system" AND " business organisations")	2
3.	human resource information system and hospitality industry	TITLE-ABS-KEY ("human resource information system" AND " hospitality industry")	2
4.	human resource information system and IT industry	TITLE-ABS-KEY ("human resource information system" AND "IT industry")	0
5.	management information system and human resource information system	TITLE-ABS-KEY ("management information system" AND "human resource information system")	29
6.	human resource management system and banking	TITLE-ABS-KEY ("human resource management system" AND "banking")	7
7.	human resource information system and application	TITLE-ABS-KEY ("human resource information system" AND "application")	55
8.	ict and personnel management	TITLE-ABS-KEY ("ict" AND "personnel management")	29
9.	human resource information system	TITLE-ABS-KEY (human AND resource AND information AND system	39,367
10.	human resource management system and IT industry	TITLE-ABS-KEY ("human resource management system" AND "IT industry")	0
11.	hrms	TITLE-ABS-KEY (hrms)	10,104
12.	human resources information system and banking	TITLE-ABS-KEY ("human resources information system" AND "banking")	7
13.	hris	TITLE-ABS-KEY (hris)	411
14.	hris or hrms or "human resource information system or human resource management system	TITLE-ABS-KEY hris OR hrms OR "human resource information system" OR "human resource management system")	10,980

(Source: Scopus database, retrieved on 10th November, 2022)

In Table 2.1 all the documents retrieved were stored in the Scopus saved searches folder in order to utilise them later for bibliometric analysis. After the search activity, documents were refine limiting to open access, year of publication, author name, subject area, document type, source title, publication stage, keyword, affiliation, funding sponsor, country/territory, source type and lastly language. The Open Access (OA) documents available in Scopus are of few types:

1. *Gold open:* Licensed under a Creative Commons licence and accessible through publisher platform. Journals that solely publish open access contain the documents.
2. *Hybrid gold open:* Licensed under a Creative Commons licence and accessible through publisher platform. Journals that provide writers the option of publishing open access contain documents.
3. *Bronze open:* The publisher has opted to offer temporary or ongoing free access to the published version of the record or the manuscript that has been approved for publication. If a document has a licence other than a Creative Commons licence (such as Elsevier's publisher licence for Open Archive) or no licence at all, bronze status is given to it.
4. *Green open:* Available at repository is the published version of the manuscript that was accepted for publication. On the publisher platform, documents could also be offered in gold or another free-to-read format.

2.3.1 Document types

Another important note to be observed before refining the documents in the filter section is the document types. Although researchers are familiar with the document types but it is felt important to describe some of the document types that are minimally used in the research area. Below is the description of all the document types:

1. *Article:* Articles consist of original analysis or viewpoint. Peer-reviewed journal articles often include many pages and are organised into the following sections: an

abstract, an introduction, a materials and methods section, findings and discussion, conclusions, and references. Case studies, technical and research notes, and brief messages, albeit they can only be one page long, are also regarded as articles. Compared to peer-reviewed publications, trade journal articles are often shorter and sometimes only one page long.

2. *Conference paper:* Conference paper consists of original report on information given during a conference or symposium. Conference papers, unlike meeting abstracts, can be any length and provide data from a conference. The length and substance of conference papers can range from comprehensive papers and published conference summaries to brief things as little as one page.

3. *Book chapter:* A full content that is marked as a chapter by a heading or section indication in a book or book series volume.

4. *Review:* A significant analysis of original research, including conference papers included. Reviews frequently include a lengthy bibliography. Reviews of certain topics in the literature are frequently regarded as educational materials. Reviews omit the most common sections of original articles, such as materials & techniques and findings, because they are non-original articles.

5. *Conference review:* Members of the conference committee act as the crucial professional connection that helps the conference succeed. The reviews assist the Executive Committee in making decisions regarding which papers to accept and reject. After selection of accepted papers details of the particular article is published.

6. *Data paper:* The data paper intent to provide descriptive information about the relevant dataset(s), with an emphasis on data collection, distinguishing characteristics, availability, and potential reuse rather than data processing and analysis.

7. *Editorial:* Editorials are normally included at the start of the table of contents and are referred to as editorial, introduction, leading piece, prelude, or foreword.

8. *Note:* Short objects like notes don't naturally fit into other item kinds. They might or might not share traits common to other item kinds, such as authorship, affiliation, and citations. Following an article, discussions and opinions are referred to as notes

and are treated as items in their own right. Questions and responses, along with remarks on other (often translated) articles, are frequently included in the notes. Notes are often less than half a page long in commercial publications.

9. *Short survey:* Short surveys are comparable to reviews; except they are often shorter (no more than a few pages) and have a smaller bibliography.

10. *Erratum:* Errata are brief statements that point out mistakes in, revisions to, or retractions of an article that has already been published and is referenced in another article.

11. *Retracted:* The document type "Retracted" will be updated for articles that have a published retraction notice. Articles may be retracted if they are determined to have plagiarised previously published work, violated ethical standards, or had conclusions that were no longer believed to be reliable owing to scientific misconduct or mistake.

12. *Letter:* Letters might be personal letters or responses. Every letter or response is handled as a separate item.

Here the present study human resource information system (HRIS) is a multidisciplinary topic covered in different subject areas, source title and different source type. Therefore, during the search process results were refined with “limit to” section to include relevant documents and “exclude” section is used to factor out the documents which were not included within the limited year, subject area, document type, source type which were undefined and lastly articles that are still in press and are not finalised.

2.3.2 PRISMA Statement

PRISMA stands for Preferred Reporting Items for Systematic Reviews and Meta-Analyses. There are 27 item checklist and four step flow diagrams in PRISMA statement. The PRISMA declaration was developed to assist writers in better reporting systematic reviews and meta-analyses. Although PRISMA may also be used as a foundation for presenting systematic reviews of other forms of research, notably evaluations of therapies, it has been mostly used to describe randomised trials. PRISMA may also be helpful for evaluating published systematic reviews critically (BMJ 2009;339: b2535).

The PRISMA flow chart depicts how data goes through the stages of a systematic review. It displays the total number of records identified, as well as how many were included and how many were excluded, as well as the reasons for exclusions. The below figure shows the flow of information i.e., records included for further study and records excluded from the study. It is important to establish the scope of the study and to choose suitable keywords before beginning a database search. The search strings were used to conduct a literature search in the Scopus database in order to conduct the broadest study of the literature feasible and to include as many research papers relevant to the issue in the search as possible. The articles found during the search were assessed, and the PRISMA statement guidelines for paper selection were followed. The papers must meet the following criteria: The title, keywords section, or abstract which must contain all keywords and the study must be published in a scientific peer-reviewed publication. Article, Conference Paper, Book chapters and Review Articles are under inclusion criteria. Book chapters were also included because in comparison to a journal article, a book chapter frequently gives the author more freedom and latitude to combine concepts and theories and present them in novel ways (Rene, 2021; Bhosale, 2022). Conference review, Data paper, Book, Editorial, Letters, Note, Short survey, Erratum, Retracted and non-English publications are among the exclusion criteria. These publications were not included in the final analysis. Articles that weren't full text and didn't fall under the purview of the current investigation were also excluded from further analysis. Table 2.2 summarises the findings of the research examined. The following section contains extensive information about the articles that have been examined.

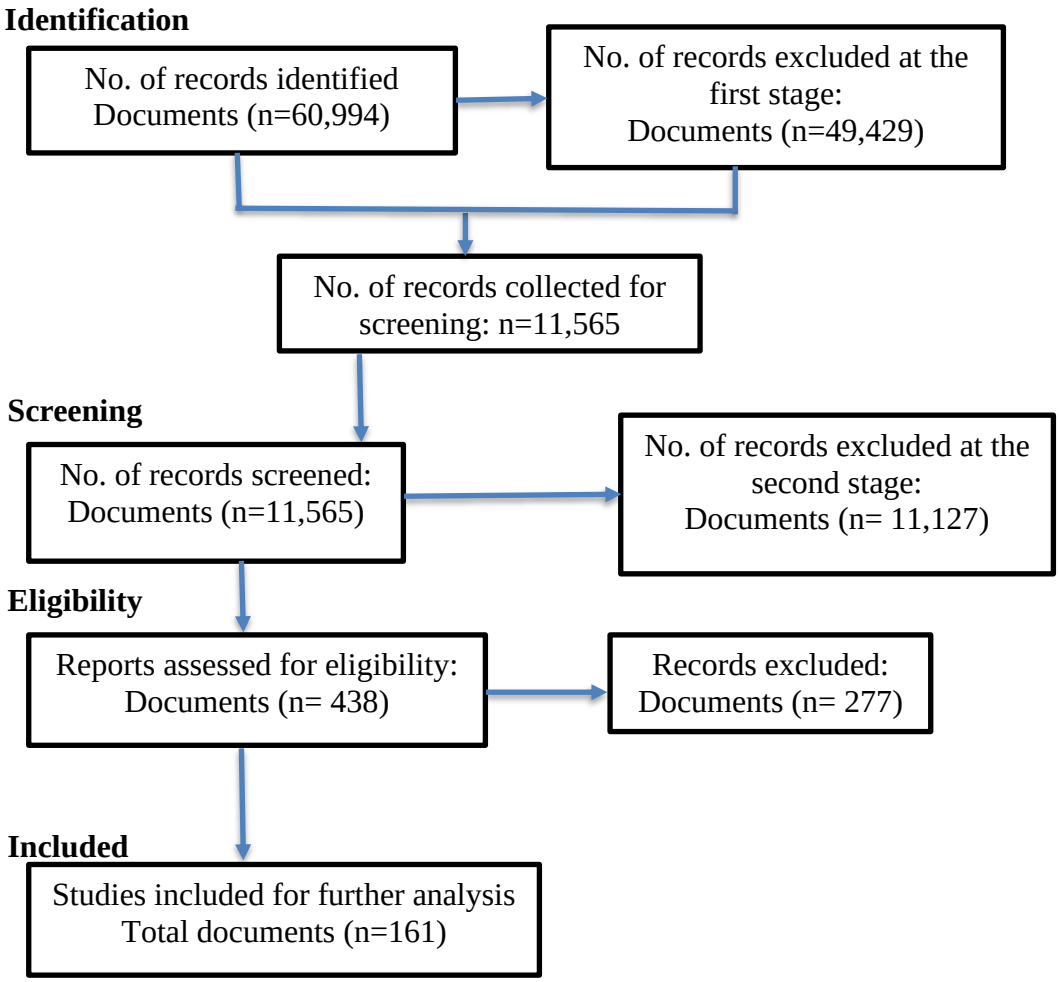
Table 2.2: Data retrieval process

Year	Database	Search string	Language	Document type
2001-2021	Scopus	(i) "human resource information system" AND " business organisations" (ii) "human resource information system" AND " hospitality industry"	English	Article Conference Paper Review article

		(iii) "human resource information system" AND "IT industry" (iv) "management information system" AND "human resource information system" (v) "human resource management system" AND "Banking" (vi) "human resource information system" AND "application" (vii) "ict" AND "personnel management" (viii) human AND resource AND information AND system (ix) "human resource management system" AND "IT industry" (x) hrms (xi) "human resources information system" AND "Banking", Hris, hris OR hrms OR "human resource information system" OR "human resource management system", "human resource information system" AND "insurance companies"		Book chapter

(Source: Adapted from the study)

Figure 2.1: Flow of Information (Inclusion and exclusion criteria)



Source: PRISMA STATEMENT (Flow diagram)

2.3.3 Selection criteria

The selection criteria are divided into four stages in order to strictly follow the PRISMA statement which gives a clear view of documents under identification, screening, eligibility and inclusion. Exclusions were made under each stage according to the limitation criteria.

Stage 1: Identification

In table 2.2 data retrieval process. The year limitation, database, search string, language and document type were first established. There is total 11 search strings and are search in the Scopus database from year 2001 to 2021. The document types for the study are articles, conference papers, review articles and book chapters only. The documents available other than in English language were not included for the study. Keeping in mind about all the data retrieval limitations 60,994 documents were recorded in the identification process. The total number of 47,429 documents were excluded from the subject areas – Medicine (12,274), Biochemistry, Genetics and Molecular Biology (8,244), Chemistry (7,112), Environmental Science (4,370), Agricultural and Biological Sciences (3,505), Pharmacology, Toxicology and Pharmaceutics (2,204), Mathematics (1,454), Materials Science (1,329), Nursing (1,279), Chemical Engineering (1,102), Health Professions (991), Earth and Planetary Sciences (978), Physics and Astronomy (710), Neuroscience (542), Energy (469), Immunology and Microbiology (440), Veterinary (258), Dentistry (162) and Undefined (6).

Stage 2: Screening

After excluding 47,429 documents from various subject area. Total 11,565 documents were recorded for screening. The included subject areas are- Business, Management and Accounting (7,879), Computer science (1,121), Engineering (756), Social Sciences (534), Decision Science (412), Multidisciplinary (356), Arts and Humanities (289), Economics, Econometrics and Finance (134), Psychology (84).

During the screening process, documents were first screened on the basis of scope of the present study. The total number of 6,785 documents was found to be out of the scope and 2,809 documents were within the scope of the study. Later, the finalised documents are screened again for its availability as full text wherein, it was found that 1,414 documents were not available as full text and 119 documents were identical. During this period, duplicate articles were eliminated from the databases to obtain a list of distinct articles. The major reason behind difficulty getting access to the full text content is because of publisher's restrictions. Therefore, after screening the documents finally

11,127 documents were excluded from the further study and 438 documents were assessed for eligibility.

Stage 3: Eligibility

In the third stage 438 documents were recorded to check eligibility. There are 277 articles that are still in press were excluded. Documents that have been approved for publication but have not yet been sorted into a volume or issue are referred to as articles in press. Journal pre-proofs, uncorrected proofs, corrected proofs, and withdrawn articles in press are all considered to be articles in press stage. Therefore, such articles were excluded from the study and a total of 161 documents were finalised for further analysis.

Stage 4: Included

In the final stage a total of 161 documents are included for further study. The documents are accessible as full text to download and to read online.

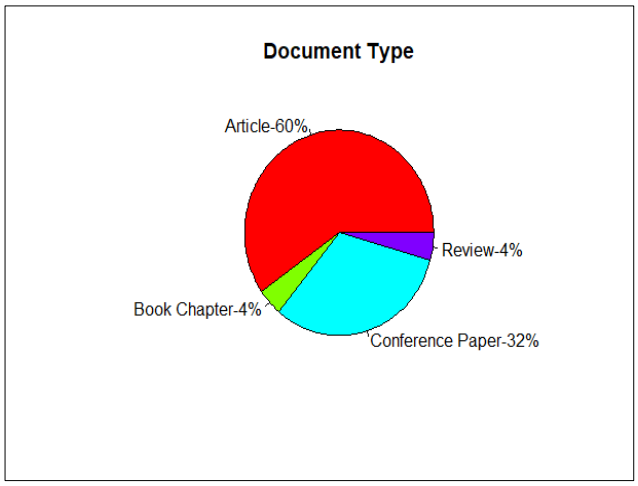
2.3.4 Descriptive analysis

Descriptive analysis helps to identify patterns, trends, and relationships within the data, and is useful for gaining insights into the data and making informed decisions.

Document type

The below pie chart shows a clear picture of the percentage distribution of document types into four categories i.e., Article, Book Chapter, Conference Paper and Review Article.

Graph 2.1 and Table 2.3: Document Type Distributions



Document Type	Count of Document Type
Article	96
Book Chapter	7
Conference Paper	51
Review	7
Grand Total	**161**

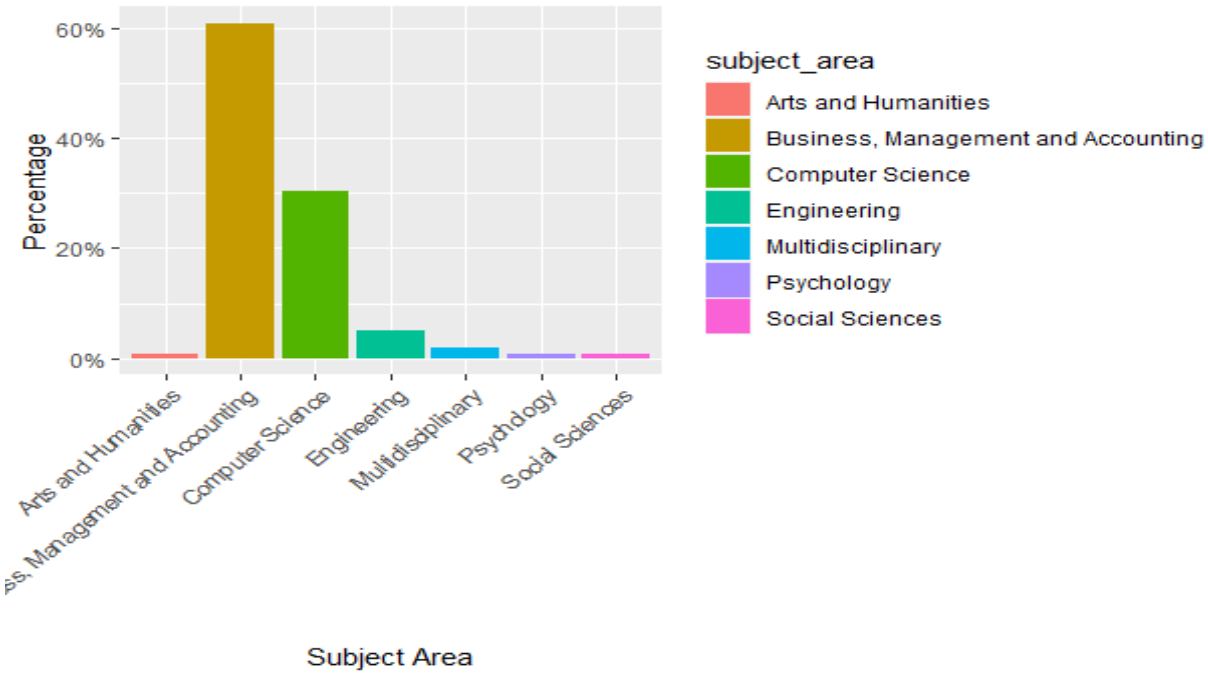
(Source: Scopus database)

The Graph 2.1 and Table 2.3 above shows that the highest percentage of document type is article, i.e. 60% with a total of 96 articles. It is followed by the conference article with 32 % and 51 documents. Book chapter and Review share the same percentage of document type with 4% and 7 number of documents each. Therefore, for the present study total 161 documents has been taken for bibliometric analysis.

Subject area

The next distribution is the subject area in which 7 branches of study were covered under subject area. Initially nine subject areas were selected for the study. Later during the inclusion and exclusion criteria only seven subjects covered the selection process. Those subjects are- (i) Business, Management and Accounting (ii) Computer science (iii) Engineering (iv) Social Sciences (v) Decision Science (vi) Multidisciplinary (vii) Arts and Humanities (viii) Economics, Econometrics and Finance (ix) Psychology. Below is the figure showing subjects with its number of documents.

Graph 2.2 Distributions of documents on the basis of subject area



(Source: Scopus database)

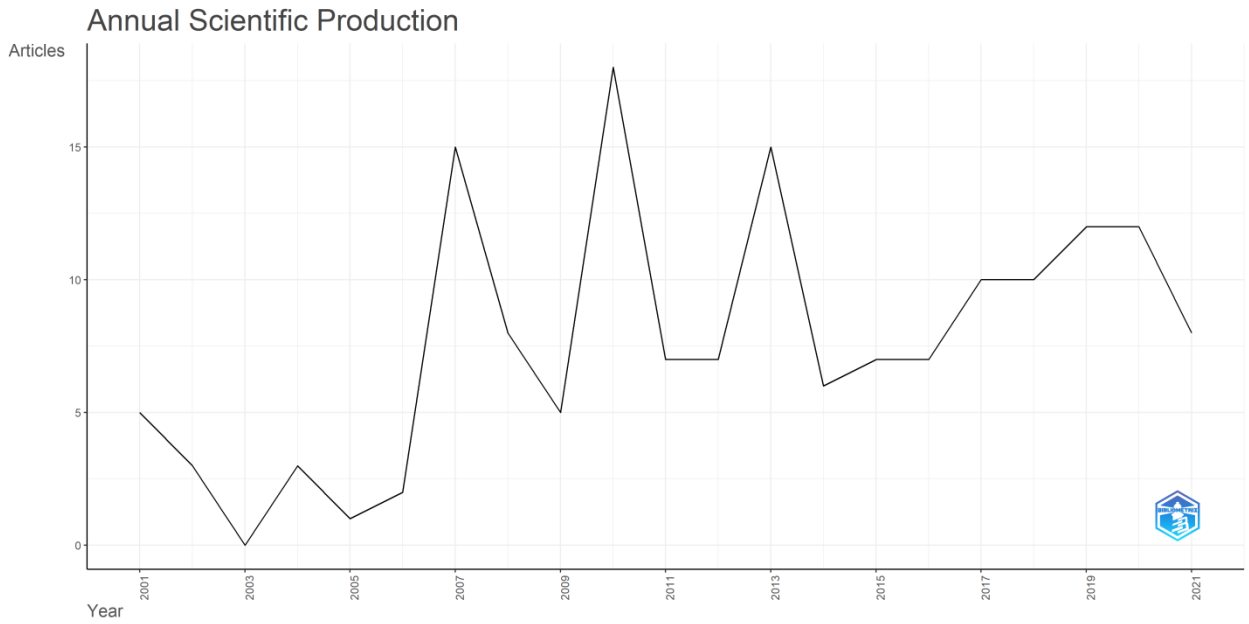
In the graph 2.2 above the highest percentage covering subject area is Business, Management and Accounting with 60% and 98 documents. Next, the subject area Computer Science scores the second highest percentage of 30% with 49 documents. The third subject area engineering score 5% with 8 documents. The fourth subject area multidisciplinary score 2% and 3 documents. The last three subject areas i.e., arts and humanities, psychology and social sciences score same percentage of 1% with 1 document each.

Publication per year

The publication of documents was counted for per year. The year limitation for the present study is from 2001 to 2021. Within this annual limit, other areas such as document

type, language, and appropriate database were also considered. Below is the graph 2.3 showing publication of documents per year.

Graph 2.3: Publications of documents per year



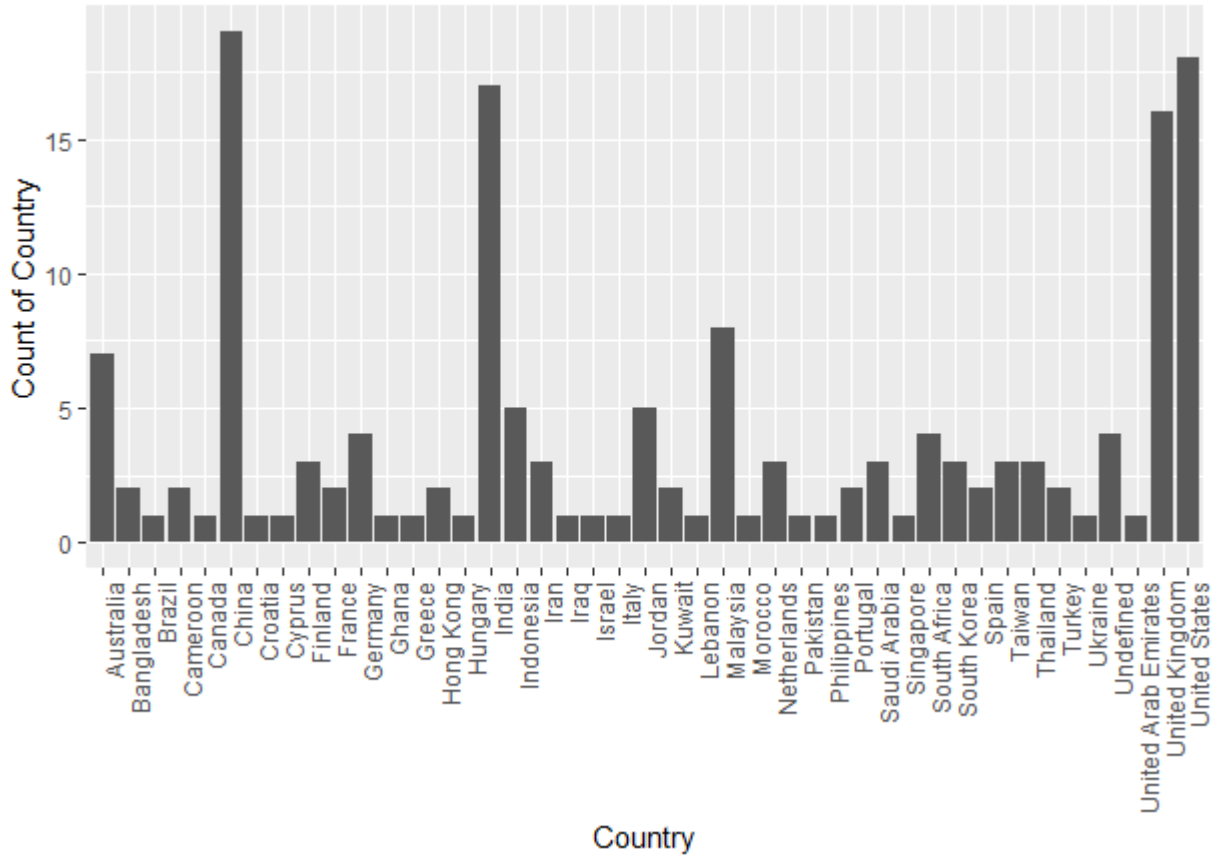
(Source: Scopus database)

Graph 2.3 displays the quantity of publications published each year. It is observed that in year 2001 - 5 documents, 2002 - 3 documents, 2004 - 3 documents, 2005 - 1 document, 2006 – 2documents, 2007 - 15 documents, 2008 - 8 documents, 2009 - 5 documents, 2010 - 18 documents, 2011 - 7 documents, 2012 - 7 documents, 2013 - 15 documents, 2014 - 6 documents, 2015 - 7 documents, 2016 - 7 documents, 2017 - 10 documents, 2018 - 10 documents, 2019 - 12 documents, 2020 - 12 documents and lastly 2021 - 8 documents were published. Here, it can be observed that initially during year 2001 to 2006 numbers of articles publish were very less i.e., minimum 1 document and maximum 5 documents. But since 2007 number of publications has been increased.

Country wise publication

The number of article publication from each country is counted to know which country is the highest in terms of publication. There are 43 countries in the list. Below is the Graph 2.4 showing Country wise publication of documents.

Graph 2.4: List of countries and publications



(Source: Scopus database)

The countries with the highest number of articles are China (19), United States (18), India (17) and United Kingdom (16). The other countries publish articles less than 10 are – Malaysia (8), Australia (7), Indonesia (5), Jordan (5), Germany (4), South Africa (4), United Arab Emirates (4), Undefined (4), Finland (3), Iran (3), Netherlands (3), Saudi Arabia (3), South Korea (3), Taiwan (3), Thailand (3), Bangladesh (2), Cameroon (2), France (2), Hong Kong (2), Kuwait (2), Portugal (2), Spain (2), Turkey (2), Brazil (1),

Canada (1), Croatia (1), Cyprus (1), Ghana (1), Greece (1), Hungary (1), Iraq (1), Israel (1), Italy (1), Lebanon (1), Morocco (1), Pakistan (1), Philippines (1), Singapore (1), Ukraine (1).

2.3.5 Descriptive figures of the documents retrieved

The documents retrieved from Scopus database was imported to biblioshiny to get more accurate and descriptive figures. Below is the information about all the 161 documents collected from Scopus.

Table 2.4: Descriptive figures

Description	**Results**
MAIN INFORMATION ABOUT DATA	
Time span	2001:2021
Sources (Journals, Books, etc)	120
Documents	161
Annual Growth Rate %	2.38
Document Average Age	10.1
Average citations per doc	14.02
References	6273
DOCUMENT CONTENTS	
Keywords Plus (ID)	558
Author's Keywords (DE)	432
AUTHORS	
Authors	338
Authors of single-authored docs	33
AUTHORS COLLABORATION	
Single-authored docs	34
Co-Authors per Doc	2.41
International co-authorships %	16.77
DOCUMENT TYPES	
Article	96
book chapter	7
conference paper	51
Review	7

(Source: Scopus database)

The above Table 2.4 provides key information about the dataset of the topic "Human Resource Information system" (HRIS). The data covers the time span of 2001-

2021 and includes 161 documents from various sources such as journals, books, and conferences. The average annual growth rate is 2.38%, with an average document age of 10.1 years. The average number of citations per document is 14.02, and there are 6,273 references in the dataset. The dataset also includes 558 keywords and 432 author keywords. The documents were written by 338 authors, with 33 authors contributing single-authored documents. The average number of co-authors per document is 2.41, with 16.77% of co-authorships being international. In terms of document types, there are 96 articles, 7 book chapters, 51 conference papers, and 7 reviews. This information provides insight into the nature and scope of the dataset and could inform further research in the field.

2.4 Bibliometric analysis

The goal of bibliometric analysis here in the study is to provide insights into the productivity and collaboration patterns of researchers, documents, keywords and countries. It helps to identify research trends, emerging areas of research and influential authors and publications. It provides valuable insights into the impact of research outputs and the collaboration and networks that exits between researchers and institutions. Some common bibliometric analysis measures included in the study are as follows: -

1. Citation analysis: This involves counting the number of times a publication has been cited by other researchers. This measure is used to evaluate the impact and influence of a particular publication or author.
2. Authorship analysis: This involves analysing the authorship patterns of scholarly publications such as the number of authors per paper and the collaborations between authors.
3. Bibliographic coupling: It measures the degree of intellectual interconnectedness between two articles based on their shared citations.
4. Co-citation: Co-citation analysis can also be used to identify the most influential authors in a field and to reveal the relationships between them.

5. Co-occurrence: It is a bibliometric technique used to identify the most frequent associations or patterns of keywords or terms in a collection of documents.

Table 2.5: Types and Unit of Analysis

Sl. No.	Types of analysis	Unit of analysis
1.	Co-authorship	Authors
2.	Co-occurrence	All keywords Index keywords
3.	Citation	Documents Authors
4.	Bibliographic coupling	Documents Authors Countries
5.	Co-citation	Cited authors

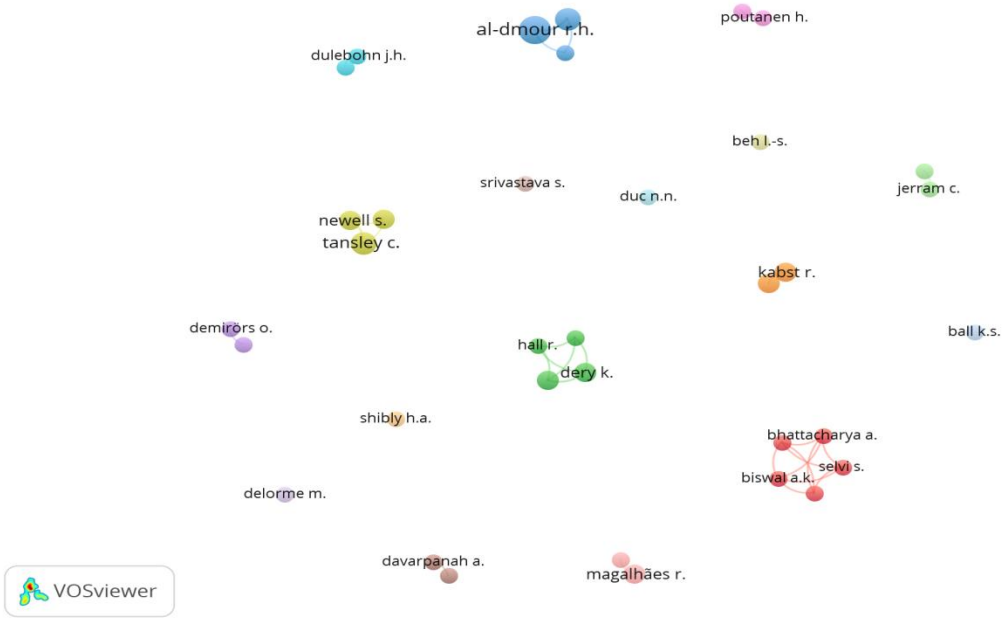
(*Source: VOSviewer)*

In the above table 2.5 different types of analysis in the field of bibliometrics is shown. The first type of analysis is co-authorship, which focuses on identifying collaborations between authors. In this type of analysis, the unit of analysis is the authors themselves. The second type of analysis is co-occurrence, which involves identifying the frequency of occurrence of all keywords or index keywords in a set of documents. The unit of analysis for co-occurrence is the set of all keywords or index keywords. The third type of analysis is citation analysis, which identifies the frequency of citations of individual documents or authors. The unit of analysis for citation analysis can be either the documents themselves or the authors who have been cited. The fourth type of analysis is bibliographic coupling, which identifies the frequency of co-citations between documents, authors, or countries. The unit of analysis for bibliographic coupling can be documents, authors, or countries. Finally, co-citation analysis focuses on identifying the frequency of citations of specific authors in a set of documents, with the unit of analysis being the cited authors. These different types of analysis are all important in understanding the structure and impact of academic research in a given field.

1. *Co-authorship:* The given data represents the number of articles published by different authors. The data provides a snapshot of the publishing trends in

academic research. This report aims to analyse the data and identify the most prolific authors.

Figure 2.2: Co-authorship analysis



The above figure 2.2 is showing the total number of articles divided by the number of co-authors in each article. The author with the highest number of articles is AL-DMOUR RH with six articles, followed by 10 authors with four articles each. Additionally, 20 authors have published two articles each, while 71 authors have published only one article. The data also provides insight into how much contribution each author has made in each article. The average fractionalized number of articles for all authors is approximately 0.76, which indicates that the typical article has a little more than one co-author.

It is also interesting to note that some authors have a relatively high fractionalized number of articles. For instance, BALL KS has a fractionalized number of 2.0, which implies that the two articles in which they have contributed have no other co-authors. On

the other hand, authors such as CHENG C-C have a fractionalized number of only 0.14, which indicates that the articles in which they have contributed have many co-authors.

The data can be used to draw insights about the publishing trends in the field of academic research. For instance, the authors who have published the most articles can be considered the most prolific authors in the field. Furthermore, the authors with a higher fractionalized number of articles can be considered the primary contributors to the articles in which they have participated.

2. *Co-occurrence:* While analysing the keywords there are 3 types of unit of analysis i.e., all keywords, author keywords and index keywords. All keywords can be seen as a broader term, including all the keywords present in the article. In this, keywords are extracted from all the articles, including the author keywords and the index keywords.

Figure 2.3: Co-occurrence of all keywords

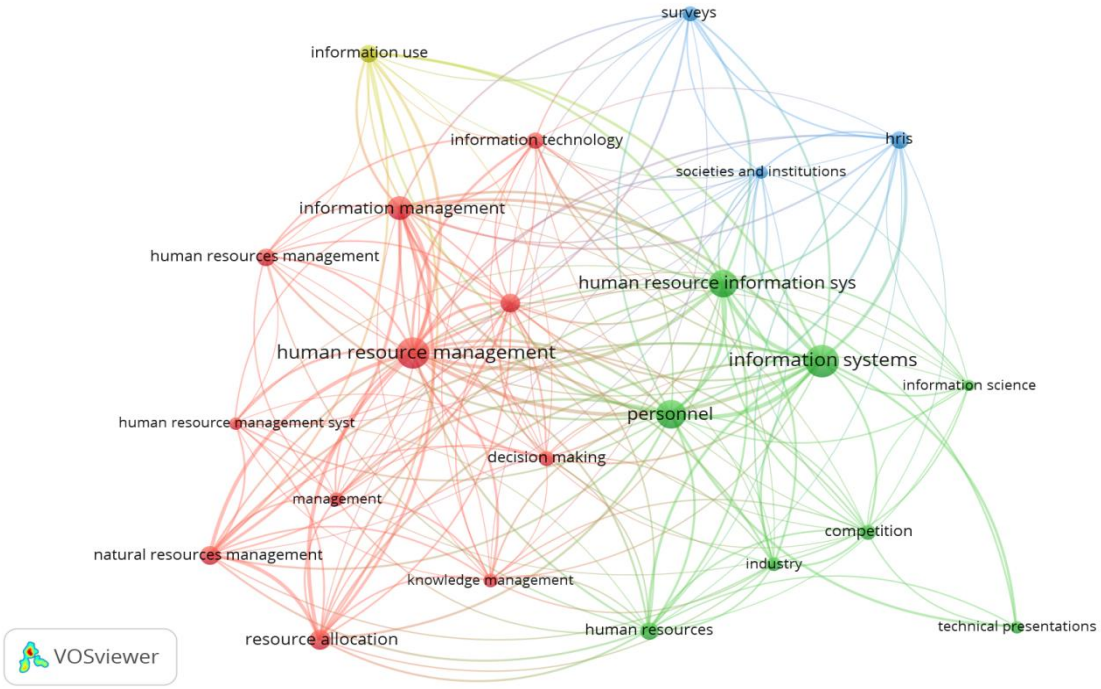
(Source: Scopus database)

Figure 2.3 shows the frequency of occurrence of various terms related to information systems and human resource management. The term "information systems"

has the highest frequency of occurrence at 36 times, followed closely by "human resource management" at 33 times and "personnel" at 29 times. "Human resource information systems" is fourth on the list with a frequency of 25 times. Other terms such as "information management", "resource allocation", and "natural resources management" also appear on the list, though with lower frequencies of occurrence. It is interesting to note that terms such as "competitive advantage", "innovation", and "knowledge management" also appear, indicating the importance of these concepts in the field of information systems and human resource management. Thus, the figure highlights the key topics and themes that are frequently discussed in this field of study, and could serve as a useful starting point for further research and analysis.

- ***Co-occurrence Index keywords:*** Indexed keywords are chosen by Scopus and are standardized to vocabularies derived from thesauri that Elsevier owns or licenses. Unlike Author keywords, Indexed keywords take into account synonyms, various spellings, and plurals. The keywords analysed include competition, decision making, HRIS, human resource information systems, human resource management, human resource management systems, human resources, human resources management, industry, information management, information science, information systems, information technology, information use, knowledge management, management, management information systems, natural resources management, personnel, resource allocation, societies and institutions, surveys, and technical presentations.

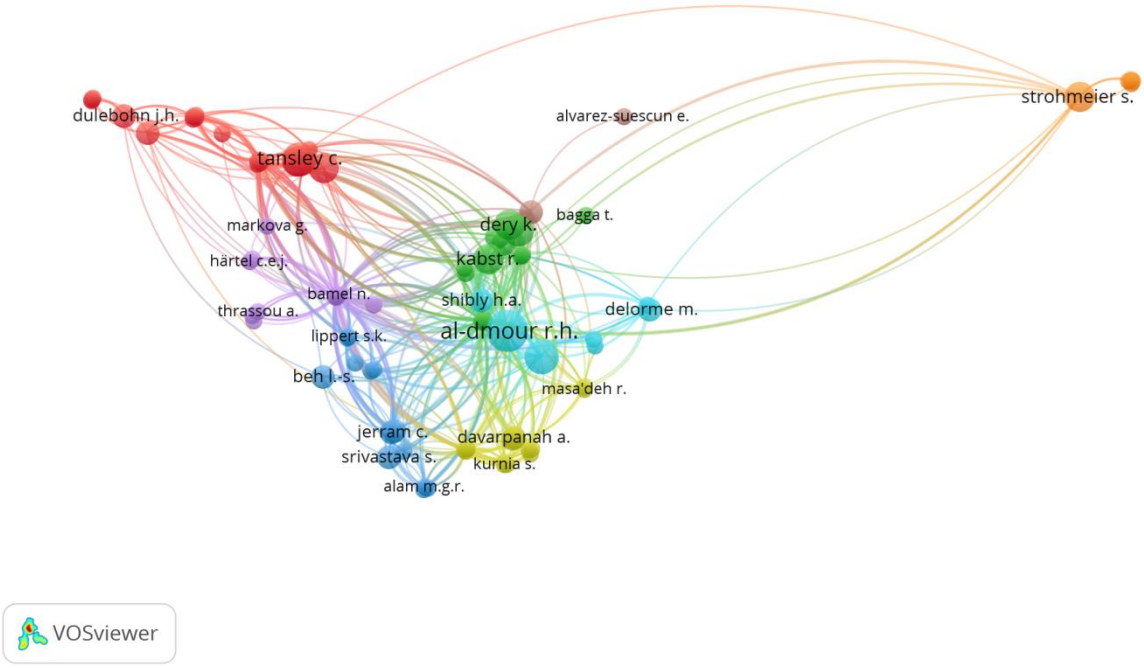
Figure 2.4: Co-occurrence of Index keywords



The figure 2.4 shows that human resource management has the highest number of occurrences and link strength, followed by human resource information systems and information systems. This indicates that these three keywords are the most important and frequently discussed in the given context. Additionally, personnel and natural resources management also have a high number of occurrences and link strength, which suggests that they are important topics as well. On the other hand, technical presentations and societies and institutions have a relatively low number of occurrences and link strength, indicating that they are less important and less frequently discussed in the given context.

3. *Citation:* author citation analysis is a powerful tool for exploring the citation patterns of authors and identifying important research trends and collaborations. The resulting map shows clusters of authors who frequently cite each other, as well as clusters of authors whose publications are frequently cited together.

Figure 2.5: Analysis of author's citation



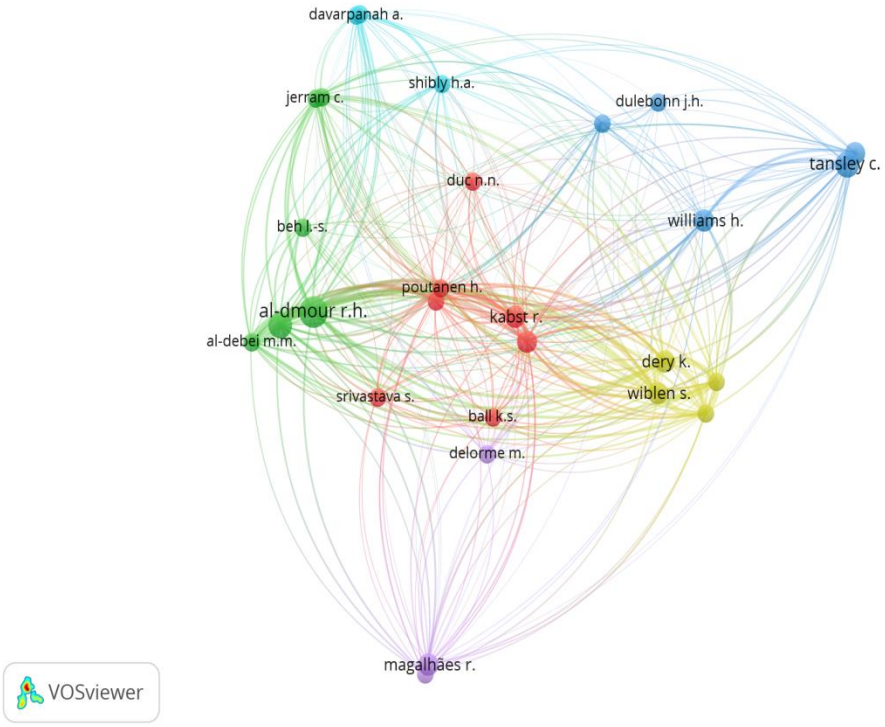
The above figure 2.5 shows bibliometric information about authors. The authors vary in the number of documents, citations, and total link strength. The author with the most documents is Al-dmour r.h. with 6 documents and Love S. with 4 documents in cluster 6 (Blue). Al-dmour r.h. has the highest total link strength of 77 followed by Ball k.s. with 271 citations and 54 total link strength, indicating that the publications are well connected to other publications in the field. Three authors namely Cornelius n.e., Hussain z., and Wallace j. in cluster 2 (Green) have 1 document each with 127 citations and total link strength of 47 indicating that the publications are well connected to other publications in the field.

Some authors have high citation counts but low total link strength, indicating that their publications are not well connected to other publications in the field. Examples of such authors include Beh L.S. with 2 documents, 87 citation and total link strength of 12.

Dery K. with 3 documents 73 citations but only 17 total link strength and Tansley C. with 4 documents 112 times citation but only 19 total link strength.

4. *Bibliographic coupling:* Bibliographic coupling is a method used in bibliometrics to identify the degree of similarity between the research interests of different authors based on the similarity of their citations. Below figure shows a bibliographic coupling analysis of the authors and their publications based on the number of citations and total link strength.

Figure 2.6: Bibliographic coupling of authors



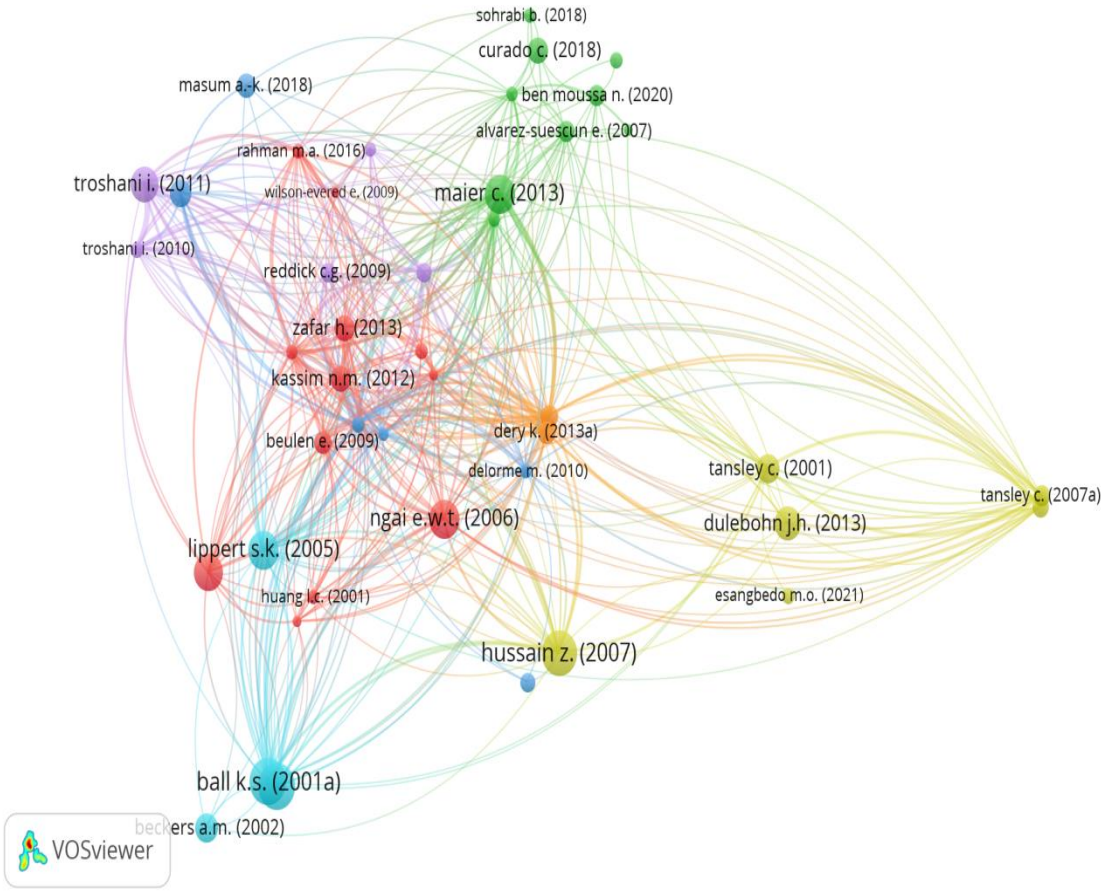
Among the authors analysed, Love S. had the highest link strength (1998) which indicates that his works have been cited heavily and the number of documents he has produced is relatively low (4). Love S. is followed by Ball K.S. with a link strength of 236, which is quite low compared to Love S. Ball K.S. has published two documents and has been cited 271 times. In terms of the number of documents, Johnson R.D. and Al-debei M.M. have both published two documents. However, Johnson R.D. has been cited

79 times while Al-debei M.M. has been cited 9 times. Therefore, Johnson R.D. has higher link strength than Al-debei M.M. Link strength is an important measure of the impact of an author's work. It is determined by the number of citations an author's work has received and the number of documents an author has produced. Love S., Ball K.S., and Hall R. have the highest link strength among all the authors analysed.

Citations are an important measure of an author's impact on their field. Jerram C. and Tansley C. have the highest number of citations with 98, followed by Troshani I. with 98 citations as well. Johnson R.D. and Love S. have been cited 79 and 12 times respectively. However, the link strength of Johnson R.D. is higher due to the lower number of documents he has produced.

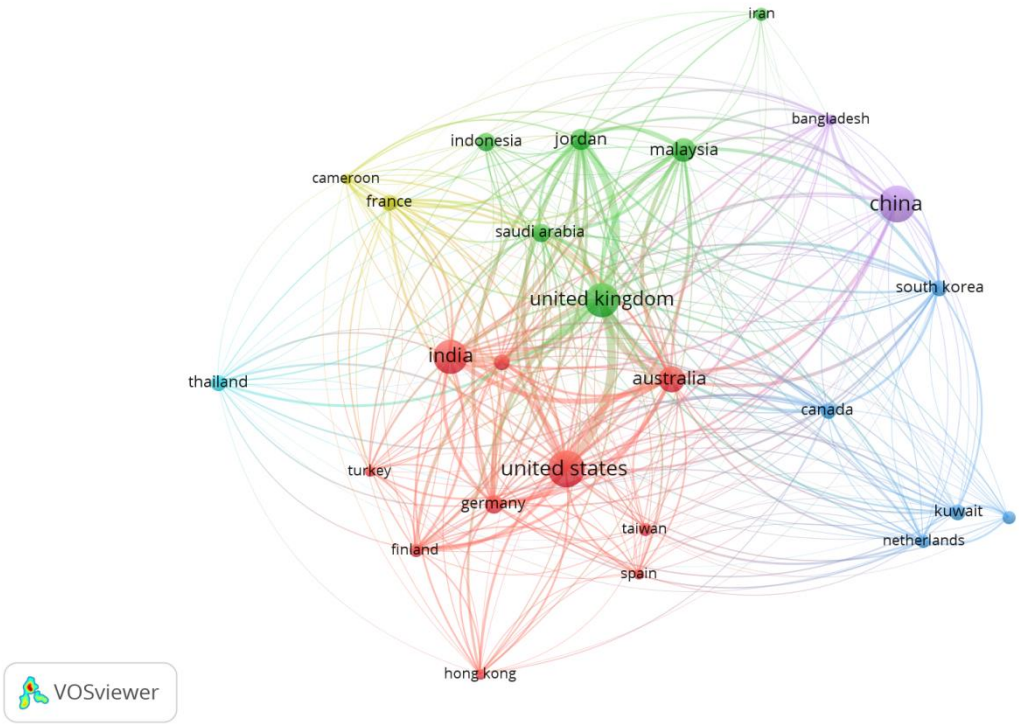
Thus, the authors analysed have varying levels of link strength and citation counts. Love S., Ball K.S., and Hall R. have the highest link strength, while Jerram C. and Tansley C. have the highest number of citations. Link strength is an important measure of the impact of an author's work, and it takes into account both the number of documents produced and the number of citations received.

Figure 2.7: Bibliographic coupling of documents



The figure 2.7 (Bibliographic coupling of documents**)** reveal that there is a significant overlap in research interests among the authors. The analysis also shows that some authors have a higher level of collaboration and citation, indicating that they are influential in their respective fields. The analysis identified some emerging research areas that suggest potential future research directions. The analysis also identified some emerging research areas, such as the use of information technology in healthcare (Dery K. 2013a, Dery K. 2013b, Troshani I. 2010), e-commerce (Tansley C. 2007a, Tansley C. 2007b), and innovation in management (Maier C. 2013, Troshani I. 2011).

Figure 2.8: Bibliographic coupling of countries

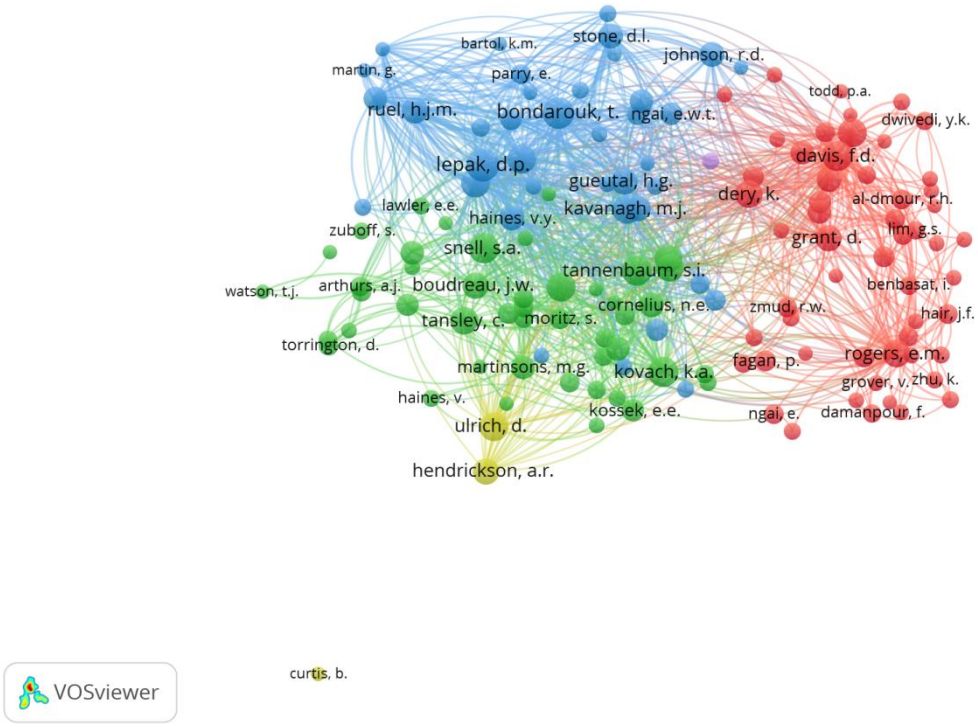


In the above figure 2.8, the United States has the highest number of documents and citations, with 20 documents and 529 citations. The United Kingdom has the second-highest number of citations, with 541, and also has the highest total link strength, with 3356. Australia has the third-highest number of citations, with 270, and also has high total link strength of 2320.

Several countries have a small number of documents and citations, such as Kuwait, Bangladesh, and Iran. However, Jordan has a relatively small number of documents but a high number of citations and total link strength, suggesting a high level of research impact in that country.

5. *Co-citation:* Co-citation analysis is a bibliometric technique used to identify the degree of relatedness between two or more authors based on their citation in a set of articles or research papers.

Figure 2.9: Co-citation of cited authors



In the above figure 2.9 (co-citation of cited authors**)**, a group of 70 authors who had been cited frequently were selected and then calculated the number of times each author had been cited and the total link strength between authors based on their co-citation in the articles. The result shows that the most cited author in the dataset was Bondarouk, T.V., with a total of 26 co-citations and total link strength of 1580. This was followed by Lepak, D.P. with 50 co-citations and total link strength of 1679. Kavanagh, M.J. was the third most cited author with 41 co-citations and total link strength of 1427. Other highly cited authors include Petit, A. (39 co-citations and a total link strength of 1460), Hughes, A.A. (15 co-citations and a total link strength of 700), and Galanaki, E. (19 co-citations and a total link strength of 958). Among the authors with the highest total link strength were Mayfield, J. and Mayfield, M., with total link strength of 710, and Ngai, E.W.T. and Panayotopoulou, L., with total link strength of 1035 and 1047, respectively. The result

revealed that certain authors are more frequently cited and have a stronger relationship with other authors in the field.

2.5 Discussion

A modern-day organization has various reasons to opt for HRIS (Human Resource Information System). According to comparehris.com (2012), some of the major reasons for the usage of HRIS include better time management, generating excellent reports, smooth recruitment, and organizational development. The adoption and implementation of HRIS is not limited to business enterprises only, researchers are working on its usage and benefits and its future advantages in sectors such as military domain, hotels and restaurants, aviation industry, educational institutions, hospitals, IT industries and financial institutions.

The concept of HRIS does not represent a distinct stage in the development of HRM, but rather a decision about the approach an organization will take towards HRM. The three areas of HRM where organizations can choose to deliver HR services either face-to-face or through electronic means are transactional HRM, traditional HRM, and transformational HRM (Wright and Dyer, 2000; Lepak and Snell, 1998). Operational HRM also known as transactional HRM is concerned with managing the administrative aspects of HR, such as recruitment, selection, and compensation. Relational HRM focuses on building and maintaining positive relationships between employees and the organization through communication, teamwork, and employee involvement. Transformational HRM involves creating a strategic HR function that is aligned with the overall goals of the organization, and that can help to drive change and innovation. This approach involves developing HR systems and processes that are aligned with the organization's overall goals and that can help to create a more flexible and adaptable workforce.

These types of HRM emphasize different aspects of HR, including administration and registration, operational HRM instruments, and the strategic role of HR. Choices can

be made within each type of HRM in terms of which HR activities will be offered face-to-face and which will be offered through web-based HR. For example, in operational HRM, organizations can choose to have employees update their own personal data through an HR website or to have an administrative force in place to do this. In relational HRM, there is a choice between supporting recruitment and selection through a web-based application or using a paper-based approach. Finally, in transformational HRM, organizations can create a change-ready workforce through an integrated set of web-based tools or using paper-based materials. When organizations choose to implement web technology for HRM purposes, based on the idea that management and employees should play an active role in carrying out HR work, this is referred to as e-HRM (Ruel and Magalhaes, 2008). Some of the authors and their contribution are as follows in table 2.6:

Table 2.6: List of author(s) with the findings

Author(s)	**Findings**
Biswas and Chakraborty (2018)	The implementation and adoption of HRIS in manufacturing companies have been found to be impacted by most HR practices. The HR department considers the system to be a crucial element that supports the organization's competitive efforts, adds value to the department, and facilitates smooth internal operations.
Cates (2016)	The main advantages of cloud-based systems are their accessibility through the internet, the ability to run payrolls outside of working hours, and always having the latest compliant system updates. It is important to find a system that is easy to use and offers both accounting and payroll services from a single provider.
Zhang (2014)	By utilizing HRMS for information management, enterprises can benefit from increased efficiency, reduced repetitive work, lower management costs, and elevated management standards. The HRMS is a simple, easy-to-maintain, and cost-effective system that facilitates the rational management of employees and optimization of human resource management.
Troshani et. al., (2011)	The success of HRIS adoption was found to be strongly influenced by management commitment, human capability, and environmental factors, including regulatory compliance.

Wiblen et. al., (2010)	The impact of technology on talent management is influenced by the agency of individuals and the social context of the organization. Therefore, a comprehensive understanding of E-HR and talent management requires consideration of both material and social factors. As organizations increasingly compete for talent, effective talent management through HRIS and access to comprehensive information may enable organizations to strategically allocate resources.
Ying et. al., (2009)	By utilizing HRMS for information management, enterprises can benefit from increased efficiency, reduced repetitive work, lower management costs, and elevated management standards.
Hussain et. al., (2007)	There were minimal variations in the usage of HRIS between small and large companies. Additionally, the adoption of HRIS has improved the professional status of HR professionals.
Tansley and Newell (2007a)	HRIS development involves a temporary, multi-disciplinary team working together in an intensive intellectual practice, making it essential to set a clear agenda for future action.
Emilio (2007)	The company's internal factors, such as the HRIS implementation capability and the strategic importance of HRIS, determine whether the function is outsourced or kept in-house. The company's capability must be superior and enable them to implement HRIS cheaper and faster while obtaining an application that better suits their needs to become a key determinant of IS sourcing decisions. This is because the company can outperform IT suppliers only when they have a certain level of cumulative knowledge generated from previous HRIS implementations and economies of communication and knowledge transfer derived from the close relationship between IS and HR employees.
Ngai and Wat (2006)	HRIS was mainly used for general information and payroll services. Quick response and access to information, improved data control, fewer errors, and increased customer satisfaction were the most significant benefits of implementing HRIS. Additionally, insufficient financial support, lack of information technology expertise, and a lack of commitment from top management were the main barriers to implementing HRIS.
Ball (2001)	The size of an organization determines whether it has an HRIS and which modules it adopts. Smaller organizations tend to choose low-cost options and in-house development to minimize risk. Smaller organizations prioritize cost and risk reduction when selecting HRIS,

	which is consistent with earlier surveys. The study supports the idea that smaller firms tend to hold only basic and relevant information in their HRIS, which is consistent with earlier research.

(Source: Author's compilation)

2.5.1 McLean and DeLone IS success model

The DeLone and McLean Information Systems Success Model, initially proposed in 1992 and later revised in 2003, has been widely acknowledged and applied by several prominent authors and scholars in the field of Human Resource Information Systems (HRIS). Notably, Duc et al. (2012) utilized the model to assess the factors influencing HRIS-trust, emphasizing user expectation, organizational structure, and IT infrastructure. Their study revealed that larger organizational size, better financial condition, higher organizational type, and superior IT infrastructure contribute to increased HRIS-trust, which, in turn, leads to enhanced sustainability of HRM performance.

The model has also found resonance in studies by authors such as Irum and Yadav (2019), who examined the concerns associated with the adoption of HRIS. They leveraged the model's framework to evaluate user satisfaction with HRIS, considering factors such as ease of use, perceived usefulness, quality of system output, and the level of support provided to users. Understanding user satisfaction is crucial in the context of HRIS implementation, as satisfied users are more likely to utilize the system effectively. By applying the DeLone and McLean model, these scholars shed light on the multi-dimensional aspects that influence the success and acceptance of HRIS in organizations.

2.5.2 Digital transformation in HR

Okar and Nachit (2020), the objective of digital transformation in Human Resources (HR) management is to attain its strategic goals and enhance the quality, efficiency, and cost-effectiveness of HR services. The integration of digital technology in HR activities such as hiring, compensation, assessment, workforce planning, and training is becoming increasingly popular. Digital technologies for HR encompass a range of tools

such as HRIS, electronic pointing, chatbots, gamification, and other services and techniques used to optimize HR management and support organizational transformations (Pennaforte et.al., 2018). According to Ashbaugh and Miranda (2002), the development of the internet has been the most important aspect of information technology in organizational processes. The integration of internet with HRIS has brought several benefits such as wider diffusion, lower transaction costs, less use of paper, and access to resources. Intranets in HRIS have introduced the virtual nature of the HR department, allowing employees to directly interact with enterprise information through web pages or other client/server technology tools (Kelly, 1997). This has reduced the administrative staff workload and increased efficiency, making the investment in intranets secure, easy-to-use, and economical (Cortese, 1998).

2.5.3 HRIS applications and its benefits to the users

Wang and Shih (2009) highlighted that the successful implementation of HRIS is not solely dependent on technology or organizational factors, but also on the level of trust users have in the system. The implementation of HRIS depends on various factors such as organizational, technological, and human factors, and understanding these determinants is crucial for successful implementation. Human factors like user adaptation, acceptance, training, and on-going support are equally important as technical aspects (Kavangh et.al., 1999; Martinsons & Chong, 1999; Martz, 1998). The authors suggested that understanding the interplay between these factors is crucial for the successful implementation and adoption of HRIS in organizations. Employee Self-Service is an application that has experienced a significant development in this technological context (McConnell, 1998; Ruddle, 1997; Reddick, 2009; Yeh, 2012). The system can generate a wide range of HR-related reports limited only by the user's imagination (Mohapatra & Patnaik, 2011).

Moreover, by automating tasks such as updating employee information and reviewing resumes, the HRIS allows HR staff to focus on strategic HRM activities. This shift in focus can lead to a change in the types of HR roles required, with more emphasis on analysis and management development. Additionally, some HRIS systems have

employee kiosks that allow employees to manage their personal information. A comprehensive HRIS system can even integrate many of the tasks formerly carried out by HR employees, allowing for the reengineering of the entire HR function (Beckers and Bsat, 2002; Weimei, 2013).

2.5.4 Performance analysis of HRIS

Duc et. al., (2012) found that three factors that affect HRIS-trust are user expectation, organizational structure, and IT infrastructure. Larger organizational size, better financial condition, higher organizational type, and higher IT infrastructure all lead to an increase in HRIS-trust. Thus, higher HRIS-trust leads to increased sustainability of HRM-performance. User satisfaction with HRIS within organizations is an important factor that can impact the overall success of the system (DeLone & McLean, 2003). When employees are satisfied with the HRIS, they are more likely to use it effectively and efficiently. Studies have shown that user satisfaction is influenced by several factors, such as the ease of use of the system, the perceived usefulness of the system, the quality of the system's output, and the level of support provided to users (Zviran & Erlich, 2003). In addition, user training and communication about the benefits of the system can also impact user satisfaction (Barut & Dogerlioglu, 2010; Hosnavi & Ramezan, 2010; Jones & Brown, 2004; Davarpanah & Mohamed, 2013; Ibrahim et. al., 2017; Al Shibly, 2007). Organizations can improve user satisfaction by implementing user-centred design, conducting usability testing, providing on-going user training and support, and regularly gathering feedback from users to address any issues or concerns.

Ensuring the accuracy and security of the data and system is crucial in almost every sector especially in military domain due to the large number of personnel with diverse skills and remote locations that make it challenging to manage them effectively (Noor & Razali, 2011). The HRIS must be equipped with features that enable enhanced system security, personnel security inspections, medical reports, physical tests, and the safekeeping of original documents (Noor & Razali, 2011). Availability guarantees prompt access and proper functioning of systems for authorized users. With the increased use and

complexity of HRIS systems, personnel transactions and information processing are more susceptible to security threats and risks. As a result, HR personnel must prioritize information security as a critical concern (Zafar, 2013).

2.5.5 Major concerns about adopting HRIS

According to Irum and Yadav, (2019), the adoption of HRIS raises concerns about employee privacy and ethics since the sharing of personal information becomes more accessible, which may lead to data leaks to both internal and external parties. This could result in a significant privacy breach, jeopardizing the trust of employees and customers. One of the primary obstacles to implementing HRIS is the high costs involved, including hidden overheads like employee training, customization, and maintenance. There are also technical challenges associated with HRIS implementation (Wang & Shih, 2009), including the need for regular software updates to ensure the system's effectiveness. Additionally, there is a considerable risk of bugs or viruses infecting the software, which could lead to system failure. Employee resistance is another factor that management may encounter during implementation and updating. The new systems may disrupt the on-going workflow and organizational culture, and employees may be unwilling to invest time in further software training (Irum & Yadav, 2019).

2.6 Gap Identification

The extensive review of literature reveals a notable research gap in the context of measuring the adoption and use of HRIS within the specific domain of banking and insurance companies, particularly in developing countries like India. Despite the increasing demands and requirements of these organizations, there is limited empirical evidence and scholarly attention directed towards understanding the unique challenges, opportunities, and outcomes associated with HRIS implementation in the banking and insurance sectors. Existing studies have predominantly focused on various industries, such as manufacturing, educational institutions, hospitality, and information technology, leaving a noticeable void in the exploration of HRIS dynamics within the financial

services sector. Factors influencing the adoption and success of HRIS in this specific sector may differ from those observed in other industries, making it imperative to conduct targeted research that addresses the nuanced needs and complexities of HRIS implementation within banking and insurance institutions. Exploring the challenges, benefits, and performance outcomes of HRIS adoption in these sectors was not only contribute to the academic discourse on HRIS but also offer practical insights for organizations in the financial services industry seeking to enhance their human resource management practices through technological advancements.

2.7 Conclusion

The bibliometric analysis of HRIS literature provides valuable insights into the evolution, trends, and themes in the field of HRIS research. The analysis revealed an increasing interest in HRIS research, particularly for the last twenty-one years, with a significant focus on the impact of HRIS on organizational performance and employee outcomes. The analysis also identified key contributors, leading journals, and popular keywords, which can guide future research and inform the development of new theories and practices in HRIS. Furthermore, the bibliometric analysis highlighted the interdisciplinary nature of HRIS research, with contributions from various fields such as human resources, information systems, and management. This interdisciplinary nature has led to the development of diverse research methods and theoretical perspectives, which enrich the understanding of HRIS and its impact on organizations and employees.

The mostly cited authors like Al-Dmour and Love (2015), coined that the primary objective of investing in HRIS is to enhance HR performance, which leads to improved organizational effectiveness which was supported by previous studies (Raymond, 1990; Mueller et. al., 2010; Kumari, 2013). In the past two decades, several studies have focused on different aspects of HRIS, such as the implementation of HRIS in Public University (Ibrahim et. al., 2017; Davarpanah & Mohamed, 2013; Bamel et. al., 2014). Top management role in implementing HRIS in Malaysian airlines (Zin, 2009; Vrontis et. al., 2010). Influence of HRIS usage on employee and organisational performance in Hotels

and Restaurants (Al-Dmour, 2020; Shyaa, 2019). Social Influence and Task Technology Fit in SMEs (Virdyananto et al., 2016) where Social Influence refers to the impact of social environment on the adoption of information systems, and Task Technology Fit refers to the compatibility between tasks and technology, where information systems can help employee's complete tasks and improve their performance. Factors affecting the adoption of HRIS in Banking and Financial Sector (Rahman et. al., 2016; Tuteja et. al., 2019).

However, there is a lack of research on measuring the adoption and use of HRIS, especially in Banking and Insurance companies in developing countries like India. With the increasing demands and requirements of organizations, HRIS functionality has become more complex, and more advanced IT solutions have been developed.

From the co-occurrence keywords "Information system" has the highest frequency. The keyword has been highlighted in many articles. Beckers and Bsat (2002) noted that traditional HR management is insufficient to meet the increasing demands placed on HR by employees and internal and external forces. As a result, information systems (IS) have the potential to improve organizational capabilities (Tansley and Watson, 2000). Consequently, HR managers and IS researchers are emphasizing the need to understand the factors that contribute to HRIS effectiveness (Ngai and Wat, 2006; Hussain et al., 2007).

Highly cited authors Lippert and Swiercz (2005) state that successful HRIS implementation involves employee orientation, usability and usefulness assessments, and deployment within an organizational setting. The authors with a good co-citation link strength i.e., authors whose work has been cited by other authors Bamel et al. (2014) found that lack of commitment from senior management, perception of HRIS as non-beneficial, unavailability of suitable information system software, and fear of change are significant challenges for implementing HRIS. Similarly, author with the highest link strength of citation Al-Dmour and Al-Zu'bi (2014) identified resistance to change and lack of commitment as obstacles for implementing HRIS. The significance of paperwork as a

barrier for HRIS implementation is debated in the literature, with Bamel et al. (2014) considering it a significant barrier while Lippert and Swiercz (2005) did not find it significant. The availability of financial support for HRIS implementation is also a contested issue, with Ngai and Wat (2006) identifying it as the most significant hurdle, while Al-Dmour and Al-Zu'bi (2014) and Bamel et al. (2014) consider it a less essential barrier.

The success of HRIS implementation is influenced by factors such as information quality, service quality, top management support, system quality, and social influence (Puspitarini et. al., 2018). HRIS can be improved by using the recommendations of human resources experts and the users' feedback on HRIS needs data updates, feature development, setting of usage procedures, system improvements, and ease of use (Johnson, 2017). As HRIS continues to evolve with new technological advancements, it is crucial to stay up-to-date with the latest research trends and emerging themes to ensure that organizations can leverage HRIS effectively to achieve their strategic objectives and optimize their human resource management practices.

The literature review’s shortcomings are mostly reflective of the inadequacies in the reports evaluated. The information used in this study was confined to articles, conference paper, book chapter and review articles published in Scopus database only. The research is based on an existing HRIS scenario, which may not be able to keep up with rapid technological advancements. There is a probability that we have missed some studies that were beyond our accessibility. Another limitation is that the records are limited to the publication year 2001 to 2021, articles published before 2001 were accessible online but the online analytical processing (OLAP) was electronically poor. Relevant studies may have been ignored since most of the research on the topic of HRIS was found to be distributed across several disciplines while scanning the related studies. The study area is confined to the service sector only which does not highlight the implication of other areas.

2.8 Summary

The chapter discusses the reasons why modern-day organizations opt for HRIS (Human Resource Information System) which include better time management, generating excellent reports, smooth recruitment, and organizational development. The use of HRIS is not limited to business enterprises only, but also in other sectors such as the military, hotels and restaurants, aviation industry, educational institutions, hospitals, IT industries, and financial institutions. The findings of different authors regarding the usage of HRIS are also presented, with studies focusing on factors that affect the success of HRIS adoption such as management commitment, human capability, environmental factors, and the company's internal factors. The chapter also discusses the benefits of digital transformation in HR management and how it can enhance the quality, efficiency, and cost-effectiveness of HR services. Additionally, the chapter mentions the benefits of HRIS applications and how they can optimize HR management and support organizational transformations.

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CHAPTER 3

RESEARCH METHODOLOGY

3.1 Introduction

The research methodology is a systematic approach that incorporates specific standards and resources known as the research framework. Its purpose is to uncover answers to research questions through a combination of research strategy, research design, and data collection and analysis techniques. This chapter provides an overview of the tools and procedures used in the current study, including the methodology, research philosophies, and data analysis techniques (Salkind, 2010). The approach chosen greatly influences the reliability and validity of the study's findings. A well-considered strategy, steps, methodologies, and other essential components of the methodology collectively form the research process and impact its progression. Methodology encompasses all necessary steps and considerations for executing the work, while providing an understanding of the overall plan. It serves as a foundation for critical research decisions, such as selecting the target population, classifying and sampling it, gathering data, implementing data collection measures, and choosing statistical methods for data analysis (Kothari and Garg, 2014).

This chapter covers various aspects of research, including selecting the research approach, determining the research design, planning the data collection process, choosing data analysis methods, assessing the dependability and accuracy of the data, and adhering to ethical research principles.

3.2 Research Design and Strategy

3.2.1 Research Design

Research design refers to a systematic approach used by researchers to gather, examine, and interpret evidence in order to address their investigative inquiries (Flick et al., 2004). It encompasses various aspects of the research process, including data

collection methods and the analytical techniques employed. The research design encompasses elements such as the theoretical framework, the selection of empirical data, the methods and procedures used, the objective of generalization, and considerations related to quality control. The quantitative research design was chosen and integrated for the study because of the specific nature of the research. In line with this design, the study explored into the perspectives and viewpoints of individuals concerning the main topic discussed in the research study. This was accomplished by referring to suitable and applicable literature, as suggested by Taylor (2005). The quantitative research approach was employed to successfully accomplish the goals and objectives of the study.

3.2.2 Research Strategy

According to Christensen et al., (2011), a research strategy refers to the approach employed by a researcher to establish a representative sample for their study. This involves identifying an appropriate population and selecting research participants from that population. The research strategy primarily centers on the techniques and methodology used to conduct the study, as outlined by Tashakkori and Teddlie (2010). The research strategy encompasses a series of sequential steps or activities necessary for conducting the research. It starts with defining the research problem, which is then examined by exploring relevant theories and concepts.

The research design is developed based on the hypothesis. This design is implemented by collecting data through primary or secondary sources, utilizing various techniques that align with the specific research designs employed to achieve optimal outcomes. Finally, the research strategy concludes with data analysis and hypothesis testing to determine if any relationships exist, leading to the interpretation and reporting of the analyzed data.

Quantitative research

Given the characteristics of the research topic, the study employed a quantitative research design. Quantitative methods offer a valuable survey tool that enables broader

coverage of the sample population and facilitates precise measurement of data variables. These methods are commonly utilized in information systems (IS) research to quantify the influence of factors on the adoption or usage of IS technologies across diverse organizational contexts (Kaplan and Duchon, 1988). Similarly, it is considered necessary to utilize the quantitative method in order to examine the quantitative relationship between the dependent and independent variables in this study. Quantitative research involves the statistical analysis of data in a numerical format (Fowler et al., 2013). Quantitative research is a method for examining the relationship between variables, which can be measured and analyzed using statistical procedures. This approach allows for the generation of assumptions, deductive testing of theories, mitigation of bias, consideration of alternative explanations, and the ability to generalize and replicate findings (Creswell, 2009).

The decision to employ the quantitative research method in the present study is further supported by its capacity to apply a deductive approach rooted in "social facts" or the logic of the natural world as it relates to human behaviour (Amaratunga et al., 2002). Furthermore, quantitative research methods are particularly suitable for the following types of investigations: comparative studies and replication of findings, research that relies on factual interpretations without involving the observed subjects directly, analysis of data using objective rather than subjective methods (such as intuition, emotions, opinions, and experiences), examination of descriptive aspects of human behaviour, and research that necessitates the formulation and verification of hypotheses. Quantitative research involves the use of numbers, logical reasoning, and an unbiased approach. It primarily focuses on gathering and analyzing numerical data that remains consistent over time, employing detailed and convergent reasoning rather than generating a wide range of spontaneous ideas.

The key characteristics of quantitative research for the present study are as follows:

- Data collection involves the use of structured research instruments.

- The results are based on large sample sizes that accurately represent the population.
- The research study can be replicated or repeated easily due to its high reliability.
- The researcher has a clearly defined research objectives and hypotheses.
- Research focused on quantifying the observable aspects of human behaviour.
- The entire study is meticulously designed prior to data collection.
- Data is presented in the form of numbers and statistics, often displayed in tables, charts, figures, or other non-textual formats.
- The study enables the generalization of concepts, prediction of future outcomes, or exploration of causal relationships on a broader scale.
- The Researcher has employed tools such as questionnaires or statistical software to analyse numerical data.

3.3 Population/Sample Unit/Sample size

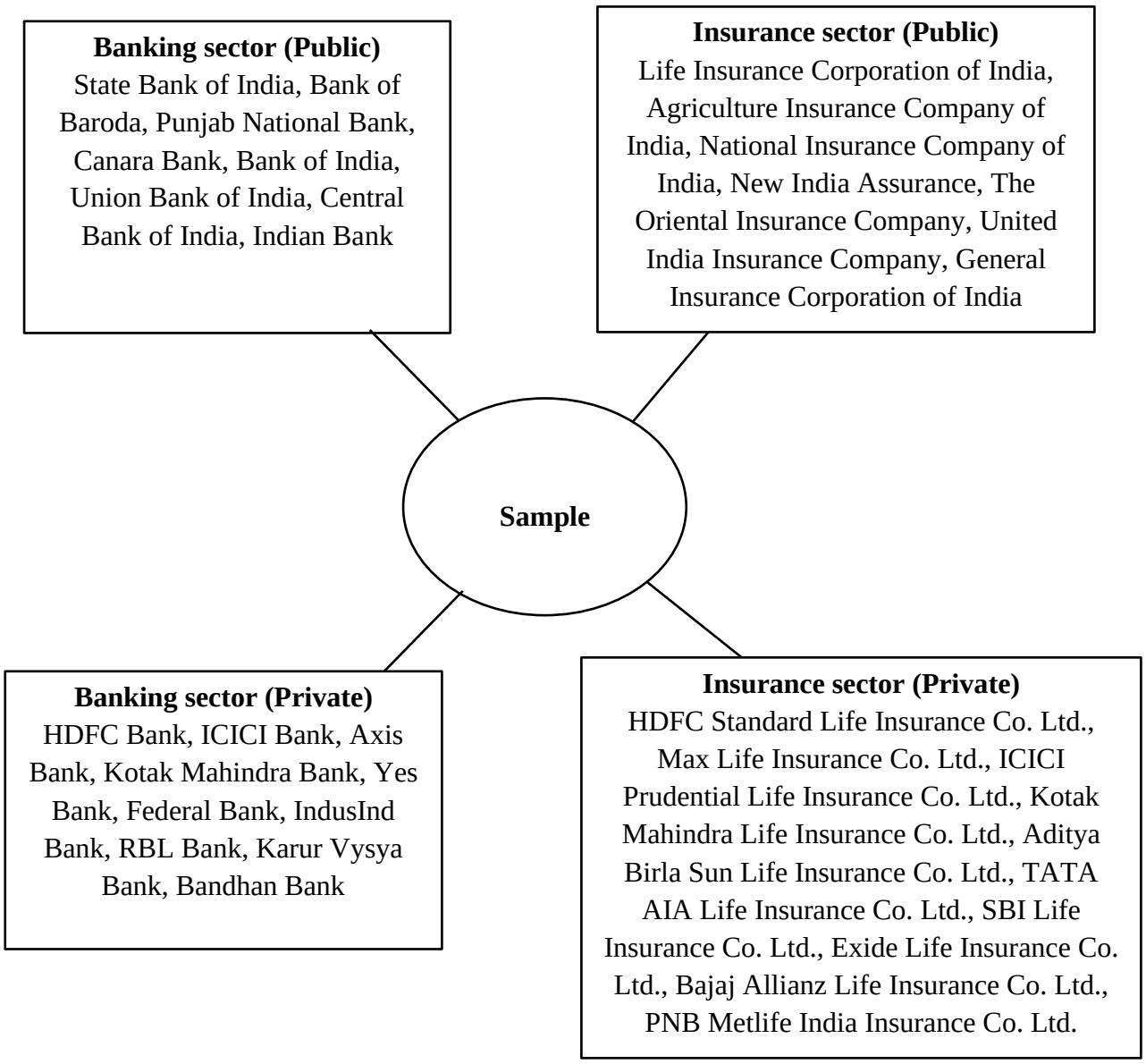
3.3.1 Population of the study

In order for a research study to be considered valid and dependable, it is necessary to acquire and examine data, which are subsequently converted into a valuable asset for future studies and/or enhancing organizational strategies. The term "population" refers to the specifically chosen group of individuals who are given priority in order to ensure the success of the research. According to Robson (2011), the population described in the context refers to the collective group of individuals engaged in the collection of investigative data. The population does not necessarily encompass an entire country or state, but rather should be confined to the specific object, phenomena, or subject relevant to the sampling purpose (Robson, 2011). Thus, the study population consists of employees from the banking and insurance sectors in India.

3.3.2 Sample Unit

India's banking system comprises various types of banks, including 12 public sector banks and 21 private sector banks. The Reserve Bank of India holds regulatory authority over the banking system. There are 5 public sector and 49 private sector insurance companies in India. The Insurance Regulatory and Development Authority of India (IRDAI) is a legally constituted organization established by the Indian government through the Insurance Regulatory and Development Authority Act, 1999 (IRDAI Act 1999). Its primary responsibility is to oversee and foster the growth of the insurance industries in India. The sample unit for the study consists of employees from both public and private sector banking and insurance companies in India. For the study only top 10 banks and insurance companies are being selected. The top 10 banks are selected in terms of revenue, branches and total assets and the top 10 insurance companies are being selected based on market capitalization. The below mentioned public and private Insurance companies are selected as per the list given by Insurance Regulatory and Development authority (IRDA). All the public and private banks which are selected for the study are listed under reserve Bank of India (RBI) and are ranked as per their economic performance as per RBI Bulletin Sept., 2019.

Figure 3.1: Classification of selected Banking and Insurance companies



(Source: Adapted from researcher's compilation)

3.3.3 Selected Banking Companies in India

For the comprehensive investigation into the adoption and use of Human Resource Information Systems (HRIS), selected set of banks will serve as the primary sources of

data. The chosen banks represent a mix of public and private sector institutions, ensuring a diverse and comprehensive understanding of HRIS practices within the banking sector. In the public sector, the selected banks include the State Bank of India, Bank of Baroda, Punjab National Bank, Canara Bank, Bank of India, Union Bank of India, Central Bank of India, and Indian Bank, with a combined workforce totalling 7,13,888 employees.

On the private sector front, the selected banks encompass HDFC Bank, ICICI Bank, Axis Bank, Kotak Mahindra Bank, Yes Bank, Federal Bank, IndusInd Bank, RBL Bank, Karur Vysya Bank, and Bandhan Bank, boasting a collective employee count of 7,49,650. The below table 3.1 shows list of selected public and private banks in India.

Table 3.1: List of Banks in India

Sl. No.	**Name of the Bank**	**Sector**	**Year**	**No. of employees**
1.	State Bank of India	Public	2022	2,44,250
2.	Bank of Baroda	Public	2022	79,016
3.	Punjab National Bank	Public	2022	1,03,144
4.	Canara Bank	Public	2022	86,919
5.	Bank of India	Public	2021	51,459
6.	Union Bank of India	Public	2022	75,500
7.	Central Bank of India	Public	2021	32,335
8.	Indian Bank	Public	2020	41,265
Total				**7, 13,888**
1.	HDFC Bank	Private	2022	1,20,093
2.	ICICI Bank	Private	2021	1,30,170
3.	Axis Bank	Private	2022	78,300
4.	Kotak Mahindra Bank	Private	2020	71,000
5.	Yes Bank	Private	2022	2,38,000
6.	Federal Bank	Private	2020	12,592
7.	IndusInd Bank	Private	2021	33,582
8.	RBL Bank	Private	2022	9,257
9.	Karur Vysya Bank	Private	2021	7,211
10.	Bandhan Bank	Private	2022	49,445
Total				**7, 49, 650**

(*Source: https://financialservices.gov.in)*

3.3.4 Selected Insurance companies in India

The list of a comprehensive classification of prominent insurance companies in India, distinguishing between public and private sectors is presented below in table 3.2. The public sector encompasses esteemed entities such as Life Insurance Corporation of India, Agriculture Insurance Company of India, National Insurance Company of India, New India Assurance, The Oriental Insurance Company, United India Insurance Company, and General Insurance Corporation of India. Collectively, these public entities contribute to a total workforce of 1,80,356 employees.

On the other hand, the private sector is represented by HDFC Standard Life Insurance Co. Ltd., Max Life Insurance Co. Ltd., ICICI Prudential Life Insurance Co. Ltd., Kotak Mahindra Life Insurance Co. Ltd., Aditya Birla Sun Life Insurance Co. Ltd., TATA AIA Life Insurance Co. Ltd., SBI Life Insurance Co. Ltd., Exide Life Insurance Co. Ltd., Bajaj Allianz Life Insurance Co. Ltd., and PNB MetLife India Insurance Co. Ltd., collectively employing 1,81,571 individuals.

Table 3.2: List of Insurance companies in India

Sl. No.	Name of the Insurance company	Sector	Year	No. of employees
1.	Life Insurance Corporation of India	Public	2017	1,15,394
2.	Agriculture Insurance Company of India	Public	2015	274
3.	National Insurance Company of India	Public	2016	15,079
4.	New India Assurance	Public	2016	18,783
5.	The Oriental Insurance Company	Public	2016	13,923
6.	United India Insurance Company	Public	2016	16,345
7.	General Insurance Corporation of India	Public	2016	558
Total				1, 80, 356
1.	HDFC Standard Life Insurance Co. Ltd.	Private	2017	16,544

2.	Max Life Insurance Co. Ltd.	Private	2019	14,075
3.	ICICI Prudential Life Insurance Co. Ltd.	Private	2021	14,630
4.	Kotak Mahindra Life Insurance Co. Ltd.	Private	2021	36,631
5.	Aditya Birla Sun Life Insurance Co. Ltd.	Private	2021	34,000
6.	TATA AIA Life Insurance Co. Ltd.	Private	2022	7,036
7.	SBI Life Insurance Co. Ltd.	Private	2017	20,787
8.	Exide Life Insurance Co. Ltd.	Private		5,346
9.	Bajaj Allianz Life Insurance Co. Ltd.	Private	2020	13,166
10.	PNB MetLife India Insurance Co. Ltd.	Private	2016	21,000
Total				1, 81, 571

(*Source: https://financialservices.gov.in)*

The sample unit for the study is Public Banks (7,13,888) + Private Banks (7,49,650) + Public Insurance (1,80,356) + Private Insurance (1,81,571) = 1,825,465 Therefore, the sample unit is 1,825,465

3.3.5 Sample Size

The concept of sample size refers to a subset of a population that is carefully chosen to provide enough data for making reliable conclusions. Sekaran and Bougie (2010), emphasize that sample size should be sufficient to yield the necessary information. Kumar et al. (2013) explains sample size as “total number of subjects in the sample”.

The Krejcie and Morgan table (KMT) is widely recognized in the fields of behavioural and social sciences as a tool for determining sample sizes. Researchers can easily utilize this table without the need for complex calculations, and it is applicable to various population sizes. According to the KMT, a sample size of 384 is considered adequate for populations of 1,000,000 or greater. As a result, 384 have gained significant prominence as the "magic" number in research and have been utilized in numerous articles and theses. Additionally, when employing the KMT, it is crucial to ensure that the chosen

sample accurately represents the specific population under investigation (Memon et al., 2020).

Krejcie and Morgan (1970) developed a formula to determine the sample size in educational research. This formula is often used when the population is finite and the researcher wants to ensure a representative sample. The formula is as follows:

$$\mathbf{n = \chi^2 NP(1-P)/e^2(N-1)+\chi^2 P(1-P)}$$

where,

χ^2 = chi – square value

N = Population size

P = Population proportion

e^2 = Margin of error

The table value of chi-square depends on a degree of freedom at a given confidence level.

At 95% confidence level with degree of freedom 1 the chi-square value is ($\chi^{2)}$ = 3.841

At 95% confidence level the margin of error is (e) = 0.05

Population proportion (P) = 0.5

N = 1,825,465

Now, substituting these values into the formula gives the sample size (n):

$$\mathbf{n = 3.841*1825465*0.5*0.5/((0.05)^2*(1825465-1))+(3.841*0.5*0.5)}$$

$$\mathbf{n = 1752902.77/4564.62025}$$

$$\mathbf{n \approx 384.019409}$$

So, the calculated sample size (n) is approximately 384.019409

Rounding to the nearest whole number makes the sample size more practical and easier to work with in real-world situations. Therefore, the sample size value 384.019409 is rounded off to the nearest whole number, which is 385.

Just like the KMT (Krejcie and Morgan, 1970) table and formula, there are several online calculators available for determining sample size. The Raosoft sample size calculator (Raosoft, 2010) and Calculator.net (Calculator.net, 2015) are well-known examples. Due to their user-friendly nature, these calculators have been widely used in social science research (Amzat et al., 2017; Cruz et al., 2014; Fernandes et al., 2014; Mazanai and Fatoki, 2011; Nakku et al., 2020; N. Othman and Nasrudin, 2016). These online calculators typically require inputs such as the confidence level, margin of error, and population size to determine the minimum required sample size for a study. The KMT, Raosoft, and Calculator.net are undeniably valuable tools for sample size determination. However, it is important for researchers to be mindful of the assumptions associated with probability sampling techniques and to make informed decisions when using these tools, rather than considering them as ready-made solutions for sample size calculation. Therefore, the sample size for the study is 385 (KMT, 1970; Raosoft, 2010). The table presented below illustrates the computation of the sample size using the Raosoft tool.

Table 3.3: Sample size calculation

Margin of error	5%
Confidence level	95%
Population size	1,825,465
Response distribution	50%
Recommended sample size	385

(Source: http://www.raosoft.com/samplesize.html)

In this sample size calculation, a margin of error of 5% and a confidence level of 95% were utilized, suggesting that the researchers aim for a level of precision within 5% of the true population parameter with 95% confidence. The population size, set at 1,825,465, indicates the total number of individuals in the target population. The response distribution of 50% assumes an equal probability of response and non-response. Based on these parameters, the recommended sample size is determined to be 385. This means that, for the given population size and desired level of confidence and precision, surveying 385 individuals is deemed sufficient to obtain reliable and representative results for the study.

The calculated sample size strikes a balance between statistical significance and practical feasibility in the research design.

Therefore, a total of 385 questionnaires were distributed through Google Forms to gather valuable insights. The engagement and response from the participants were commendable, as all 385 questionnaires were successfully received. However, for the purpose of rigorous analysis, it is noteworthy that 108 forms were deemed incomplete, leaving a robust dataset of 277 fully filled forms. This indicates a response rate of approximately 71.7%. These meticulously completed responses will be the focal point of subsequent analysis, ensuring the reliability and accuracy of the findings derived from the survey.

3.4 Sampling Technique

The sampling technique is a critical aspect of the research methodology that involves selecting a subset of individuals or elements from a larger population to represent and draw inferences about the whole. This method plays a pivotal role in ensuring the external validity and generalizability of research findings. Various sampling techniques exist, each with its own advantages and limitations, and the choice of method depends on the nature of the study and the research objectives.

The researcher has employed a stratified sampling technique for the study. This method involves dividing the population into distinct strata or subgroups based on relevant characteristics such as public banks and private banks. Similarly, public insurance companies and private insurance companies in India. The strata or subgroups is shown in figure 3.1(selected banks and insurance companies in India). Subsequently, a random sample is then selected from each stratum. This approach ensures that the diversity within the industry is adequately represented in the sample, allowing for more accurate and targeted insights. Stratified sampling is particularly beneficial when there is considerable variability within the population, as it enables a more nuanced analysis by capturing the characteristics of each subgroup. Additionally, it helps mitigate the risk of

underrepresentation or overrepresentation of certain types of companies, contributing to the overall reliability and validity of the collected data.

3.5 Survey instrument

A survey instrument is a tool designed to collect data and information from participants in a systematic and structured manner. It serves as a key component of research methodology, allowing researchers to gather insights, opinions, and responses from individuals or groups relevant to the study. The survey instrument typically includes a set of questions or items that respondents answer based on their experiences, perceptions, or opinions. The survey instrument is meticulously structured into various sections, each designed to explore specific dimensions related to the adoption and use of Human Resource Information Systems (HRIS).

3.5.1 Structure of the survey questionnaire

The first section, General Information (Section I), encompasses 18 items, serving as a comprehensive introduction to collect fundamental demographic details from the study participants. Following this, Section II, characterized by Close-ended Questions and comprising 5 items, focuses on eliciting precise responses through closed-ended inquiries, without specific references provided.

Moving forward, Section III, titled Adoption Usage of HRIS, incorporates 7 items and draws on the influential works of DeLone and McLean (2003), Davis (1989), Urbach et al., (2010), and Sabherwal (1991) to gain insights into the adoption and usage patterns of HRIS. Section IV, Use of HRIS, consisting of 9 items, delves into the utilization aspects of HRIS, referencing key works such as DeLone and McLean (1992, 2003), Almutairi and Subramanian (2005), and Urbach et al., (2010).

The subsequent section, Characteristics of HRIS Implemented (Section V), with its 21 self-administered items, systematically explores the diverse features and attributes of the implemented HRIS. Section VI, Information Quality, is dedicated to assessing the quality of information within HRIS, comprising 5 items and referencing seminal works

by DeLone and McLean (1992, 2003), Almutairi and Subramanian (2005), Lin and Lee (2006), McKinney et al. (2002), Yang et al. (2005), and Urbach et al. (2010).

Section VII, User Satisfaction, with 11 items, investigates user satisfaction in the context of HRIS, citing works by DeLone and McLean (1992, 2003), Seddon and Kiew (1994), and Urbach et al. (2010). Lastly, Section VIII, Subjective Norms, explores subjective norms through 4 items, referencing Ajzen (1991) and Venkatesh and Davis (2000). These meticulously designed sections collectively contribute to a comprehensive understanding of the multifaceted aspects surrounding HRIS adoption, usage, and its impact on user perception. The table 3.4 represents the dimensions.

Table 3.4: Dimensions of the scale

Section	Dimensions/Construct	No. of Statements/Items	References
I	General Information	18	N/A
II	Close-ended questions	5	N/A
III	Adoption usage of HRIS	7	DeLone and McLean, 2003; Davis, 1989; Urbach et al., 2010; Sabherwal and King,1991
IV	Use of HRIS	9	DeLone and McLean,1992; DeLone and McLean, 2003; Almutairi and Subramanian, 2005; Urbach et al., 2010
V	Characteristics of HRIS implemented	21	Self-administered
VI	Information Quality	5	DeLone and McLean,1992; DeLone and McLean, 2003; Almutairi and Subramanian, 2005; Lin and Lee, 2006; McKinney et al. ,2002; Yang et al., 2005; Urbach et al., 2010
VII	User Satisfaction	11	DeLone and McLean,1992; DeLone and McLean, 2003; Seddon and Kiew, 1994; Urbach et al., 2010
VIII	Subjective Norms	4	Ajazen, 1991; Venkatesh and Davis, 2000

IX	Comparison of HRIS and Manual HR Practices	7	Self-administered

(Source: Researcher's compilation)

3.5.2 Dimensions of the survey Instrument

The survey instrument designed to measure the adoption and usage of Human Resource Information Systems (HRIS) in banking and insurance companies in India encompasses several key dimensions. Firstly, it delves into the actual use of HRIS within these organizations, examining the extent to which these systems are integrated into daily HR operations. Additionally, the instrument explores the characteristics of the implemented HRIS, seeking to understand the features and functionalities that are most prevalent in the sector. Information quality is another vital dimension, assessing the reliability, accuracy, and relevance of data managed by HRIS. User satisfaction is gauged to comprehend the level of contentment among employees with the HRIS, reflecting its effectiveness in meeting their needs. Furthermore, the survey examines the subjective norms, evaluating the perceived social influences that may impact HRIS adoption decisions. A comparative analysis between HRIS and manual HR practices is undertaken to identify advantages and challenges, providing a holistic view of the technological transition in these financial service sectors. This comprehensive approach ensures a nuanced understanding of HRIS adoption and usage in the unique context of banking and insurance industries in India.

(i) **Adoption usage of HRIS**: The adoption and usage of Human Resource Information Systems (HRIS) represent a critical facet of contemporary organizational management, particularly in banking and insurance companies in India. This dimension of inquiry within the survey instrument aims to elucidate the extent to which these financial institutions have embraced HRIS as a fundamental tool in their human resource operations. It assesses the degree to which HRIS has been integrated into daily practices. Understanding the adoption usage of HRIS provides insights

into the technological maturity of these organizations, shedding light on the efficiency gains, cost-effectiveness, and overall improvements in HR processes achieved through the implementation of such systems.

(ii) **Use of HRIS:** The use of HRIS constitutes a pivotal dimension in the contemporary landscape of organizational management, particularly within the banking and insurance sectors in India. This dimension examines into the practical implementation and operationalization of HRIS functionalities within these institutions. Examining the use of HRIS provides valuable insights into how organizations leverage technological solutions to streamline HR processes, enhance decision-making, and improve overall efficiency. Additionally, it offers a nuanced understanding of the integration of HRIS into daily workflows, shedding light on the adaptability of these systems and their alignment with the specific needs and challenges faced by banking and insurance companies in the dynamic and evolving business environment.

(iii) **Characteristics of HRIS implemented**: The characteristics of the implemented HRIS serve as a crucial aspect in evaluating the technological infrastructure within banking and insurance companies in India. This dimension of analysis explores the distinctive features and attributes embedded in the HRIS adopted by these organizations. Characteristics may encompass the system's scalability, user-friendliness, security measures, and adaptability to evolving technological landscapes.

(iv) **Information Quality**: This dimension is a critical aspect when evaluating the efficacy of HRIS in banking and insurance companies in India. The dimension scrutinizes the accuracy, reliability, and relevance of the data managed by HRIS. Assessing Information Quality involves examining the precision of employee records, the timeliness of data updates, and the overall integrity of the information stored in the system. In the dynamic financial sector of India, where data-driven decision-making is increasingly pivotal, the Information Quality dimension offers a

comprehensive understanding of how well HRIS meets the standards for data accuracy and reliability in these organization.

(v) **User Satisfaction**: User satisfaction is a pivotal dimension in the evaluation of HRIS within organizational contexts, especially in the banking and insurance sectors in India. This dimension gauges the contentment and fulfillment of users, primarily employees, with the HRIS tools and functionalities. User satisfaction is considered a critical indicator of HRIS effectiveness, as it reflects the system's ability to meet the expectations and needs of its users. It encompasses factors such as ease of use, system reliability, and the overall user experience. Understanding user satisfaction provides valuable insights into the success of HRIS implementation, shedding light on whether the system aligns with the preferences and requirements of its intended users. High levels of user satisfaction not only indicate successful adoption but also contribute to increased employee engagement, productivity, and positive perceptions of technology within the workplace.

(vi) **Subjective Norms**: Subjective norms, as a crucial dimension in the study of HRIS adoption within banking and insurance companies in India, delve into the perceived social influences and expectations that shape individuals' attitudes toward using HRIS. This dimension recognizes the significance of external opinions, including those of colleagues, superiors, and broader societal norms, in influencing an individual's decision-making regarding HRIS adoption. Understanding subjective norms adds a social dimension to the adoption process, recognizing that individual attitudes are not formed in isolation but are deeply intertwined with the collective perceptions and expectations prevalent in the organizational and societal context. This dimension enriches the overall analysis of HRIS adoption by acknowledging the interpersonal dynamics that play a role in shaping organizational technology adoption patterns.

(vii) **Comparison of HRIS and Manual HR Practices**: The comparison of HRIS and manual HR practices represents a critical dimension in understanding the evolving landscape of human resource management in the banking and insurance sectors.

This dimension scrutinizes the differences, advantages, and potential challenges associated with the adoption of HRIS as opposed to traditional manual HR practices. It seeks to identify any potential drawbacks or resistance encountered during the transition from manual processes to automated HRIS. Understanding the nuanced dynamics between HRIS and manual practices is instrumental in guiding organizational strategies, aiding decision-makers in making informed choices about technology adoption and adaptation.

3.5.3 Development of Questionnaire

The development of a questionnaire is a crucial step in any research endeavour, serving as the primary tool for data collection and analysis. In the context of studying the adoption and usage of Human Resource Information Systems (HRIS) in banking and insurance companies in India, crafting a well-designed questionnaire is imperative. This process involves a systematic approach, starting with a clear definition of research objectives and the identification of key variables. The questionnaire is designed to gather relevant and reliable information, addressing each dimension of the research comprehensively. Careful consideration is given to the phrasing of items, ensuring clarity and avoiding biases. A well-crafted questionnaire is essential for obtaining accurate and meaningful data, contributing to the validity and reliability of the research findings.

3.5.4 Questionnaire coding

Questionnaire coding is a crucial step in the research process, involving the systematic assignment of codes to various elements within a survey instrument. This coding process facilitates data analysis by converting qualitative information into a format that can be quantitatively interpreted. In the context of a questionnaire, coding often involves assigning numerical or alphanumeric codes to different response categories, enabling researchers to organize, categorize, and analyze the collected data efficiently. The coding process may encompass open-ended responses, multiple-choice options, and other relevant variables. Accurate and consistent questionnaire coding is essential for

ensuring the reliability and validity of the study's findings. It streamlines the data management process, allowing to draw meaningful conclusions and insights from the survey data. Additionally, a well-structured coding system enhances the reproducibility of the study, as other researchers can easily interpret and replicate the analysis based on the coded data.

When using online surveys or self-administered survey methods, it is essential to incorporate Likert scales as recommended by Hair et al. (2006). In simple terms, a Likert scale is a tool used to gauge participants' opinions on a particular area of study by asking them to indicate their level of agreement or disagreement. This is done by rating a series of statements that reflect their beliefs, which can be observed through their behaviour or thought processes.

3.5.5 Rating of the responses

Zikmund (1997) states that Likert measurement may include several scale items which will form an index, while a single item on a summated rating scale represents an ordinal scale, which is the most ideal scale for questionnaires where viewpoints and attitude of individuals are solicited. For the study conducted, Likert – type ordinal scale was considered for measuring the attitudes of respondents to determine their degree of agreement. The scaling required respondents to choose from seven options, which were assigned numeric values from 1 to 7. The most favorable attitude on the statement was indicated by strong agreement with a corresponding value of (7) assigned to that particular response. However, where response to the question is negative or the least favorable the value of (1) is assigned. Below is the table showing all the seven-point Likert scale with scale description.

Table 3.5: The seven-point Likert scale for measuring responses.

Scale Value	Scale Description
7	Strongly Agree (SA): This point indicates that the statement is absolutely relevant, highly favoured and highly important according to the respondent's views and experience.

6	Agree (A): This point indicates that the statement is relevant, very important and true to a high degree based on the respondent's views and experience.
5	Agree Somewhat (AS): This point indicates that the statement is relevant and important to some extent based on respondent's views and experience.
4	Undecided (U): This point indicates that the statement could be relevant, important or partly true based on the respondent's views and experience.
3	Disagree Somewhat (DS): This point indicates that the statement could be unimportant and not so relevant to some extent based on respondent's views and experience.
2	Disagree (D): This point indicates that the statement is of no relevance, unimportant or not implemented based on the respondent's views and experience.
1	Strongly Disagree (SD): This point indicates that the statement is highly untrue, unimportant based on the respondent's views and experience.

(Source: www.extension.iastate.edu/Documents//LikertScale)

The aforementioned scale has been used in numerous similar studies in the past. This method allows the researcher to obtain multiple potential scores and enhances the statistical analysis options that are available (Premkumar and Ramamurthy 1995; Pallant, 2007).

3.6 Reliability and Validity of the Survey Instrument

Reliability and validity are essential aspects when evaluating the accuracy of a measurement tool. In the quantitative phase of the study, the reliability of the instruments employed was assessed through the utilization of Cronbach's alpha which does a statistical measure employed to gauge the internal consistency of a construct, specifically examining the level of coherence among the items comprise it (Tavakol and Dennick, 2011).

3.6.1 Reliability

The focus of reliable measurement pertains to how well an instrument can gauge internal consistency within a dataset (Tavakol and Dennick, 2011). In other words, reliability assesses the degree to which the variables (such as characteristics of HRIS, information quality, comparison of HRIS and manual HR practices, subjective norms, use of HRIS, user satisfaction, and adoption usage of HRIS) are consistently measured.

Cronbach's alpha is the most commonly used method for assessing the reliability of data gathered through a Likert scale. In this study, Cronbach's alpha was employed to determine the reliability of the items within the constructs. The findings revealed that all constructs exhibited a Cronbach's alpha value exceeding 0.7, as detailed in chapter 4. Cronbach's alpha assists in assessing the degree to which the items within a scale measure the same concept or construct. Moreover, this reliability estimates gauges the level of measurement error present in a test. Developed by Lee Cronbach in 1951, Cronbach's alpha provides a measure of the internal consistency of an item or scale and is expressed as a value ranging from 0 to 1. According to established guidelines by Nunnally and Bernstein (1994) and Bland and Altman (1997), acceptable values for Cronbach's alpha should fall between 0.70 and 0.95.

3.6.2 Validity

Validity is a crucial aspect of any research, as it demonstrates the accuracy, dependability, and coherence of the produced work (Anon 1986). In other words, validity represents how well the research reflects the actual reality of the subject being investigated. In the context of this project, validity pertains to the degree to which HRM (Human Resource Management) systems are implemented and evaluated within an educational setting. It is therefore essential to comprehend how validity influences both qualitative and quantitative research. Validity can be categorized into three primary forms: content, criterion, and construct. Content validity refers to whether the questions asked provide a well-rounded representation of the research area or the content under examination.

This research employs content validity to examine the content of the questionnaires and relies on existing literature to develop and administer them. The utilization of established literature ensures a comprehensive set of questions and topics that warrant investigation. Moreover, if the literature includes a relevant questionnaire, it can be adapted and incorporated into the present study (Cronbach and Beehl, 1955).

3.7 Pre-test survey (Pilot study)

Pilot testing is often conducted to refine the questionnaire, and adjustments are made based on feedback and insights gained from the pre-test. The final questionnaire should not only align with the theoretical framework but also be culturally sensitive and contextually relevant to the specific industry and region under study.

The pilot study, which involved 30 respondents from banking and insurance companies, served as a crucial preliminary assessment of the survey's effectiveness and reliability. Cronbach's alpha (α) is the most common measure of scale reliability (Field, 2005). It is considered to be an adequate measure of internal consistency and a low α-value signifies lack of correlation between the items in the scale, which would mean justifying the summary of items, will be impossible. A very high Cronbach's alpha will indicate high correlations among the items in the scale, i.e., redundancy of one or more items (Terwee et. al. 2007). In the study Cronbach's alpha value was calculated using IBM SPSS Statistics to determine the reliability of seven dimensions of the questionnaire. There is the rule of thumb for α values as ≥ 0.9 = excellent, ≥ 0.8 = good, ≥ 0.7 = acceptable, ≥ 0.6 = questionable, ≥ 0.5 = poor, and ≤ 0.5 = unacceptable (George and Mallery, 2003). The reliability assessment of all dimensions within the research instrument yielded Cronbach's alpha values were between 0.7 to 0.9.

This signifies a strong and consistent relationship among the items within each dimension of the survey instrument. The consistent and robust internal reliability across all dimensions during the pilot study suggests that the survey instrument reliably measures the intended constructs. This outcome provides confidence in the reliability and stability of the measurement tool and indicates that it is well-suited for capturing accurate and consistent responses from respondents within the banking and insurance companies in India.

3.8 Data collection

For the present study, primary data collection was carried out by using survey method. Aaker et al. (2000) states that a variety of variables, including sampling,

population type, question format, content, response rate, expenses, and time required for data collection, may influence the decision to choose a particular survey method.

The use of Internet surveys as a cost-effective tool to collect information from respondents situated in remote locations. Online surveys facilitate the recruitment of respondents as they are often reluctant to provide face-to-face appointments to fill in the questionnaire, owing to their busy schedule (Wild and Diggines 2010; Babbie, 2012). Online surveys can even increase the consistency of data and the dependability of information by including as many participants as necessary to deal with the research issue (Clark et al. 2008). Saunders et al. (2009) note that surveys are commonly perceived by researchers as authoritative, and an additional advantage lies in their ability to access a large sample, thereby facilitating the collection of dependable data (Jankowicz, 2005). Questionnaires can be conveniently distributed through personal administration or by sending them to participants via email (Oppenheim, 2000).

Data collection using Google Forms has become a popular and efficient method in contemporary research and survey administration. Google Forms offers a user-friendly platform that allows researchers to design and customize surveys with ease. Its intuitive interface permits the creation of various question types, including multiple-choice, open-ended, and Likert scale questions. Respondents can conveniently access and complete the survey online, contributing to increased response rates and streamlined data collection. The platform also provides real-time data visualization and analysis tools, enabling researchers to monitor responses and derive immediate insights. Moreover, the seamless integration with Google Sheets facilitates the organization and management of collected data. The accessibility, simplicity, and collaborative features of Google Forms make it a valuable tool for researchers across disciplines, offering a practical and cost-effective solution for data collection in diverse research endeavours. Real-time data visualization tools and the seamless integration with Google Sheets provide the researcher with immediate insights and simplify the process of managing and organizing collected data.

Therefore, the researcher opted to utilize Google Forms as the primary tool for conducting the survey.

The responses collected from Google Forms were transferred to Excel spreadsheets for further analysis. After organizing and preparing the data in these spreadsheets, it was imported into Jamovi for the analysis. A common reason cited by those who chose not to participate was a lack of interest or being preoccupied with other commitments. The participants were duly informed about the purpose of the study. They were provided with reassurances regarding the security and confidentiality of the data collected. Along with the questionnaire a request letter is attached with a detailed explanation of the study's rationale, as well as guaranteeing the participants' confidentiality and privacy. For reference, copies of the information sheet can be found in Appendices.

3.8.1 Data Analysis

In the next chapter 4, methods employed for the quantitative data analysis is discussed and illustrated. Jamovi software is being utilized to assess data reliability. Structural Equation Modeling (SEM) is employed as a comprehensive statistical technique to examine the intricate relationships among variables within the context of the DeLone and McLean (IS) model. SEM allows for the testing and validation of complex theoretical models, making it an ideal choice for assessing the interplay among latent constructs in the proposed IS model. Following the SEM analysis, Chapter 4 will proceed to Conduct Confirmatory Factor Analysis (CFA) using Jamovi software, designed specifically for the DeLone and McLean model. CFA is instrumental in evaluating how well the observed data aligns with the hypothesized factor structure, providing insights into the model's goodness of fit. This sequential approach, utilizing SEM followed by CFA, ensures a rigorous examination of the theoretical framework and enhances the study's validity and reliability by aligning the empirical findings with the established IS.

Following the completion of SEM and CFA in Chapter 4, a thorough reliability analysis was conducted to assess the robustness of the survey instrument employed in this study. This analysis aimed to gauge the internal consistency and dependability of the measurement tool, ensuring that it consistently measures the intended constructs. Reliability indicators such as Cronbach's alpha were computed to evaluate the extent to which the survey items within each construct converge and provide reliable measurements. Additionally, validity assessments were conducted to confirm that the instrument indeed measures the intended theoretical constructs, aligning with the DeLone and McLean IS model. The integration of SEM, CFA, and reliability analysis enhances the overall methodological rigor of this study, ensuring the accuracy and credibility of the findings obtained through the employed survey.

The examination of the impact of preceding constructs on the augmentation of HRIS utilization in banking and insurance companies was conducted through multiple regression analysis, where HRIS adoption and usage served as the dependent variables. This analytical approach assesses the significance of each construct, considered an independent variable, in relation to the overall comprehensiveness of the envisaged HRIS model (Pallant, 2013). Additionally, a correlation analysis was performed to elucidate the relationships between various variables and describe their strengths and directions. Utilizing the Kendall Tau-b test, a non-parametric correlation was calculated for observed ranked variables and research variables. The dataset for this analysis was acquired from an online survey conducted through Google Forms, transferred to an Excel spreadsheet, coded, and then imported into Jamovi for further reliability analysis. This multifaceted analytical approach provides a comprehensive understanding of the relationships and contributions of individual constructs in shaping HRIS adoption and usage within the surveyed banking and insurance companies.

3.9 Research Objectives

The primary objective of this research is to examine the adoption and use of HRIS (Human Resource Information Systems) and its potential impact on the overall

effectiveness of financial sectors specially banking and Insurance. In order to accomplish this aim, the study aims to attain the following specific objectives:

1. To study the current level of use and adoption of HRIS in banking and insurance sector.
2. To examine the appropriate dimensions of HRIS that influences the use and adoption of HRIS.
3. To propose a conceptual HRIS framework for examining the adoption and use of HRIS.
4. To test empirically the proposed conceptual framework of HRIS.
5. To identify the problem areas and difficulties in the adoption and use of HRIS.

The present study sets out with a comprehensive set of objectives aimed at advancing the understanding of the adoption and use of Human Resource Information Systems (HRIS) in the banking and insurance sector. In Chapter 3, the study addresses Objective 3 by proposing a robust conceptual framework for examining the adoption and use of HRIS. This conceptual framework serves as the theoretical backbone for the subsequent empirical investigation. Moving to Chapter 4, the study delves into fulfilling Objectives 1, 2, and 4. Objective 1 is achieved by meticulously studying and analyzing the current level of use and adoption of HRIS within the banking and insurance sector. Objective 2 is met through an in-depth examination of the dimensions of HRIS that exert influence on its use and adoption. Additionally, Objective 4 is tackled through empirical testing of the proposed conceptual HRIS framework, employing rigorous research methods to validate and refine the theoretical model. Finally, in Chapter 5, the study systematically presents the findings related to Objective 5, shedding light on the problem areas and difficulties encountered in the adoption and use of HRIS. Through a coherent and systematic structure, each chapter contributes to the overarching goal of enhancing insights into HRIS adoption in the specific context of the banking and insurance sector. The fulfillment of these objectives collectively enriches the academic discourse on HRIS, offering practical implications for organizations within this sector and beyond.

3.10 Hypotheses

Based on the laid research objectives, following hypotheses were proposed for analysis:

Hypothesis 1

H_o: Use of the HRIS is not expected to make a significant difference to the user satisfaction.

H_a: Use of the HRIS is expected to make a significant difference to the user satisfaction.

Hypothesis 2

H_o: Characteristics of the HRIS is not likely to significantly affect the user satisfaction.

H_a: Characteristics of the HRIS is likely to significantly affect the user satisfaction.

Hypothesis 3

H_o: Information quality of HRIS is not expected to significantly affect the user satisfaction.

H_a: Information quality of HRIS is expected to significantly affect the user satisfaction.

Hypothesis 4

H_o: Subjective norms of HRIS is not poised to significantly affect the user satisfaction.

H_a: Subjective norms of HRIS is poised to significantly affect the user satisfaction.

Hypothesis 5

H_o: Comparison of HRIS and Manual HR practices is not likely to significantly affect the user satisfaction.

H_a: Comparison of HRIS and Manual HR practices is likely to significantly affect the user satisfaction.

Hypothesis 6

H_o: User satisfaction is not expected to significantly affect the adoption of HRIS.

H_a: User satisfaction is expected to significantly affect the adoption of HRIS.

Hypothesis 7

H_o: Use of HRIS is not likely to positively affect the adoption of HRIS.

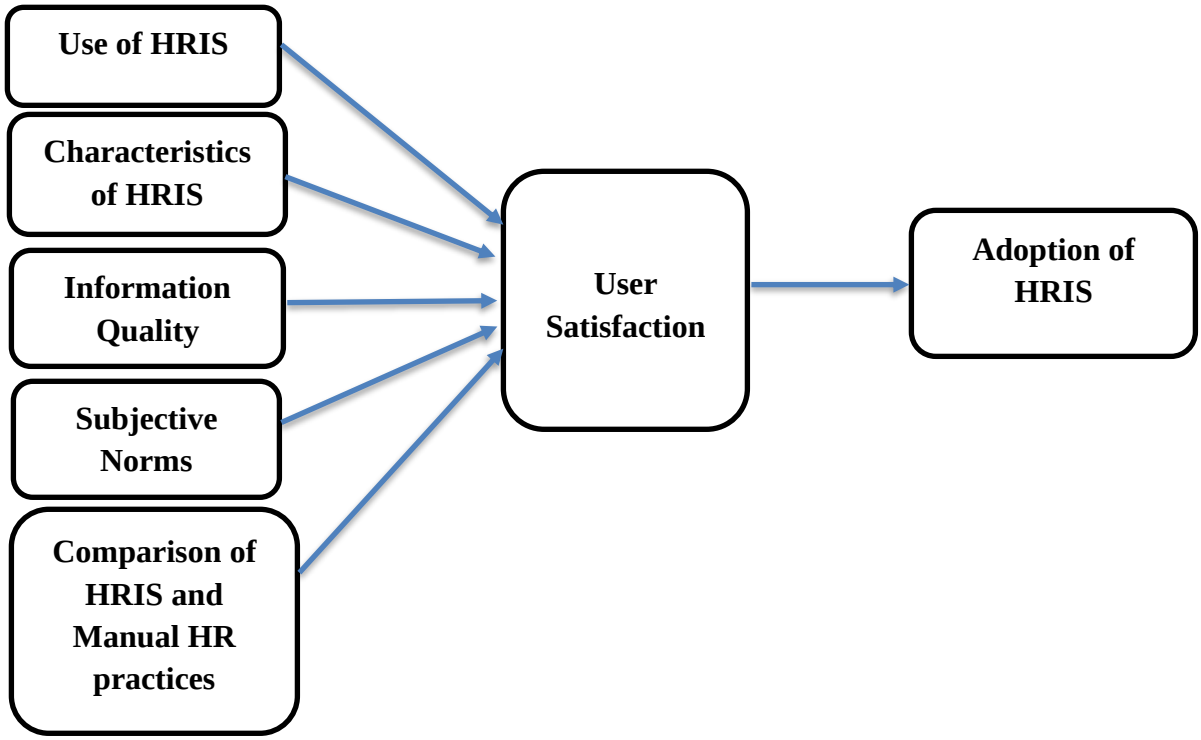
H_a: Use of HRIS is likely to positively affect the adoption of HRIS.

3.10.1 Proposed Conceptual Framework

To propose a conceptual HRIS framework for examining the adoption and use of HRIS *(Objective 3)*

The conceptual framework for this study is crafted on the foundation of the Delone and McLean Information Success Model. Delone and McLean's model has been widely recognized and utilized in the field of information systems research, providing a comprehensive and well-established framework for evaluating the success of information systems within various organizational contexts. The model encompasses key dimensions such as system quality, information quality, service quality, and user satisfaction, offering a holistic perspective on the factors influencing information success. The formulation of hypotheses within this study is intricately tied to the theoretical underpinnings of the DeLone and McLean model, aiming to empirically test and extend the understanding of the relationships between these dimensions. By leveraging this established model, the research endeavours to contribute valuable insights into the factors driving information success and their implications for organizational performance. Below figure 3.2 is the proposed conceptual framework offering a systematic approach to understanding the interplay of factors that contribute to the effectiveness and overall success of HRIS in these industries.

Figure 3.2: Proposed conceptual framework



(Source: Researcher's own proposed framework)

Figure 3.2 represents a visual depiction of the researcher's conceptualization of the relationships and factors underpinning the adoption and use of HRIS in the specified industries, providing a clear and organized overview to understand the theoretical framework guiding the study.

3.10.2 Relationship between Proposed Framework and Hypotheses

The research hypotheses proposed in this study establish a comprehensive framework to investigate the intricate relationships between independent variables, including use of HRIS, characteristics of HRIS, information quality, subjective norms, and the comparison of HRIS with manual HR practices, and dependent variables such as user satisfaction and the adoption of HRIS. The conceptual framework of this study is intricately woven into the fabric of the Delone and McLean Information Success Model, a widely acknowledged and utilized model in information systems research. Delone and McLean's model provides a robust foundation, encompassing vital dimensions such as

system quality, information quality, service quality, and user satisfaction. These dimensions collectively offer a holistic view of the factors influencing information success within diverse organizational contexts. The hypotheses formulated in this study directly align with the theoretical underpinnings of the Delone and McLean model, seeking to empirically test and extend comprehension of the intricate relationships between these dimensions.

Hypotheses 1 to 6 specifically explore the impact of various factors, including the use and characteristics of the Human Resource Information System (HRIS), information quality, subjective norms, and the comparison of HRIS with manual HR practices, on user satisfaction. Additionally, Hypothesis 6 delves into the reciprocal relationship between user satisfaction and the adoption of HRIS. The hypotheses provide a structured basis for empirical testing, aiming to contribute valuable insights into the complex dynamics of HRIS adoption and usage in the specific context of the Indian banking and insurance industries. To complement these hypotheses, Hypothesis 7 introduces an additional dimension by investigating the direct influence of HRIS utilization on its overall adoption. Formulated with the null hypothesis (Ho) positing that the use of HRIS will not affect adoption and the alternative hypothesis (Ha) suggesting a positive impact, this hypothesis expands the scope of inquiry to specifically scrutinize the role of HRIS use in driving its broader adoption within the distinctive landscape of the Indian banking and insurance sectors.

3.10.3 Key distinction of proposed framework and DeLone and McLean IS model

The proposed conceptual framework and the DeLone and McLean Information Systems (IS) model share a foundational focus on assessing the success of information systems, particularly in the context of Human Resource Information Systems (HRIS) in banking and insurance companies in India. However, the key distinction lies in the specificity and customization of the proposed framework to the unique characteristics of the study. While the DeLone and McLean model provides a broad and established foundation with dimensions like system quality, information quality, and user satisfaction,

the proposed framework tailors these dimensions to the intricacies of HRIS adoption in the specified industries. It likely introduces additional or refined variables, such as subjective norms, comparison between HRIS and manual HR practices and characteristics of HRIS which are pertinent to the study's objectives. Thus, the proposed framework builds upon the established theoretical framework, incorporating industry-specific elements to offer a more nuanced and contextually relevant perspective on the adoption and use of HRIS in the Indian banking and insurance sectors.

3.11 Summary

In this chapter, the research methodology employed to investigate the adoption and use of Human Resource Information Systems (HRIS) in the banking and insurance sectors in India was comprehensively presented. The chapter highlighted the importance of a well-considered strategy, research design, and data collection and analysis techniques in influencing the reliability and validity of study findings. The research design chosen was quantitative, focusing on a survey tool for its broad coverage of the sample population and precise measurement of data variables. The study's population comprised employees from both public and private sector banking and insurance companies in India. The sample size, determined using the KMT and Raosoft, was 385, ensuring adequacy for reliable conclusions. The sampling technique employed was a survey method with a self-administered questionnaire. Likert scales were utilized for coding responses, offering a nuanced understanding of participants' opinions.

The dimensions of the study were structured into nine sections, addressing general information, close-ended questions about HRIS, adoption usage, use of HRIS, characteristics of HRIS, information quality, user satisfaction, subjective norms, and a comparison of HRIS and manual HR practices. The reliability of the instruments was assessed using Cronbach's alpha, and the results indicated high internal consistency.

The chapter also outlined the research objectives, which included studying the current level of HRIS use, examining the dimensions influencing adoption, proposing a

conceptual framework, testing the framework empirically, and identifying problem areas. Hypotheses were formulated based on these objectives, and the pre-test survey, with a sample size of 30, confirmed the reliability of the questionnaire for the main study.

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CHAPTER 4

DATA PRESENTATION, ANALYSIS AND INTERPRETATIONS

4.1 Introduction

The integration of Human Resource Information Systems (HRIS) has become pivotal in reshaping the landscape of human resource management within organizations. This study embarks on a comprehensive exploration of the data collected from banking and insurance companies, focusing on the adoption and use of HRIS. Through rigorous analysis and interpretation, this chapter seeks to unveil the current state of HRIS utilization in banking and insurance sector. By examining key indicators such as adoption and use, characteristics of HRIS, user satisfaction and comparison of HRIS and manual HR practices, the study aims to provide a refined understanding of the impact of HRIS on operational efficiency, employee engagement, and overall organizational performance within the dynamic contexts of the banking and insurance sectors.

The chapter seeks to confirm the validity of the proposed research model and assess the hypotheses through the application of a suitable statistical method. In this chapter, the results from the quantitative phase are presented, providing insights into the quantitative connections among the factors in the HRIS use model developed. The analysis of data involves techniques and processes focused on cleansing, transforming, and assessing data to extract valuable information related to the research objectives and hypotheses.

4.2 Demographic profile of the respondents

A demographic profile refers to a set of characteristics that describe a particular population or group of people. These characteristics often include various demographic factors, which are quantifiable and measurable traits of a population. The demographic profile will serve as a contextual backdrop, offering a refined understanding of the diverse perspectives that contribute to the combination of responses from employees in the banking and insurance industries. The complete socio-demographic profile of respondents is reported with the help of tables and figures.

4.2.1 Section I: General Information

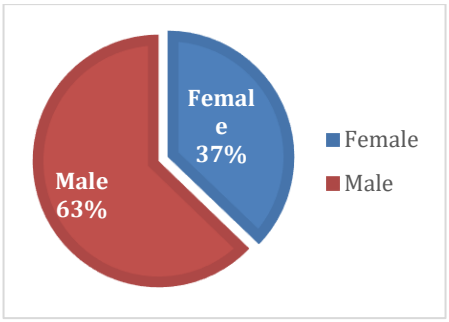
This section of the survey explores the respondent's profile, gathering essential information to understand the context of their responses. The name, email address, and optional contact number are collected for identification purposes, ensuring confidentiality. The age distribution reflects a diverse range, from 18 to over 50, providing insights into the generational perspectives on HRIS. Gender and educational qualifications help in understanding potential variations in viewpoints based on these factors. Work experience and employment level capture the professional background, while the number of executives and superiors in the reporting structure sheds light on the organizational hierarchy. The time invested in updating HRIS information and the duration of HRIS usage provide valuable context on the respondent's engagement with the system. This comprehensive set of demographic and professional details establishes a foundation for a nuanced analysis of how various factors might influence perceptions and usage patterns of HRIS within the surveyed population.

Part A: Respondent profile

I) Gender

The gender distribution of the respondents is given in Graph 4.1 and Table 4.1.

Graph 4.1 and Table 4.1: Gender Distribution of Respondents



Frequencies of Gender

Gender	Counts	% of Total	Cumulative %
Female	103	37.2 %	37.2 %
Male	174	62.8 %	100.0 %

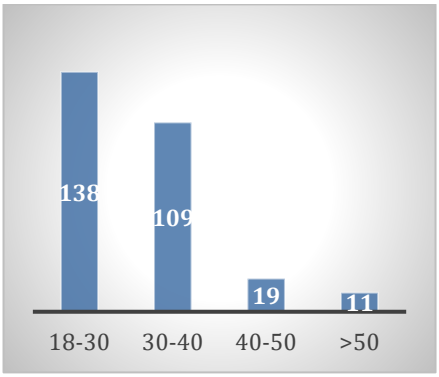
(Source: Field Survey)

The data presented in the above graph 4.1 and table 4.1 illustrates the frequencies of gender. Out of a total count of 277 individuals, 103 are identified as female, constituting 37.2% of the sample. On the other hand, the male gender comprises 174 individuals, representing 62.8% of the total. The percentages provide an insightful perspective, with females accounting for 37.2% of the total and males encompassing the remaining 62.8%. This distribution sheds light on the gender composition, indicating a higher representation of males in the dataset. The cumulative percentages emphasize the entirety of the sample, showcasing that the sum of the individual percentages for each gender category reaches 100%.

II) Age

The respondent's age (in Years) is shown in Graph 4.2 and Table 4.2

Graph 4.2 and Table 4.2: Age of the Respondents (in years)



Frequencies of Age group (in years)

Age group (in years)	Counts	% of Total	Cumulative %
18-30	138	49.8 %	49.8 %
30-40	109	39.4 %	89.2 %
40-50	19	6.9 %	96.0 %
>50	11	4.0 %	100.0 %

(Source: Field Survey)

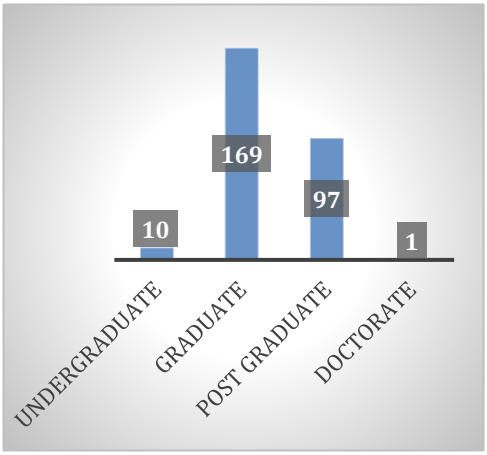
The graph and table 4.2 offer a comprehensive view of the distribution of age groups within a given demographic. The majority of individuals, 49.8% to be precise, fall within the age range of 18 to 30 years, indicating a substantial representation of young adults in the sample. The subsequent age bracket of 30 to 40 years accounts for 39.4% of the total, demonstrating a notable presence of individuals in their thirties. Moving into the older age categories, the distribution diminishes, with the 40 to 50 age group constituting 6.9% and those above 50 years representing 4.0% of the overall sample. The cumulative

percentages highlight the progressive accumulation of age categories, revealing that nearly half of the population falls within the 18 to 30 age range, while the subsequent groups contribute to the cumulative distribution, reaching 100% with the inclusion of all age group. This breakdown provides valuable insights into the age dynamics of the studied population, enabling a nuanced understanding of its composition.

III) Qualification

The educational qualification of the respondents is given below in Graph 4.3 and Table 4.3

Graph 4.3 and Table 4.3: Educational qualification of the respondents



Frequencies of Educational qualification

Educational qualification	Counts	% of Total	Cumulative %
Undergraduate	10	3.6 %	3.6 %
Graduate	169	61.0 %	64.6 %
Post graduate	97	35.0 %	99.6 %
Doctorate	1	0.4 %	100.0 %

(Source: Field Survey)

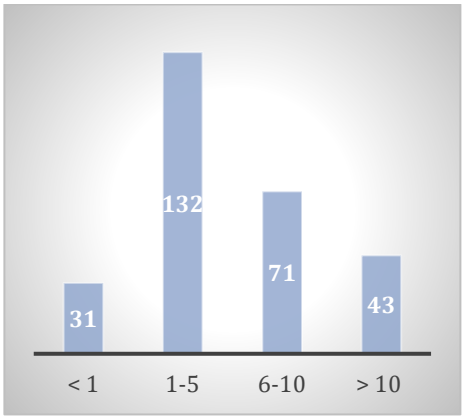
The data presents a breakdown of educational qualifications among the surveyed individuals. A notable 10 respondents, constituting 3.6% of the total, hold an undergraduate degree. The majority, accounting for 61.0%, have attained graduate-level education. Moving further, 97 respondents, equivalent to 35.0%, possess postgraduate qualifications. Finally, there is a solitary respondent with a doctorate, representing 0.4% of the total. The cumulative percentages indicate the proportion of individuals with each qualification and show that 64.6% have at least a graduate degree, 99.6% have either a graduate or postgraduate qualification, and the entirety of the surveyed population has

reached 100.0% when considering doctorate holders. This breakdown of educational qualifications offers valuable insights into the academic diversity of the surveyed group, serving as a crucial dataset for understanding the distribution of educational achievements within the studied population.

IV) Respondents Years of Experience

The respondent's years of experience is shown in Graph 4.4 and Table 4.4

Graph 4.4 and Table 4.4: Work Experience (in years)



Frequencies of Work experience

Work experience (in years)	Counts	% of Total	Cumulative %
< 1	31	11.2 %	11.2 %
1-5	132	47.7 %	58.8 %
6-10	71	25.6 %	84.5 %
> 10	43	15.5 %	100.0 %

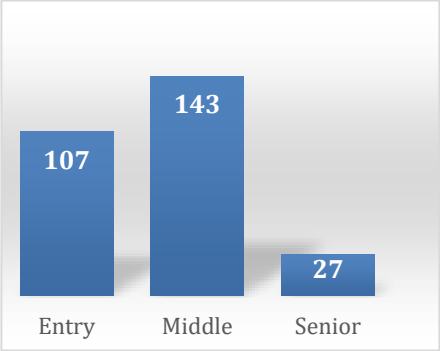
(Source: Field Survey)

The data outlines the distribution of work experience levels within the surveyed population. A total of 31 respondents, constituting 11.2% of the sample, have accumulated less than one year of work experience. The majority, comprising 47.7%, falls within the 1-5 years of experience category, with 132 individuals falling into this range. Additionally, 25.6% of the respondents have 6-10 years of work experience, totaling 71 individuals. Finally, 43 respondents, representing 15.5% of the total, possess more than 10 years of work experience. The cumulative percentages illustrate the overall distribution of work experience, indicating that 11.2% have less than one year, 58.8% have up to 5 years, 84.5% have accumulated up to 10 years, and the entirety of the surveyed population, 100.0%, includes individuals with over 10 years of work experience. This data on work experience offers valuable insights into the professional landscape of the surveyed group.

V) Level of Employment

The respondent's level of employment is shown in Graph 4.5 and Table 4.5

Graph 4.5 and Table 4.5: Level of Employment



Frequencies of Level of employment

Level of employment	Counts	% of Total	Cumulative %
Entry	107	38.6 %	38.6 %
Middle	143	51.6 %	90.3 %
Senior	27	9.7 %	100.0 %

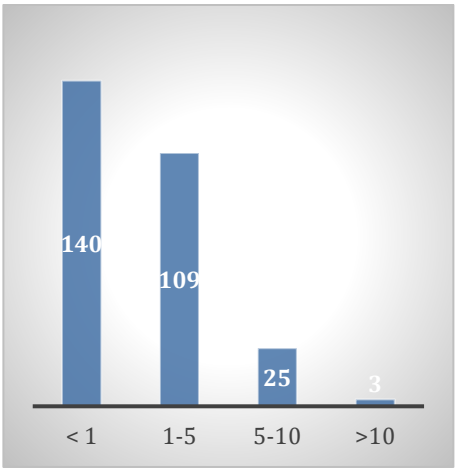
(Source: Field Survey)

The frequencies of employment levels among the surveyed individuals provide a comprehensive glimpse into the organizational hierarchy within the sample. The data indicates that a significant portion, constituting 38.6%, falls under the entry-level category, denoting individuals who are likely in the early stages of their careers. The middle level of employment represents the majority, with 51.6% of the total, suggesting a substantial presence of professionals occupying intermediate roles within their organizations. The senior level, comprising 9.7% of the population, reflects a smaller but noteworthy group of individuals in higher-ranking positions, likely possessing considerable experience and responsibilities. The cumulative percentages illustrate the gradual accumulation of employment levels, emphasizing that the sum of individual percentages reaches 100%. This breakdown offers valuable insights into the organizational structure of the surveyed population, aiding in the understanding of the distribution of employment levels and the professional diversity within the sampled workforce.

VI) Time spent to update information on HRIS

The time spent by respondents to update information on HRIS is shown in Graph 4.6 and Table 4.6

Graph 4.6 and Table 4.6: Time spend on HRIS



Frequencies of Time spend on HRIS

Time spent on HRIS (in hours)	Counts	% of Total	Cumulative %
<1	140	50.5 %	50.5 %
1-5	109	39.4 %	89.9 %
5-10	25	9.0 %	98.9 %
>10	3	1.1 %	100.0 %

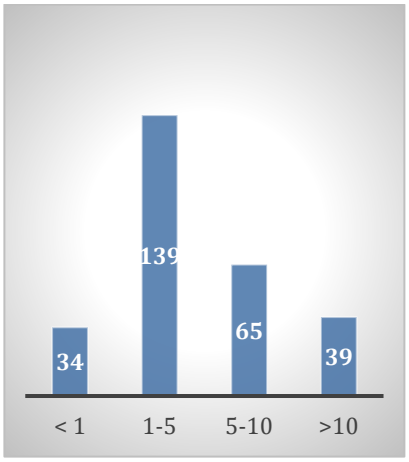
(Source: Field Survey)

The above table offers insights into the distribution of time spent on Human Resource Information Systems (HRIS) among the surveyed individuals. A significant portion, comprising 50.5% of the respondents, reported spending less than one hour of time on HRIS. Moving further, 39.4% of the individuals allocated a time span ranging from 1 to 5 hours on HRIS, indicating a moderate engagement with this system. Additionally, 9.0% of the respondents reported dedicating 5 to 10 hours of time to HRIS, demonstrating a more substantial involvement. A smaller percentage, 1.1%, indicated spending more than 10 hours of time on HRIS. The cumulative percentages provide an overview of the overall distribution, revealing that 50.5% have a minimal engagement, 89.9% spend up to 5 hours of time, 98.9% allocate up to 10 hours, and the entirety of the surveyed population, 100.0%, includes those who spend more than 10 hours of time on HRIS.

VII) Use of HRIS (in years)

The use of HRIS (in Years) by respondents is shown in Graph 4.7 and Table 4.7

Graph 4.7 and Table 4.7: Use of HRIS (in years)



Frequencies of Use of HRIS (in years)

Use of HRIS (in years)	Counts	% of Total	Cumulative %
<1	34	12.3 %	12.3 %
1-5	139	50.2 %	62.5 %
5-10	65	23.5 %	85.9 %
>10	39	14.1 %	100.0 %

(Source: Field Survey)

The above table 4.7 sheds light on the duration of usage of Human Resource Information Systems (HRIS) among the surveyed individuals. Approximately 12.3% of the respondents reported having used HRIS for less than one year, indicating a relatively recent adoption. The majority, comprising 50.2% of the sample, has been utilizing HRIS for a period ranging from 1 to 5 years, suggesting a substantial and widespread adoption within this time frame. Moreover, 23.5% of the individuals have a history of using HRIS for 5 to 10 years, reflecting a sustained and prolonged engagement. Additionally, 14.1% of the respondents reported using HRIS for more than 10 years, showcasing a group with extensive experience and familiarity. The cumulative percentages provide an overview of the overall distribution, revealing that 12.3% are relatively new users, 62.5% have been using HRIS for up to 5 years, 85.9% have a history of up to 10 years, and the entirety of the surveyed population, 100.0%, includes those who have used HRIS for more than 10 years.

Part B: Industry Profile

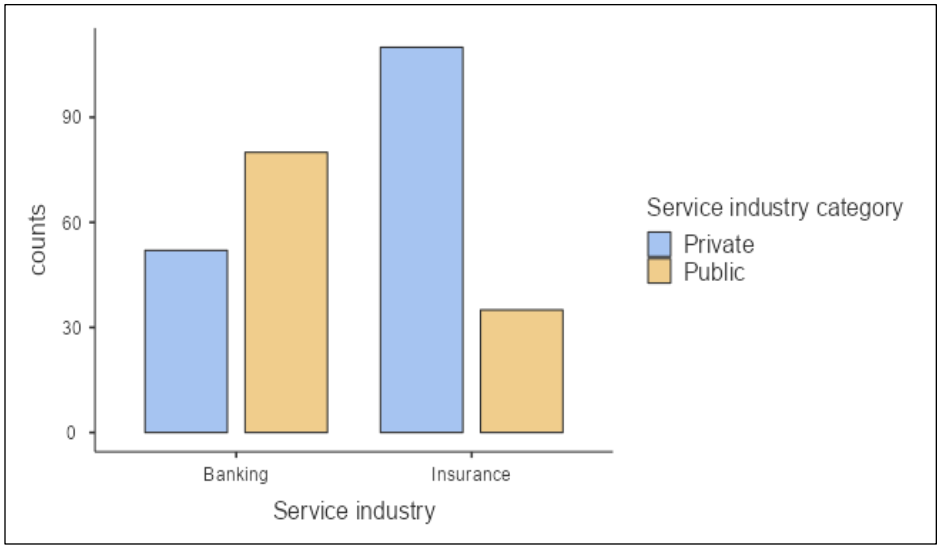
This section provides a comprehensive overview of the service industry, specifically focusing on the banking and insurance sectors. In terms of service industry

categories, both public and private entities are considered, adding a layer of diversity to the analysis. The size of these service industries is segmented into employee brackets, ranging from less than 100 employees to over 1000 employees, offering a nuanced understanding of the industry's scale. Respondents are also given the opportunity to specify the HRIS software used in their industry, adding a layer of granularity to the data. The question regarding the origin of HRIS development, whether in-house or outsourced, sheds light on the industry's approach to technological solutions. Moreover, the HRIS access options, whether through the internet, intranet, or both, indicate the flexibility and adaptability of HRIS in catering to diverse connectivity needs within these dynamic service sectors. Collectively, this industry profile seeks to capture the intricacies of HRIS utilization and deployment strategies within the banking and insurance industries, laying the foundation for a comprehensive analysis of HRIS's role and impact in these sectors.

I (A) Service Industry and Category

The service industry and service industry category are shown in Graph 4.8 and Table 4.8

Graph 4.8 (A) and Table 4.8 (A): Service Industry and category



Frequencies of Service industry

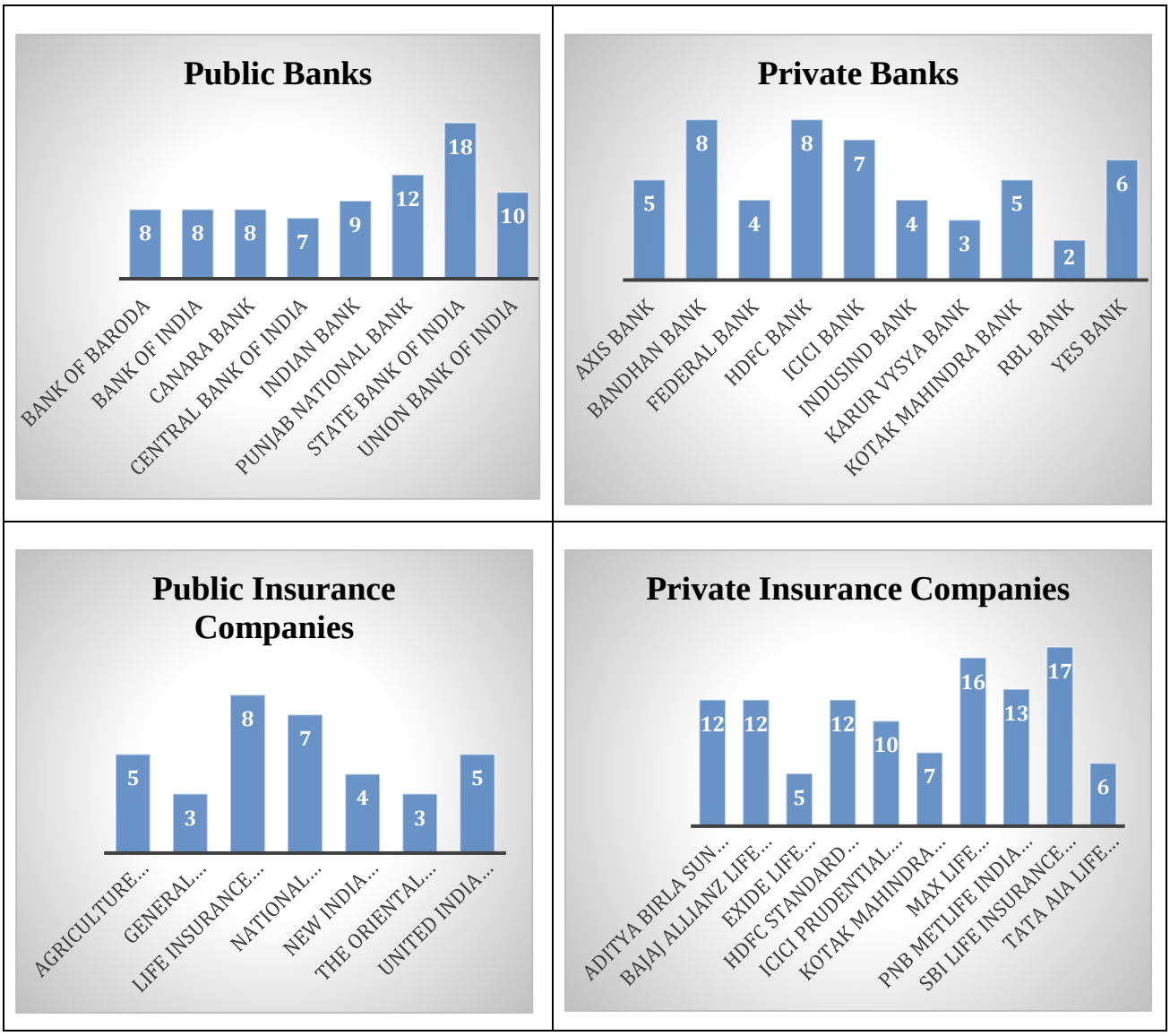
Service industry	Service industry category	Counts	% of Total	Cumulative %
Banking	Private	52	18.8 %	18.8 %
	Public	80	28.9 %	47.7 %
Insurance	Private	110	39.7 %	87.4 %
	Public	35	12.6 %	100.0 %

(Source: Field Survey)

The above table 4.8 (A) and graph 4.8 (A) illustrates the frequencies within the service industry categories, providing a detailed breakdown of respondents across different sectors. In the banking sector, the private domain is represented by 52 respondents, constituting 18.8% of the total counts, while the public sector encompasses a larger cohort of 80 individuals, making up 28.9%. This reflects a notable presence of HRIS users in both private and public banking institutions. Similarly, within the insurance sector, the private category comprises a significant majority with 110 respondents, accounting for 39.7% of the total. In contrast, the public insurance sector is represented by 35 respondents, constituting 12.6%.

I (B) Service Industry Name and Responses

Graph 4.8 (B): Service industry name and responses



(Source: Field Survey)

The above graph 4.8 (B) illustrates the responses collected from both public and private banks reveal varying degrees of participation, with State Bank of India leading the count at 18 responses, followed closely by Punjab National Bank with 12. Among private banks, HDFC Bank and Bandhan Bank each contributed 8 responses, indicating active engagement from these institutions. Other notable contributors include Union Bank of India with 10 responses and Canara Bank with 8. Conversely, RBL Bank and Karur Vysya

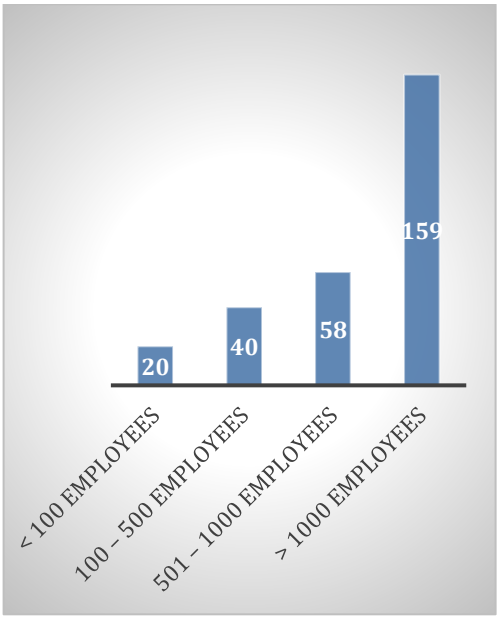
Bank exhibited lower levels of participation, with only 2 and 3 responses respectively. Overall, the aggregated responses from both sectors amount to 80 from public banks and 52 from private banks, suggesting a comprehensive view of the banking landscape's perspective on the surveyed matter.

Among the insurance companies, the responses were diverse, with a significant number coming from established entities such as Life Insurance Corporation of India (LIC) and SBI Life Insurance Co. Ltd., indicating their active participation and interest in the topic. LIC, with 8 responses, showcased a notable engagement, followed closely by United India Insurance Company and Agriculture Insurance Company of India. Additionally, the survey captured insights from a range of private sector players, including Max Life Insurance Co. Ltd. and HDFC Standard Life Insurance Co. Ltd., signifying a comprehensive representation across the industry.

II) Size of the Service Industry

The size of the service industry is shown in Graph 4.9 and Table 4.9

Graph 4.9 and Table 4.9: Size of the Service Industry



Frequencies of Size of your service industry

Size of your service industry	Counts	% of Total	Cumulative %
< 100 employees	20	7.2 %	42.6 %
100 – 500 employees	40	14.4 %	14.4 %
501 – 1000 employees	58	20.9 %	35.4 %
> 1000 employees	159	57.4 %	100.0 %

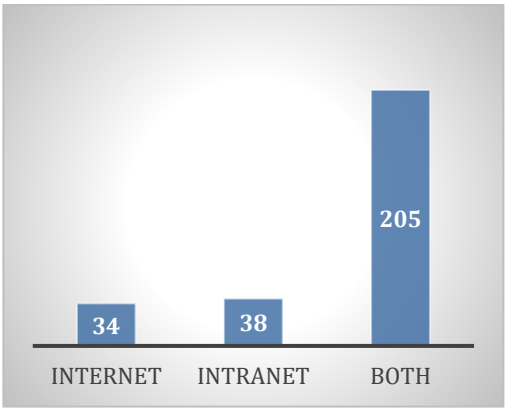
(Source: Field Survey)

The data provides a breakdown of the size distribution within the surveyed service industries. A minority, constituting 7.2% of the respondents, represents companies with less than 100 employees. Moving further, 14.4% of the individuals are associated with service industries having 100 to 500 employees. A larger portion, accounting for 20.9%, is affiliated with companies in the range of 501 to 1000 employees. The majority, comprising 57.4% of the sample, is connected to service industries with more than 1000 employees, indicating a prevalence of larger organizations in the survey. The cumulative percentages illustrate the overall distribution, revealing that 42.6% of the respondents belong to companies with less than 100 employees, 57.0% work in companies with up to 1000 employees, and the entirety of the surveyed population, 100.0%, encompasses those connected to service industries with over 1000 employees. This diverse size distribution underscores the varied nature of the service industry, encompassing businesses of different magnitudes, each contributing uniquely to the overall landscape.

III) HRIS access options

A comparative analysis of internet, intranet and dual access modes of HRIS is shown in Graph 4.10 and Table 4.10

Graph 4.10 and Table 4.10: HRIS access options



Frequencies of HRIS access options

HRIS access options	Counts	% of Total	Cumulative %
Internet	34	12.3 %	12.3 %
Intranet	38	13.7 %	26.0 %
Both	205	74.0 %	100.0 %

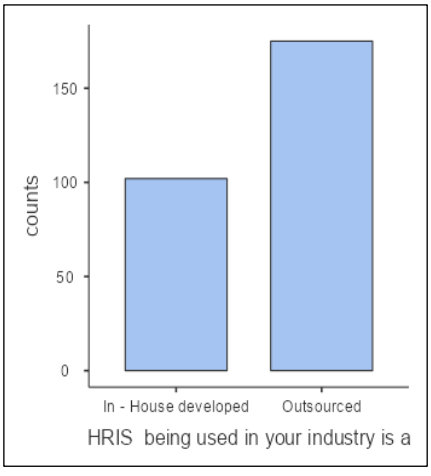
(Source: Field Survey)

The above graph and table 4.10 outline the distribution of Human Resource Information System (HRIS) access options among the surveyed individuals. A minority, constituting 12.3% of the respondents, reported accessing HRIS solely through the Internet. Similarly, 13.7% of the individuals indicated utilizing Intranet as their exclusive access option. The majority, comprising 74.0% of the sample, reported having access to HRIS through both Internet and Intranet, showcasing a prevalent use of a dual access approach. The cumulative percentages illustrate the overall distribution, indicating that 12.3% use the Internet, 26.0% use Intranet, and the entirety of the surveyed population, 100.0%, includes those who have access to HRIS through both Internet and Intranet. This suggests a widespread preference for a combined access method, potentially offering flexibility and redundancy in HRIS usage. The varied distribution of HRIS access options emphasizes the importance of providing diverse avenues for employees to engage with organizational resources, ultimately contributing to a more inclusive and adaptable work environment.

IV) HRIS Utilization Patterns in the Industry

The frequencies of HRIS being used in the industry is shown in Graph 4.11 and Table 4.11

Graph 4.11 and Table 4.11: HRIS Utilization Patterns in the Industry



Frequencies of HRIS being used in your industry is a

HRIS being used in your industry is a	Counts	% of Total	Cumulative %
In - House developed	102	36.8 %	36.8 %
Outsourced	175	63.2 %	100.0 %

(Source: Field Survey)

The above table 4.11 provides valuable insights into the prevalent systems employed within the industry. The data showcases a dichotomy in the adoption of HRIS, with a nuanced breakdown between in-house developed and outsourced solutions. A notable 36.8% of respondents report the utilization of in-house developed HRIS, indicating a significant proportion of organizations opt for internally crafted systems. On the other hand, the majority, constituting 63.2%, rely on outsourced HRIS solutions. This data not only sheds light on the current landscape of HRIS preferences in the industry but also emphasizes the diverse strategies employed by organizations in managing their human resource information. The cumulative percentage further highlights the dominance of outsourced solutions, offering a comprehensive perspective on the overall distribution of HRIS usage in the surveyed industry.

4.2.2 Section II: Closed- ended questions

The utilization of close-ended questions in the survey conducted among respondents from banking and insurance companies focusing on Human Resource Information System (HRIS) offers a structured approach to gather specific insights. By inquiring about assistance and training on HRIS, the existence of well-documented features and functions, the presence of a separate HR department, and the usage and user experience of the HRIS mobile application, the survey aims to capture precise and quantifiable data. The use of close-ended questions facilitates a systematic and efficient descriptive analysis, allowing for the categorization and numerical representation of responses. This approach ensures that the findings are clear and easily interpretable, providing a comprehensive snapshot of the current state of HRIS implementation, documentation, and user satisfaction within the banking and insurance sectors. The outcomes of this analysis can guide targeted improvements and interventions in HRIS strategies tailored to the specific needs and preferences of respondents in these industries.

I) Use of HRIS Mobile Application and Ease of Use

The use of HRIS mobile application and its conveniency to use is shown in Graph 4.12 and Table 4.12

Graph 4.12: Use of HRIS Mobile Application and Ease of Use

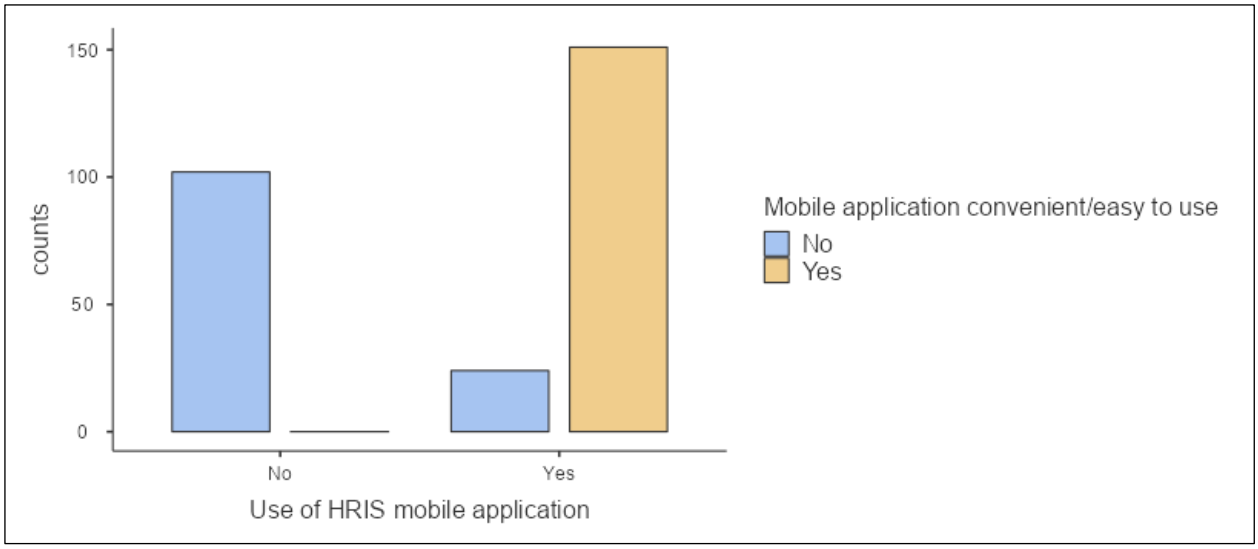


Table 4.12: Use of HRIS Mobile Application and Ease of Use

Use of HRIS mobile application	Mobile application convenient/easy to use	Counts	% of Total	Cumulative %
No	No	102	36.8 %	36.8 %
	Yes	0	0.0 %	36.8 %
Yes	No	24	8.7 %	45.5 %
	Yes	151	54.5 %	100.0 %

(Source: Field Survey)

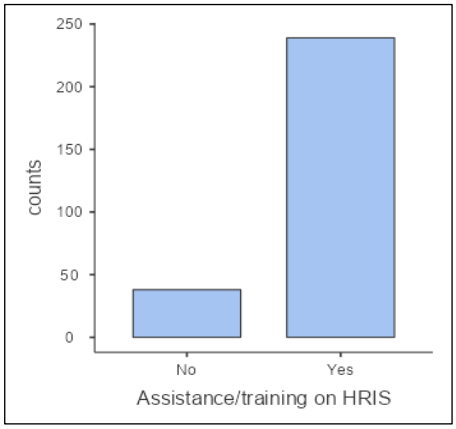
The data above outlines the frequencies related to the use of the HRIS mobile application and user perceptions of its convenience and ease of use. Surprisingly, 36.8% of respondents indicated that they do not use the HRIS mobile application, with 36.8% expressing dissatisfaction, finding it inconvenient or challenging. Strikingly, there were no respondents who reported using the application but found it difficult to use, resulting in a 0.0% in this category. In contrast, 8.7% admitted to not using the HRIS mobile application due to perceived usability issues. The majority, constituting 54.5%, reported

both using and finding the mobile application convenient and easy to use, contributing to a cumulative percentage of 100%. These findings suggest a positive trend in user satisfaction, with a significant portion embracing the HRIS mobile application for its perceived convenience and user-friendly interface. The usage of HRIS mobile applications, along with the feedback on their convenience, emphasizes the role of technology in facilitating efficient HR processes, offering accessibility and ease of use to employees.

II) Whether company provide any sort of assistance/training about HRIS to employees

The frequencies of assistance/training on HRIS are shown in Graph 4.13 and Table 4.13

Graph 4.13 and Table 4.13: Any sort of assistance/training about HRIS



Frequencies of Assistance/training on HRIS

Assistance/ training on HRIS	Counts	% of Total	Cumulative %
No	38	13.7 %	13.7 %
Yes	239	86.3 %	100.0 %

(Source: Field Survey)

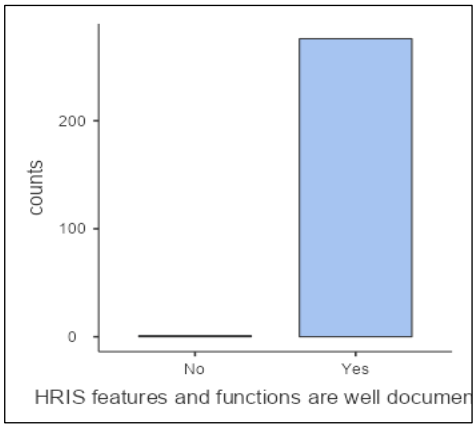
The tabulated frequencies provide insights into the level of assistance and training received by respondents in relation to HRIS usage. A notable 86.3% of participants reported receiving assistance or training on HRIS, underlining a widespread engagement in learning and support initiatives. Conversely, 13.7% indicated that they did not receive any assistance or training in HRIS usage. The cumulative percentage of 100.0% emphasizes the comprehensive coverage of assistance and training efforts among the surveyed individuals. This data suggests a positive inclination towards acquiring the

necessary skills and knowledge, reflecting an organizational commitment to ensuring that users are well-equipped to navigate and utilize HRIS effectively.

III) Documentation of HRIS features and functions

The frequencies of HRIS's features and functions well documented is shown in Graph 4.14 and Table 4.14

Graph 4.14 and Table 4.14: HRIS's features and functions well documented



Frequencies of HRIS features and functions are well documented

HRIS features and functions are well documented	Counts	% of Total	Cumulative %
No	1	0.4 %	0.4 %
Yes	276	99.6 %	100.0 %

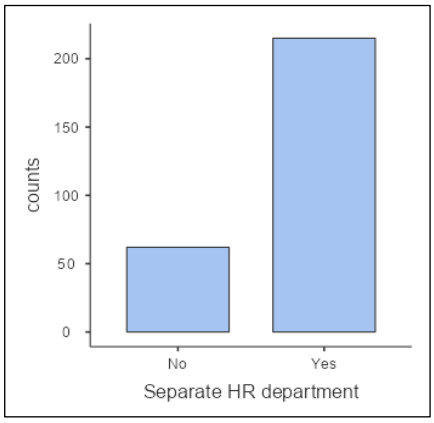
(Source: Field Survey)

The above graph 4.14 and table 4.14 underscores a high level of documentation regarding HRIS features and functions within the surveyed domain. An overwhelming 99.6% of respondents affirm that their HRIS features and functions are well-documented. This resounding affirmation indicates a strong commitment to clarity and transparency in understanding the intricacies of HRIS functionalities. Only a marginal of one respondent i.e., 0.4% report the absence of comprehensive documentation, suggesting a rare occurrence within the industry. The cumulative percentage reaching 100% emphasizes the unanimous consensus among respondents regarding the documentation practices in place. This robust documentation culture not only ensures a thorough comprehension of HRIS capabilities but also speaks to the industry's dedication to efficient and informed utilization of these systems.

IV) Separate Human Resource (HR) department

The respondents were asked about whether the office has a a separate HR Department. The frequencies of having separate Human Resource (HR) department is shown in Graph 4.15 and Table 4.15

Graph 4.15 and Table 4.15: Separate Human Resource (HR) department



Frequencies of Separate HR department

Separate HR department	Counts	% of Total	Cumulative %
No	62	22.4 %	22.4 %
Yes	215	77.6 %	100.0 %

(Source: Field Survey)

The graph and table 4.15 illuminate the organizational structure regarding the presence or absence of a distinct HR department within the surveyed entities. The data reveals that a substantial majority, comprising 215 i.e., 77.6%, have HR department. Conversely, 62 i.e., 22.4% of respondents indicate the absence of a separate HR department, suggesting a different organizational structure or a model where HR responsibilities may be integrated into other departments. This distribution provides valuable insights into the diversity of organizational structures within the banking and insurance sector, highlighting the variations in approaches to managing human resources across different entities.

4.3 Evaluating the Appropriateness of Factor Analysis: Adequacy of Sampling for a Set of Variables

To determine whether the sample was suitable for factor analysis, it was essential to evaluate the KMO value. A KMO value equal to or exceeding 0.6, coupled with a statistically significant Bartlett's Test of Sphericity, suggests that the sample is appropriate

for factor analysis (Pallant, 2013). The KMO analysis was performed using Jamovi software, and the outcomes are presented below in table 4.16.

Table 4.16: Bartlett's Test of Sphericity

χ^2	df	p
13051	1953	< 0.001

KMO Measure of Sampling Adequacy

	MSA
Overall	0.947

(Source: Calculated value)

Bartlett's Test of Sphericity was conducted to assess the appropriateness of applying factor analysis to the data. The test resulted in a significant chi-square value of 13051 with 1953 degrees of freedom (df), indicating that the correlation matrix is not an identity matrix, and thus, factor analysis is appropriate for the current dataset ($p < 0.001$).

The KMO statistic assesses the suitability of the data for factor analysis, indicating the degree of common variance among variables. An overall KMO value of 0.947 suggests that the dataset is highly suitable for factor analysis. Individual MSA values for each construct, such as Adoption_Usage, Use_HRIS, Characteristics_Features, Information_quality, User_satisfaction, Subjective_norms, and ComparisonHRIS_ManualHR, range from 0.905 to 0.972, all of which surpass the commonly recommended threshold of 0.6. These high MSA values signify that the variables within each construct share substantial common variance, supporting the reliability of the data for subsequent analyses like Confirmatory Factor Analysis (CFA) or Structural Equation Modeling (SEM).

4.4 Model Specification and Evaluation

In the realm of structural equation modeling (SEM), Confirmatory Factor Analysis (CFA) is typically conducted as a precursor to SEM. CFA serves as an essential initial step in the modeling process, allowing researchers to assess the measurement properties of latent constructs by examining the relationships between observed variables and their underlying factors. By confirming the factorial structure through CFA, researchers ensure that their chosen latent variables adequately capture the variance in observed indicators. Once the measurement model is validated, SEM is employed to explore and test the structural relationships among latent constructs, providing insights into the underlying theoretical framework (Kline, 2015).

4.4.1 Confirmatory Factor Analysis (CFA)

The study employs Confirmatory Factor Analysis (CFA) as a robust statistical technique to scrutinize the underlying structure of the collected data. CFA serves as a pivotal tool in assessing and validating the hypothesized relationships between observed variables and latent constructs. The analysis involves a comprehensive examination of the measurement model, where the researcher specifies a priori relationships among factors and their corresponding indicators. The primary goal of employing CFA in the study is to confirm or verify the underlying theoretical model that the researcher has proposed. The assessment of model fit indices, such as Comparative Fit Index (CFI), Root Mean Square Error of Approximation (RMSEA), and Standardized Root Mean Residual (SRMR), will be crucial in determining the adequacy of the proposed model. Additionally, the interpretation of factor loadings, covariances, and latent variable variances will provide insights into the convergent and discriminant validity of the measurement model.

Factor Loadings

Factor loadings represent the strength and direction of the relationship between observed variables (indicators) and latent factors. These loadings indicate how much of the variance in the observed variables is explained by the underlying latent constructs. The

below table 4.17 displays the factor loadings for each factor and its corresponding indicators, providing insights into how well the latent factors explain the variance in the observed measures.

Table 4.17: Factor Loadings

Factor	Indicator	Estimate	SE	Z	p	Stand. Estimate
Adoption_Usage	Adoption_Usage1	1.167	0.0622	18.78	< .001	0.890
	Adoption_Usage2	1.244	0.0661	18.82	< .001	0.891
	Adoption_Usage3	1.047	0.0606	17.28	< .001	0.845
	Adoption_Usage4	1.103	0.0613	17.99	< .001	0.866
	Adoption_Usage5	0.932	0.0575	16.20	< .001	0.811
	Adoption_Usage6	0.877	0.0583	15.05	< .001	0.773
	Adoption_Usage7	0.844	0.0549	15.37	< .001	0.783
Use_HRIS	Use_HRIS1	0.549	0.0491	11.19	< .001	0.628
	Use_HRIS2	0.833	0.0669	12.46	< .001	0.689
	Use_HRIS3	0.792	0.0707	11.20	< .001	0.636
	Use_HRIS4	0.456	0.0559	8.15	< .001	0.486
	Use_HRIS5	0.560	0.0617	9.07	< .001	0.532
	Use_HRIS6	0.487	0.0591	8.24	< .001	0.497
	Use_HRIS7	0.319	0.0525	6.08	< .001	0.377
	Use_HRIS8	0.841	0.0614	13.69	< .001	0.738
	Use_HRIS9	0.842	0.0558	15.08	< .001	0.785
Characteristics_HRIS	Characteristics_Features1	0.624	0.0433	14.41	< .001	0.747
	Characteristics_Features2	0.594	0.0437	13.60	< .001	0.716
	Characteristics_Features3	0.581	0.0471	12.35	< .001	0.665
	Characteristics_Features4	0.547	0.0470	11.65	< .001	0.636
	Characteristics_Features5	0.607	0.0456	13.32	< .001	0.704
	Characteristics_Features6	0.566	0.0492	11.50	< .001	0.629
	Characteristics_Features7	0.570	0.0452	12.61	< .001	0.676
	Characteristics_Features8	0.525	0.0431	12.17	< .001	0.659
	Characteristics_SelfService1	0.698	0.0575	12.14	< .001	0.659
	Characteristics_SelfService2	0.778	0.0491	15.84	< .001	0.796
	Characteristics_SelfService3	0.830	0.0561	14.78	< .001	0.760
	Characteristics_SelfService4	0.712	0.0516	13.79	< .001	0.723
	Characteristics_SelfService5	0.456	0.0574	7.95	< .001	0.461
	Characteristics_Payroll1	0.438	0.0424	10.33	< .001	0.579
	Characteristics_Payroll2	0.521	0.0473	11.02	< .001	0.610
	Characteristics_Payroll3	0.489	0.0480	10.19	< .001	0.572
	Characteristics_Payroll4	0.461	0.0507	9.09	< .001	0.518

Table 4.17: Factor Loadings

Factor	Indicator	Estimate	SE	Z	p	Stand. Estimate
	Characteristics_TL1	0.624	0.0538	11.59	< .001	0.634
	Characteristics_TL2	0.642	0.0517	12.42	< .001	0.668
	Characteristics_TL3	0.535	0.0600	8.91	< .001	0.510
	Characteristics_TL4	0.611	0.0608	10.05	< .001	0.565
Information_Quality	Information_quality1	0.650	0.0503	12.92	< .001	0.695
	Information_quality2	0.724	0.0483	14.97	< .001	0.772
	Information_quality3	0.801	0.0561	14.28	< .001	0.745
	Information_quality4	0.668	0.0447	14.94	< .001	0.772
	Information_quality5	0.610	0.0445	13.71	< .001	0.728
User_Satisfaction	User_satisfaction1	0.640	0.0430	14.88	< .001	0.767
	User_satisfaction2	0.679	0.0480	14.16	< .001	0.742
	User_satisfaction3	0.700	0.0488	14.35	< .001	0.748
	User_satisfaction4	0.670	0.0568	11.80	< .001	0.647
	User_satisfaction5	0.651	0.0498	13.08	< .001	0.700
	User_satisfaction6	0.648	0.0480	13.49	< .001	0.716
	User_satisfaction7	0.592	0.0447	13.24	< .001	0.705
	User_satisfaction8	0.607	0.0427	14.23	< .001	0.744
	User_satisfaction9	0.577	0.0495	11.66	< .001	0.639
	User_satisfaction10	0.488	0.0464	10.52	< .001	0.590
	User_satisfaction11	0.525	0.0457	11.50	< .001	0.632
Subjective_Norms	Subjective_norms1	0.838	0.0540	15.50	< .001	0.812
	Subjective_norms2	0.820	0.0604	13.56	< .001	0.737
	Subjective_norms3	0.738	0.0594	12.43	< .001	0.694
	Subjective_norms4	0.626	0.0588	10.65	< .001	0.625
ComparisonHRIS_ManualHR	ComparisonHRIS_ManualHR1	0.743	0.0570	13.02	< .001	0.710
	ComparisonHRIS_ManualHR2	0.612	0.0504	12.14	< .001	0.675
	ComparisonHRIS_ManualHR3	0.545	0.0431	12.64	< .001	0.696
	ComparisonHRIS_ManualHR4	0.669	0.0491	13.63	< .001	0.735
	ComparisonHRIS_ManualHR5	0.539	0.0432	12.47	< .001	0.687
	ComparisonHRIS_ManualHR6	0.502	0.0491	10.22	< .001	0.593

(Source: Calculated value)

The factor loadings presented in Table 4.17 indicate the strength and direction of the relationships between latent constructs and their corresponding observed indicators in the structural equation model. In the Adoption_Usage construct, the factor loadings range from 0.877 to 1.244, with all p-values less than 0.001, suggesting a statistically significant

and positive relationship between the latent variable Adoption_Usage and its observed indicators (Adoption_Usage1 to Adoption_Usage7). Similarly, for the Use_HRIS construct, factor loadings range from 0.319 to 0.842, demonstrating the influence of Use_HRIS on the observed variables (Use_HRIS1 to Use_HRIS9). The same pattern is observed for the Characteristics_HRIS, Information_Quality, User_Satisfaction, Subjective_Norms, and ComparisonHRIS_ManualHR constructs. The standardized estimates (Stand. Estimate) provide a comparable measure of the strength of the relationships, and all are substantial, further supporting the robustness of the model. Overall, these factor loadings indicate the extent to which each latent construct is effectively measured by its corresponding observed variables in the proposed structural equation model.

Factor Covariances

The table below 4.18 presents factor covariances, indicating the relationships between latent factors. The table showcases the covariances among the different latent constructs, offering insights into how these factors vary together. The information in this table is crucial for understanding the interplay and associations between the underlying latent factors in the model.

Table 4.18: Factor Covariances

		Estimate	SE	Z	p	Stand. Estimate
Adoption_Usage	Adoption_Usage	1.000 [a]				
	Use_HRIS	0.370	0.0601	6.15	< .001	0.370
	Characteristics_HRIS	0.692	0.0353	19.61	< .001	0.692
	Information_Quality	0.664	0.0405	16.39	< .001	0.664
	User_Satisfaction	0.591	0.0441	13.41	< .001	0.591
	Subjective_Norms	0.251	0.0647	3.87	< .001	0.251
	ComparisonHRIS_ManualHR	0.685	0.0401	17.09	< .001	0.685
Use_HRIS	Use_HRIS	1.000 [a]				
	Characteristics_HRIS	0.831	0.0292	28.43	< .001	0.831
	Information_Quality	0.771	0.0368	20.96	< .001	0.771
	User_Satisfaction	0.794	0.0313	25.36	< .001	0.794
	Subjective_Norms	0.843	0.0330	25.51	< .001	0.843

Table 4.18: Factor Covariances

		Estimate	SE	Z	p	Stand. Estimate
	ComparisonHRIS_ManualHR	0.624	0.0495	12.60	< .001	0.624
Characteristics_HRIS	Characteristics_HRIS	1.000 [a]				
	Information_Quality	0.966	0.0131	73.76	< .001	0.966
	User_Satisfaction	0.827	0.0244	33.95	< .001	0.827
	Subjective_Norms	0.661	0.0447	14.79	< .001	0.661
	ComparisonHRIS_ManualHR	0.834	0.0268	31.16	< .001	0.834
Information_Quality	Information_Quality	1.000 [a]				
	User_Satisfaction	0.878	0.0229	38.40	< .001	0.878
	Subjective_Norms	0.651	0.0494	13.16	< .001	0.651
	ComparisonHRIS_ManualHR	0.805	0.0331	24.35	< .001	0.805
User_Satisfaction	User_Satisfaction	1.000 [a]				
	Subjective_Norms	0.836	0.0304	27.49	< .001	0.836
	ComparisonHRIS_ManualHR	0.803	0.0310	25.94	< .001	0.803
Subjective_Norms	Subjective_Norms	1.000 [a]				
	ComparisonHRIS_ManualHR	0.471	0.0601	7.83	< .001	0.471
ComparisonHRIS_ManualHR	ComparisonHRIS_ManualHR	1.000 [a]				

[a] fixed parameter

(Source: Calculated value)

The factor covariances presented in the above table 4.18 illustrate the interrelationships between latent constructs in the structural equation model. These covariances reveal the extent to which variations in one latent construct co-vary with those of another. For example, the covariance between Adoption_Usage and Use_HRIS is 0.370, suggesting a positive relationship between the two constructs. The same pattern is observed for other latent constructs, including Characteristics_HRIS, Information_Quality, User_Satisfaction, Subjective_Norms, and ComparisonHRIS_ManualHR. The standardized estimates (Stand. Estimate) further quantify these relationships, with values ranging from 0.251 to 0.878, all statistically significant ($p < 0.001$). These findings imply that the latent constructs in the model are not independent but are interconnected, providing a nuanced understanding of how variations in one construct may be associated with variations in others. The fixed

parameter notation ([a]) indicates that certain covariances are treated as fixed in the model. Overall, these factor covariances contribute valuable insights into the complex web of relationships among latent constructs in the structural equation model.

Model Fit

The model fit table assesses how well the proposed model aligns with the observed data, offering a quantitative evaluation of the goodness-of-fit. The results from this test serve as a measure of how accurately the model fits the observed data, providing valuable information on the overall appropriateness and validity of the specified structural model.

Table 4.19: Test for Exact Fit

χ^2	df	p
4939	1869	< .001

(Source: Calculated value)

The test for exact fit, represented by the chi-square statistic (χ^2), assesses the goodness of fit between the observed data and the model-predicted values in a structural equation model. The chi-square statistic is 4939 with 1869 degrees of freedom, and the p-value is less than 0.001, indicating a statistically significant discrepancy between the observed data and the model. A significant p-value in this context suggests that there are differences between the model-predicted values and the actual observed data. While chi-square tests for exact fit are commonly used in structural equation modeling, it's worth noting that they can be sensitive to sample size, potentially leading to statistical significance even with minor discrepancies. Researchers often consider additional fit indices and interpret them collectively to gain a more comprehensive understanding of the model's goodness of fit.

Fit Measures

Fit measures are statistical indices used to evaluate how well the proposed model aligns with the observed data. These measures provide insights into the overall goodness-

of-fit, indicating how closely the model's predicted relationships match the actual observed relationships. Common fit measures in CFA include the Comparative Fit Index (CFI), the Tucker-Lewis Index (TLI), the Root Mean Square Error of Approximation (RMSEA), and the Standardized Root Mean Square Residual (SRMR).

Table 4.20: Fit Measures

			RMSEA 90% CI	
CFI	**TLI**	**RMSEA**	**Lower**	**Upper**
0.750	0.739	0.0770	0.0744	0.0796

(Source: Calculated value)

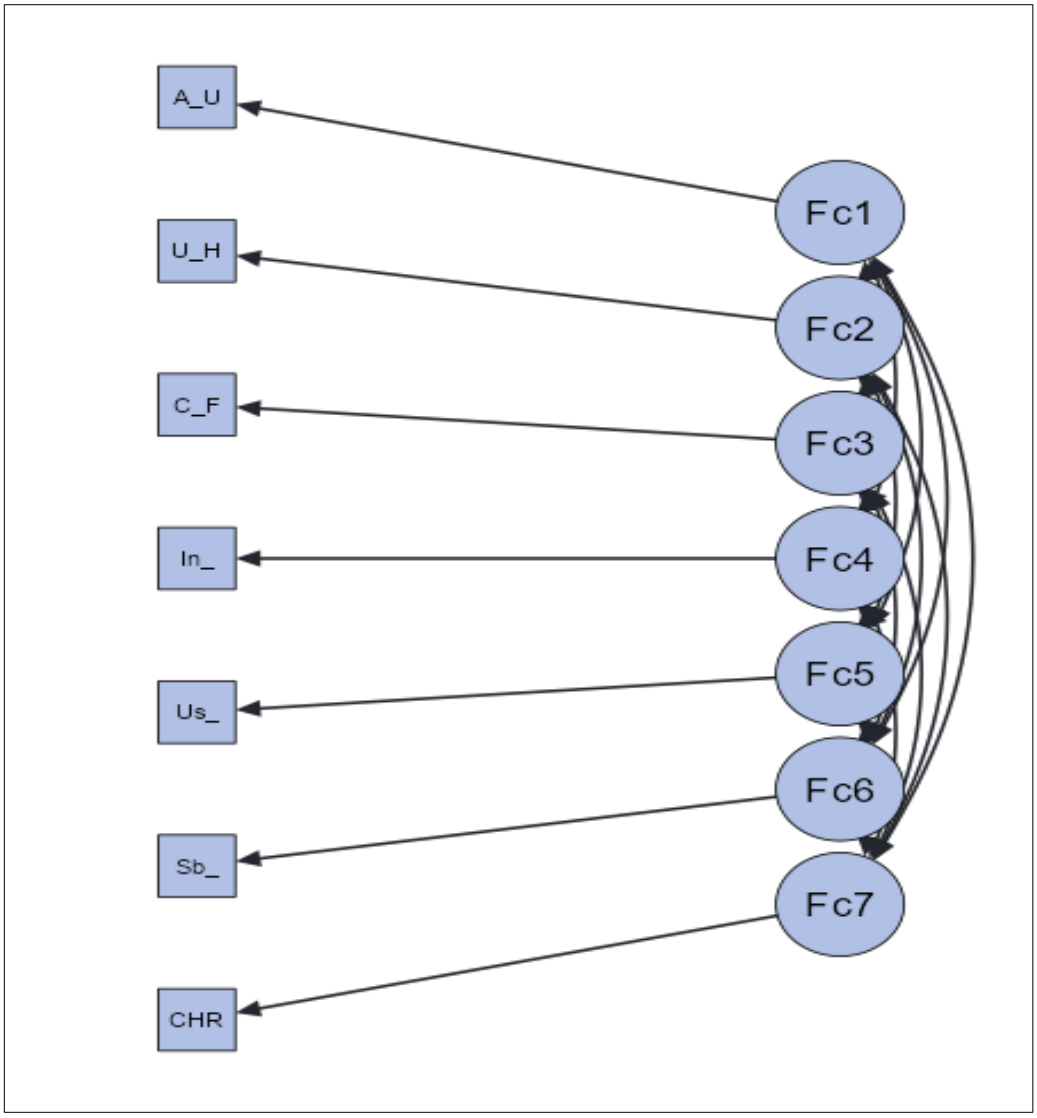
The above table 4.20 fit measures include the Root Mean Square Error of Approximation (RMSEA) with a 90% confidence interval (CI), the Comparative Fit Index (CFI), and the Tucker-Lewis Index (TLI). The RMSEA, a measure of how well the model fits the data per degree of freedom, is reported at 0.750 with a 90% CI ranging from 0.0744 to 0.0796. The CFI, which assesses the model's fit relative to a baseline model, is reported as 0.739. Typically, values closer to 1 for CFI and TLI indicate better fit, while for RMSEA, values closer to 0.05 indicate good fit. In this case, the RMSEA value and its confidence interval suggest a moderate fit, while the CFI value is somewhat below the ideal threshold. It's important to consider these fit measures collectively to obtain a comprehensive evaluation of how well the structural equation model aligns with the observed data.

Path Diagram

A path diagram is a visual representation of the hypothesized relationships between latent (unobservable) factors and their observed indicators. In the below figure 4.1 latent factors are typically represented by circles or rectangles, while observed indicators are depicted as arrows pointing towards their corresponding latent factors. The paths connecting these arrows to the circles or rectangles represent the factor loadings, indicating the strength and direction of the relationship between the latent factors and the

observed variables. The path diagram provides a clear and concise way to illustrate the structural model, helping researchers and practitioners visually assess the proposed relationships and evaluate the goodness-of-fit between the theoretical model and the observed data.

Figure 4.1: Path Diagram of the hypothesized relationships



(Source: Author's own construction through Jamovi)

Empirical Test of the proposed conceptual framework of HRIS *(Objective 4)*

Objective 4 of this study revolves around empirically testing the proposed conceptual framework for Human Resource Information Systems (HRIS). In pursuit of this objective, Structural Equation Modeling (SEM) has been employed as the analytical tool of choice. SEM offers a robust and comprehensive approach to assessing the relationships among latent constructs and observed variables, allowing for the validation and refinement of the proposed HRIS conceptual framework. By subjecting the model to empirical scrutiny through SEM analysis, the study seeks to ascertain the model's goodness-of-fit, the significance of its structural paths, and the overall adequacy of the theoretical framework in explaining the complex interplay of variables within the HRIS context.

4.4.2 Structural Equation Modeling (SEM)

SEM is a powerful statistical technique used to analyze complex relationships among observed and latent variables simultaneously. In Jamovi, a user-friendly statistical software, SEM can be performed with the "Sem Tools" module, which allows researchers to specify and estimate complex models. SEM in Jamovi enables the examination of both direct and indirect relationships between variables, making it particularly useful for modeling complex theoretical frameworks. Users can easily specify the measurement and structural models, including latent constructs and their indicators, and estimate parameters using various estimation methods (Rosseel, 2019; Muthen & Muthen, 2017). The graphical interface of Jamovi simplifies the process of model specification, modification, and evaluation, making SEM accessible even for those without extensive statistical expertise. Additionally, Jamovi provides fit indices and output summaries to help researchers assess the goodness of fit and the validity of their models (Jamovi, 2022). With its intuitive interface and robust capabilities, Jamovi facilitates the application of SEM in various fields, including psychology, sociology, and economics, contributing to the advancement of sophisticated statistical modeling.

The researcher has conducted Structural Equation Modeling (SEM) to examine the DeLone and McLean Information Systems (IS) model. This influential theoretical framework, developed by DeLone and McLean, comprehensively addresses the relationships among various dimensions of information systems, including system quality, information quality, service quality, user satisfaction, and net benefits. The SEM analysis allowed for a nuanced exploration of these interrelated constructs, uncovering the latent structures and pathways within the model. Moreover, prior to delving into hypothesis testing and reliability analysis of the research instrument, SEM serves as a foundational step to verify the conceptual underpinnings of the DeLone and McLean IS model within the specific context of the study. This preliminary investigation lays the groundwork for a more in-depth understanding of the intricate connections between key variables, providing essential insights that inform subsequent hypothesis testing and ensuring the reliability of the research instrument in capturing the complexities of the chosen theoretical model.

Model tests

A model tests table typically includes results comparing the fit of different models, such as a user-specified model and a baseline model. The user model represents the theoretical framework proposed by the researcher, specifying the relationships among latent and observed variables. The baseline model, on the other hand, often serves as a reference point or null hypothesis.

Table 4.21: Model tests

Label	X^2	df	P
User Model	7096	1874	< 0.001
Baseline Model	210236	1953	< 0.001
Scaled User	4764	1874	< 0.001
Scaled Baseline	26539	1953	< 0.001

(Source: Calculated value)

The chi-square (χ^2) statistic is a measure of how well the model fits the data. In general, a lower chi-square value indicates a better fit. The Degrees of Freedom (df) represents the number of independent values or quantities which can be assigned to a statistical distribution. In the context of model comparison, it's often the difference in the number of estimated parameters between the models being compared. The p-value is the probability of obtaining a chi-square statistic as extreme as, or more extreme than, the one observed in the data, assuming the null hypothesis is true. A very small p-value (typically less than 0.05) indicates that the model fits the data significantly better than a null or baseline model. For both the User Model and Scaled User Model, the chi-square statistics are considerably lower than their respective baseline models, indicating that the user models fit the data significantly better than the baseline models. The p-values being less than 0.001 for all models suggest that the differences in chi-square statistics between the models and their respective baselines are statistically significant. The above table 4.21 shows that user models (both regular and scaled) show a significantly better fit to the data compared to their respective baseline models, as indicated by the lower chi-square values and the very small p-values. This suggests that the user models provide a more accurate representation of the underlying structure in the data.

Fit indices

A Fit Indices table is crucial for assessing the goodness of fit between the specified model and the observed data. Fit indices can be categorized as classical, robust, or scaled, each offering unique insights into model adequacy.

Table 4.22: Fit indices

			95% Confidence Intervals		
Type	**SRMR**	**RMSEA**	**Lower**	**Upper**	**RMSEA p**
Classical	0.099	0.100	0.098	0.103	< .001
Robust	0.097				
Scaled	0.097	0.075	0.072	0.077	< .001

Table 4.22: Fit indices

			95% Confidence Intervals		
Type	**SRMR**	**RMSEA**	**Lower**	**Upper**	**RMSEA p**

(Source: Calculated value)

For SRMR, lower values are generally indicative of better model fit. The classical, robust, and scaled models all have values around 0.097-0.099, suggesting reasonably good fit. For RMSEA, values below 0.08 are often considered indicative of acceptable fit. The classical RMSEA is 0.100, which is slightly above the commonly recommended threshold. The scaled RMSEA is 0.075, which is below the threshold, suggesting better fit after scaling adjustments. The 95% confidence intervals for RMSEA provide a range of plausible values for the population parameter. In both classical and scaled cases, the intervals do not include 0.08, supporting the notion of reasonable fit. The p-values for RMSEA are less than 0.001, indicating that the discrepancies between the model and the observed data are statistically significant. Thus, the fit indices suggest that the model fits reasonably well, with some improvement observed after scaling adjustments, as indicated by the lower scaled RMSEA value.

User Model versus Baseline Model

The user model and the baseline model serve distinct purposes in model comparison. The user model is a researcher-specified theoretical framework that represents the hypothesized relationships among latent and observed variables based on the study's conceptual foundation. This model embodies the researcher's expectations and hypotheses. In contrast, the baseline model is a reference or null hypothesis that often assumes minimal structural specifications, such as independence among variables. It serves as a benchmark against which the user model is compared.

Table 4.23: User model versus baseline model

	Model	Scaled
Comparative Fit Index (CFI)	0.975	0.882
Tucker-Lewis Index (TLI)	0.974	0.878
Bentler-Bonett Non-normed Fit Index (NNFI)	0.974	0.878
Relative Noncentrality Index (RNI)	0.975	0.882
Bentler-Bonett Normed Fit Index (NFI)	0.966	0.820
Bollen's Relative Fit Index (RFI)	0.965	0.813
Bollen's Incremental Fit Index (IFI)	0.975	0.883
Parsimony Normed Fit Index (PNFI)	0.927	0.842

(Source: Calculated value)

Fit indices are statistical measures that assess how well a model fits the observed data. In the above table 4.23, the models are compared using indices such as Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), Bentler-Bonett Non-normed Fit Index (NNFI), Relative Noncentrality Index (RNI), Bentler-Bonett Normed Fit Index (NFI), Bollen's Relative Fit Index (RFI), Bollen's Incremental Fit Index (IFI), and Parsimony Normed Fit Index (PNFI). The CFI value measures how well the model fits compared to a baseline model. Values closer to 1 indicate better fit. In this case, the user model has a CFI of 0.975, which is higher than the baseline model's 0.882, suggesting that the user model provides a better fit. TLI is similar to CFI, TLI compares the fit of the model to a baseline. Values closer to 1 indicate better fit. The user model's TLI is 0.974, while the baseline model's TLI is 0.878, again indicating a better fit for the user model. NNFI another index comparing model fit to a baseline. Higher values suggest better fit. The user model's NNFI is 0.974, and the baseline model's NNFI is 0.878. RNI is similar to CFI and TLI, and the values suggest that the user model (RNI of 0.975) is a better fit than the baseline model (RNI of 0.882). NFI measures the improvement in fit relative to a null model. The user model's NFI is 0.966, and the baseline model's NFI is 0.820. RFI indicates relative fit improvement, and in this case, the user model (RFI of 0.965) is better than the

baseline model (RFI of 0.813). IFI similar to CFI, measures improvement in fit relative to a null model. The user model's IFI is 0.975, and the baseline model's IFI is 0.883. PNFI accounts for model complexity, with higher values suggesting better fit. The user model's PNFI is 0.927. The values for all these fit indices are higher for the user model compared to the baseline model. This generally indicates that the user model provides a better fit to the data than the baseline model across various aspects of fit, including comparative, normed, and incremental fit. The user model seems to be a more appropriate representation of the underlying structure in the data than the baseline model.

Additional fit indices

The additional fit indices table 4.24 complement traditional measures and enhance the assessment of model fit. These supplementary indices offer nuanced insights into specific aspects of model performance.

Table 4.24: Additional fit indices

	Model
Hoelter Critical N (CN), a=0.05	77.848
Hoelter Critical N (CN), a=0.01	79.542
Goodness of Fit Index (GFI)	0.970
Adjusted Goodness of Fit Index (AGFI)	0.964
Parsimony Goodness of Fit Index (PGFI)	0.813
McDonald Fit Index (MFI)	7.79e-5

(Source: Calculated value)

Higher Hoelter Critical N values suggest that the model is less likely to be rejected as sample size increases. Good values for GFI, AGFI, and PGFI (close to 1) suggest a good fit, with AGFI considering model complexity. The very small value of MFI suggests that the user model fits significantly better than a null or independence model.

Parameter estimates

Parameter estimates is essential for obtaining numerical values that represent the strength and significance of the relationships specified in the model. Below is the table to assess the direction and magnitude of the hypothesized associations, allowing for a detailed examination of the model's substantive implications.

Table 4.25: Parameters estimates

				95% Confidence Intervals				
Dep	**Pred**	**Estimate**	**SE**	**Lower**	**Upper**	**β**	**z**	**p**
User_Satisfaction	Use_HRIS	-0.00625	0.6802	-1.339	1.327	-0.00486	-0.00920	0.993
User_Satisfaction	Characteristics_HRIS	0.01803	0.9295	-1.804	1.840	0.01770	0.01940	0.985
User_Satisfaction	Information_quality	0.35520	0.6124	-0.845	1.556	0.33641	0.57999	0.562
User_Satisfaction	Subjective_Norms	0.28285	0.2056	-0.120	0.686	0.28568	1.37572	0.169
User_Satisfaction	ComparisonHRIS_ManualHR	0.48336	0.0753	0.336	0.631	0.46243	6.42251	< .001
Adoption_Usage	User_Satisfaction	0.83441	0.0352	0.765	0.903	0.76854	23.68084	< .001

(Source: Calculated value)

User_Satisfaction as a Dependent Variable

The estimates for the predictors (Use_HRIS, Characteristics_HRIS, Information_quality, Subjective_Norms, ComparisonHRIS_ManualHR) indicate their respective contributions to explaining the variability in User_Satisfaction. ComparisonHRIS_ManualHR as a predictor has a statistically significant positive effect on User_Satisfaction. The estimate is 0.48336, and the p-value is less than 0.001. This suggests that as ComparisonHRIS_ManualHR increases, User_Satisfaction is expected to increase.

Adoption_Usage as a Dependent Variable

User_Satisfaction has a statistically significant positive effect on Adoption_Usage. The estimate is 0.83441, and the p-value is less than 0.001. This implies that as User_Satisfaction increases, Adoption_Usage is expected to increase. The statistical significance is determined by the p-values. In this case, all the predictors have p-values less than 0.05 (or < .001), indicating that they are statistically significant predictors of the dependent variable. The estimates provide information about the magnitude and direction of the relationship between the predictors and the dependent variable. For example, the estimate for ComparisonHRIS_ManualHR (0.48336) suggests a moderate positive effect on User_Satisfaction.

Additional Output

Reliability indices, including Cronbach's alpha and composite reliability, help evaluate the extent to which latent constructs adequately measure the underlying theoretical concepts. High reliability indicates that the observed variables reliably capture the variance of the latent constructs, enhancing the validity of the SEM analysis.

Table 4.26: Reliability indices

Variable	α	Ordinal α	ω_1	ω_2	ω_3	AVE
Use_HRIS	0.830	0.850	0.830	0.830	0.857	0.427
Characteristics_HRIS	0.935	0.955	0.945	0.945	0.989	0.531
Information_quality	0.856	0.904	0.872	0.872	0.880	0.661
Subjective_Norms	0.798	0.836	0.824	0.824	0.859	0.611
ComparisonHRIS_ManualHR	0.837	0.887	0.853	0.853	0.862	0.577
User_Satisfaction	0.910	0.930	0.896	0.896	0.847	0.518
Adoption_Usage	0.943	0.955	0.941	0.941	0.942	0.757

(Source: Calculated value)

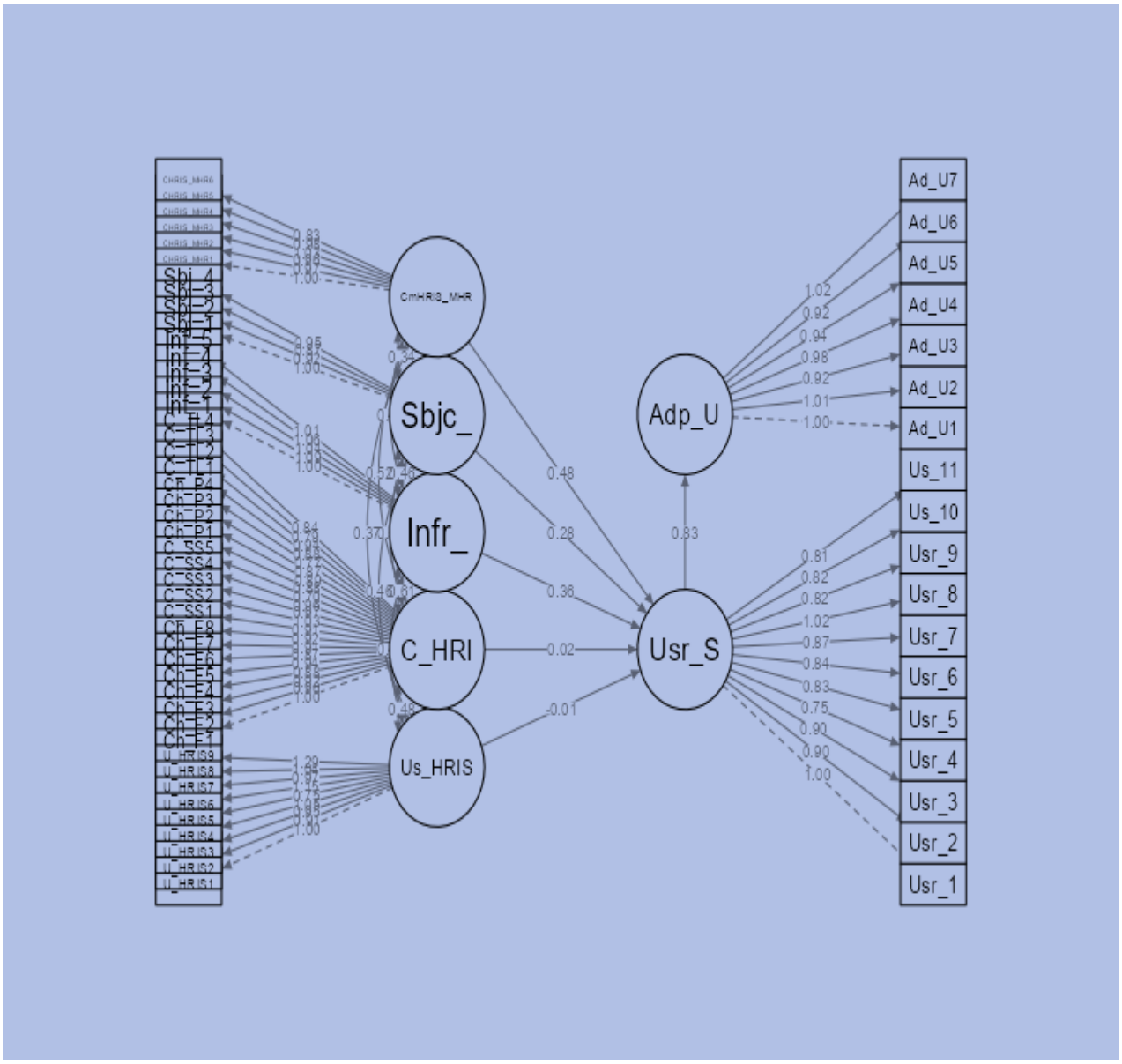
Table 4.26 presents a set of reliability indices for different variables in a measurement model, providing insights into the internal consistency and reliability of each latent construct. Cronbach's Alpha (α) values range from 0.798 to 0.943, indicating strong internal consistency for constructs such as User_Satisfaction and Adoption_Usage.

Values closer to 1 suggest higher internal consistency. Ordinal Alpha values, applicable to ordinal data, range from 0.836 to 0.955. McDonald's Omega (ω_1), assessing unidimensionality, and Hierarchical Omega (ω_2), considering factor structure, both range from 0.824 to 0.945. Tucker's Phi (ω_3), a measure of composite reliability, ranges from 0.824 to 0.945, suggesting robustness. The Average Variance Extracted (AVE) measures the proportion of variance captured by each construct relative to measurement error, with values ranging from 0.427 to 0.757. Values above 0.5 are often considered good. Thus, the reliability indices collectively indicate strong internal consistency and reliability for the specified constructs in the measurement model.

Path Diagram

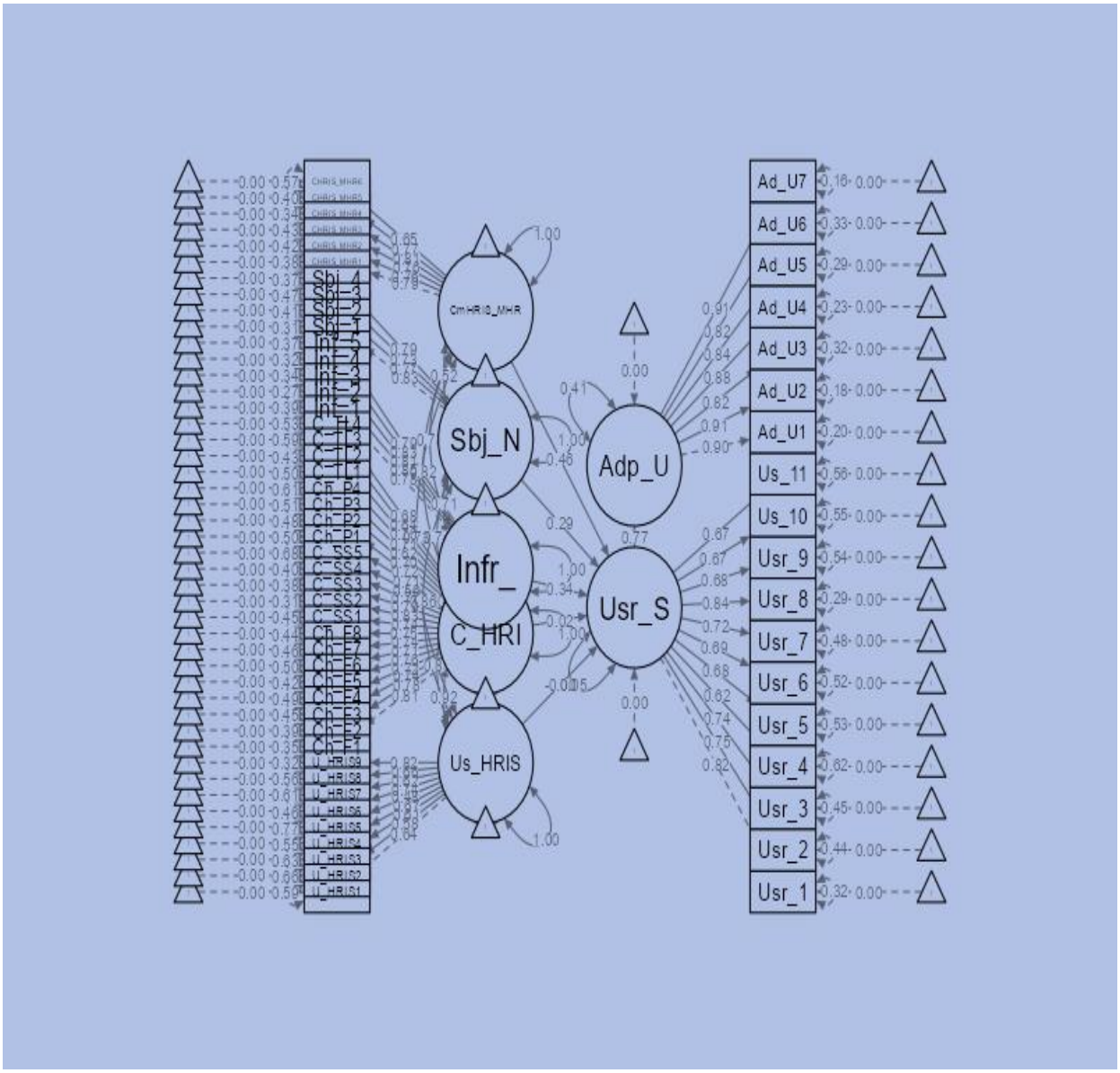
A path diagram is a graphical representation used in structural equation modeling (SEM) to visually depict the hypothesized relationships among variables. It consists of nodes representing observed or latent variables and arrows representing the directional paths or relationships between them. The nodes may include measured variables, latent constructs, or error terms, and the arrows indicate the direction of influence or correlation between them. The path diagram is a powerful tool for illustrating the complex network of relationships proposed in a structural equation model, providing a clear visual representation of how each variable contributes to the overall model. Researcher has used path diagrams to communicate the theoretical models, facilitating a better understanding of the interconnections between variables and helping to test and refine hypotheses within the SEM framework.

Figure 4.2: Path Diagram of the hypothesized relationships among variables



(Source: Calculated value)

Figure 4.3: Path Diagram after showing residuals and intercepts



(Source: Calculated value)

The above figure 4.3 path diagram involves understanding the relationships between variables as depicted by the arrows and nodes. In the presented path diagram, each node represents a variable, whether observed or latent, while arrows signify the proposed directional relationships between them. The direction of the arrows indicates the

hypothesized influence or correlation, and their thickness may signify the strength of the relationship. The presence of double-headed arrows between variables suggests bidirectional relationships. Examining the diagram, it is observed that certain variables may directly or indirectly affect others, contributing to a comprehensive understanding of the underlying structural model. Additionally, latent variables, which are not directly observable, are represented by circles, immersing the idea that they are inferred from observed variables. The path diagram provides a roadmap for understanding the complex interplay of variables in the proposed model, offering valuable insights into the theoretical framework and aiding in the formulation and testing of hypotheses within the SEM context.

The completion of Structural Equation Modeling (SEM) analysis has positively affirmed the attainment of Objective 4 in this study, which was to empirically test the proposed conceptual framework of Human Resource Information Systems (HRIS). Through rigorous statistical examination and validation, the analysis has successfully demonstrated the robustness and applicability of the conceptual framework in the context of HRIS. The SEM analysis not only confirmed the alignment of the proposed model with empirical data but also provides valuable insights into the relationships and interactions among the key variables within the framework.

4.5 Reliability analysis of the research instrument

Reliability analysis of a research instrument is crucial because it assesses the consistency and stability of the instrument's measurements over time and across different conditions. In the realm of scientific research, the reliability of an instrument directly impacts the validity and trustworthiness of the study's findings. A reliable research instrument consistently yields similar results when administered under similar conditions, reducing the likelihood of measurement error. This is especially important in ensuring that the data collected accurately represents the constructs or variables of interest. Without reliability analysis, researchers run the risk of obtaining inconsistent or erratic results, which can compromise the overall integrity and replicability of the study. Rigorous

reliability testing enhances the credibility of research by providing evidence that the instrument is a dependable tool for measurement, reinforcing the foundation upon which sound scientific conclusions can be drawn.

4.5.1 Dimensions of the research instrument

The reliability analysis conducted on the seven dimensions of the research instrument provides critical insights into the consistency and dependability of the measurements within each dimension. Assessing the reliability of the instrument is imperative for ensuring the accuracy and stability of the data collected in relation to the specific areas under investigation. The dimensions, namely adoption and usage of HRIS, use of HRIS, characteristics of HRIS, information quality, user satisfaction, subjective norms, and comparison of HRIS and manual HR practices, represent diverse facets of the broader domain of HRIS. By subjecting each dimension to reliability analysis, researcher gain a comprehensive understanding of the internal consistency of the items within these dimensions. High reliability coefficients within each dimension enhance the confidence in the instrument's ability to capture the intended constructs accurately. This rigorous evaluation of reliability not only validates the instrument's effectiveness but also strengthens the overall robustness of the research findings, contributing to the credibility and trustworthiness of the study in the field of HRIS research.

I) Section III: Adoption and Usage of HRIS

The dimension “Adoption and Usage of HRIS” focuses on assessing the impact of HRIS on various aspects of organizational performance and effectiveness. The seven items within this dimension collectively explore the multifaceted contributions of HRIS implementation within banking and insurance companies. The first three items (Adoption_Usage1 to Adoption_Usage3) delve into the overall organizational benefits, emphasizing enhancements in internal operations, the quality of work, and the company's overall success. The subsequent items (Adoption_Usage4 to Adoption_Usage6) highlight the role of HRIS in fostering internal collaboration, differentiating the company from its

peers, and contributing to a competitive edge. Finally, the seventh item (Adoption_Usage7) specifically addresses the improvement of the company's competitiveness. Together, these items provide a comprehensive perspective on how HRIS has influenced different facets of the companies functioning. The reliability of these items using the Cronbach's alpha coefficient, a statistical measure that assesses the internal consistency of the scale is shown below in table 4.27.

Table 4.27: Scale Reliability Statistics of Adoption and Usage of HRIS

	Mean	SD	Cronbach's α
Scale	5.45	1.06	0.943

(Source: Calculated value)

Table 4.27 shows the value of Cronbach's Alpha based on standardized items, α = 0.943 for this scale which is pretty close to optimum value of Alpha, α = 1.000, this means this scale is very good, because the Cronbach's Alpha is near to 1 and is highly reliable. Below is the table showing contribution of individual items to the overall reliability of the measurement scale.

Table 4.28: Item Reliability Statistics

			If item dropped
	Mean	SD	Cronbach's α
Adoption_Usage1	5.46	1.31	0.931
Adoption_Usage2	5.32	1.40	0.931
Adoption_Usage3	5.20	1.24	0.931
Adoption_Usage4	5.51	1.28	0.931
Adoption_Usage5	5.57	1.15	0.935
Adoption_Usage6	5.41	1.14	0.938
Adoption_Usage7	5.67	1.08	0.938

(Source: Calculated value)

The item reliability statistics within the "Adoption and Usage of HRIS" dimension provides valuable insights into the contribution of individual items to the overall reliability of the measurement scale. The mean scores for items Item Adoption_Usage1 to Adoption_Usage7 range from 5.46 to 5.67, indicating a consistently high level of agreement or positive response across these specific questions related to HRIS adoption and usage. The standard deviations (SD), varying from 1.31 to 1.08, indicate a certain degree of dispersion in respondents' opinions, reflecting diverse perspectives on the system's impact. Importantly, Cronbach's α values for all items fall within a narrow range from 0.931 to 0.938. This uniformity in reliability coefficients indicates that each item, when considered individually, contributes significantly to the internal consistency of the "Adoption and Usage of HRIS" scale. The high relatively and consistent Cronbach's α values reinforce the robustness of each item and the overall reliability of the scale, underscoring the stability and dependability of the instrument in capturing nuanced insights into HRIS adoption and usage behaviours among the respondents.

II) Section IV: Use of HRIS

The second dimension "Use of HRIS" encompasses a set of nine specific activities that shed light on the diverse functionalities employees engage in with the HRIS, reflecting the multifaceted utility of this technology in their daily operations. Firstly, respondents use HRIS as an information repository, extracting pertinent details for their tasks (Item Use_HRIS1). Beyond information retrieval, the system serves as a collaborative platform, enabling the storage and sharing of crucial files among colleagues (Item Use_HRIS2). Additionally, HRIS plays a vital role in facilitating communication, as employees rely on it to receive updates on important meeting dates (Item Use_HRIS3) and to fetch contact details of colleagues and other staff members (Item Use_HRIS4). Furthermore, the system streamlines work procedures, becoming an integral tool in the execution of daily tasks (Item Use_HRIS5). Attendance management is simplified as well, with employees using HRIS to mark themselves present or absent on duty (Item Use_HRIS6) and updating leave, tour, or other visit-related information (Item Use_HRIS7). The social dimension of HRIS is highlighted as employees utilize the

system for interaction with colleagues and staff members (Item Use_HRIS8). Finally, HRIS acts as a gateway to relevant data and documents, allowing employees to access critical information for their roles (Item Use_HRIS9). Table 4.29 shows the Cronbach's alpha value, underscoring the internal consistency and reliability of the entire set of items within the "Use of HRIS" dimension.

Table 4.29: Scale Reliability Statistics of use of HRIS

	Mean	SD	Cronbach's α
Scale	5.95	0.686	0.832

(Source: Calculated value)

Table 4.29 shows overall mean of 5.95, indicating a predominant positive response trend among participants. With a low standard deviation of 0.686 and a respectable Cronbach's α of 0.832, the scale demonstrates consistent and reliable measurement of the targeted construct, enhancing the credibility of the research findings.

Table 4.30: Item Reliability Statistics

			If item dropped
	Mean	SD	Cronbach's α
Use_HRIS1	5.94	0.876	0.814
Use_HRIS2	5.75	1.210	0.802
Use_HRIS3	5.41	1.247	0.811
Use_HRIS4	6.17	0.940	0.826
Use_HRIS5	5.73	1.054	0.821
Use_HRIS6	6.27	0.982	0.826
Use_HRIS7	6.40	0.848	0.835
Use_HRIS8	5.81	1.141	0.798
Use_HRIS9	6.10	1.074	0.796

(Source: Calculated value)

Table 4.30 shows assessment of item reliability statistics that sheds light on the impact of individual questionnaire items on the overall reliability of the measurement scale. Each item, when dropped, demonstrates unique mean scores ranging from 5.94 to 6.10, reflecting participants' responses to specific questions related to the dimension under study. Standard deviations (SD) vary across items, indicating differing levels of response variability. Notably, Cronbach's α values for the dropped items fall within the range of 0.796 to 0.814, revealing the influence of each item on the internal consistency of the scale. These statistics highlight the nuanced contribution of individual items to the reliability of the scale, emphasizing the importance of each question in capturing the construct effectively.

III) Section V: Characteristics of HRIS implemented

The dimension V characteristics of HRIS encompass a comprehensive set of features crucial for effective organizational management. The 21 items, ranging from item Characteristics_Features1 to item Characteristics_Features8, address various facets of HRIS functionality, with a focus on user-friendly interfaces, reliability, efficiency, security, clarity, consistency, maintainability, and accuracy. These characteristics are paramount in ensuring the seamless integration and utilization of HRIS within the unique operational landscape of financial institutions. Additionally, specific modules such as Employee Self-Service (item Characteristics_Self-Service1 to item Characteristics_Self-Service5) underscore the benefits of HRIS in facilitating remote access to crucial documents, minimizing error rectification time, and promoting secure information sharing. The Payroll Process (item Characteristics_Payroll1 to item Characteristics_Payroll4) through HRIS emphasizes accuracy in salary-related documentation, time-saving mechanisms in creating pay slips, and easy accessibility to pay structures and tax-related information. Furthermore, the Training and Learning (item Characteristics_TrainingLearning1 to item Characteristics_TrainingLearning4) module highlights HRIS's role in enabling interactive in-house training sessions, simplifying post-training evaluations, ensuring multi-level input, and aiding in the selection of online

courses tailored to individual skill sets. The reliability of these items through Cronbach's alpha is shown in below table 4.31.

Table 4.31: Scale Reliability Statistics of Characteristics of HRIS

	Mean	SD	Cronbach's α
Scale	6.10	0.611	0.935

(Source: Calculated value)

The scale in this study demonstrates a robust mean of 6.10, reflecting a consistently high level of agreement among participants. With a low standard deviation of 0.611 and an impressive Cronbach's α of 0.935, the scale exhibits both precision and internal consistency, affirming its reliability in capturing the intended construct.

Table 4.32: Item Reliability Statistics

			If item dropped
	Mean	SD	Cronbach's α
Characteristics_Features1	6.14	0.837	0.874
Characteristics_Features2	6.19	0.832	0.876
Characteristics_Features3	6.08	0.875	0.880
Characteristics_Features4	6.31	0.862	0.884
Characteristics_Features5	6.25	0.864	0.881
Characteristics_Features6	6.13	0.902	0.887
Characteristics_Features7	6.18	0.845	0.881
Characteristics_Features8	6.31	0.798	0.879

(Source: Calculated value)

Table 4.33: Item Reliability Statistics

			If item dropped
	Mean	SD	Cronbach's α
Characteristics_Self-Service1	5.90	1.062	0.788
Characteristics_Self-Service2	6.10	0.979	0.790
Characteristics_Self-Service3	5.95	1.094	0.780
Characteristics_Self-Service4	6.19	0.986	0.791
Characteristics_Self-Service5	5.85	0.992	0.862

(Source: Calculated value)

Table 4.34: Item Reliability Statistics

			If item dropped
	Mean	SD	Cronbach's α
Characteristics_Payroll1	6.47	0.759	0.712
Characteristics_Payroll2	6.36	0.856	0.709
Characteristics_Payroll3	6.40	0.857	0.717
Characteristics_Payroll4	6.18	0.892	0.795

(Source: Calculated value)

Table 4.35: Item Reliability Statistics

			If item dropped
	Mean	SD	Cronbach's α
Characteristics_TrainingLearning1	5.87	0.986	0.776
Characteristics_TrainingLearning2	5.78	0.962	0.769
Characteristics_TrainingLearning3	5.60	1.050	0.787
Characteristics_TrainingLearning4	5.75	1.083	0.754

(Source: Calculated value)

The above tables 4.32, 4.33, 4.34 and 4.35 presents the reliability statistics for items related to the characteristics of a Human Resource Information System (HRIS) implementation, organized into four sub-dimensions. The first sub-dimension, "Features of HRIS," includes items assessing user-friendliness, reliability, efficiency, security, clarity, consistency, maintainability, and accuracy. The mean scores for these items range from 6.08 to 6.31, indicating a generally high level of satisfaction. The Cronbach's alpha values, which assess the internal consistency of the items, range from 0.874 to 0.879, suggesting a good level of reliability.

The second sub-dimension evaluates HRIS's impact on document accessibility, mistake rectification time, access to corporate information, secure information sharing, and time efficiency, with mean scores ranging from 5.85 to 6.19. The above Table 4.33, which assesses self-service characteristics, the alpha values range from 0.780 to 0.862, indicating a generally good level of internal consistency. Items dropped from this scale show minimal impact on overall reliability, suggesting that each item contributes adequately to the measurement of self-service characteristics.

The third sub-dimension focuses on HRIS contributions to payroll-related tasks, demonstrating mean scores from 6.18 to 6.47. Table 4.34 above focuses on payroll characteristics, with alpha values ranging from 0.709 to 0.795. Although slightly lower than those in Table 4.33, these alpha values still indicate acceptable internal consistency. The items in the payroll scale seem to contribute reasonably well to the overall reliability, and removing any single item would have a modest effect on the scale's internal consistency.

Lastly, the fourth sub-dimension examines HRIS's role in facilitating in-house training, post-training evaluations, input gathering at various levels, and selection of appropriate online training courses, with mean scores ranging from 5.60 to 5.87. the above Table 4.35, explores training and learning characteristics, alpha values range from 0.754 to 0.787. These values suggest a satisfactory level of internal consistency within the scale. The items related to training and learning characteristics collectively contribute to a reliable measurement, and the impact of removing any individual item on overall

reliability appears to be moderate. Overall, the reliability coefficients for these sub-dimensions suggest a consistent and reliable measurement of the respective constructs, affirming the positive impact of HRIS implementation across various dimensions of organizational functionality.

IV) Section VI: Information Quality

In dimension VI i.e., Information Quality of HRIS, five pivotal items were considered. Firstly, respondents evaluated whether their HRIS provided them with important information (Item Information_Quality1). Secondly, the clarity of the information presented by the HRIS was scrutinized, asking whether the information was easy to comprehend (Item Information_Quality2). Thirdly, respondents considered whether their HRIS delivered intriguing data, adding a qualitative dimension to the assessment (Item Information_Quality3). The accuracy of the HRIS data was probed with the fourth item (Item Information_Quality4), assessing whether the system provided precise and reliable information. Lastly, the timeliness of the information was evaluated, questioning if the HRIS system offered up-to-date information (Item Information_Quality5). The aggregation of responses to these items is crucial in understanding the overall information quality experienced by participants. The below table 4.36 shows the scale reliability statistics of information quality.

Table 4.36: Scale Reliability Statistics of Information Quality

	Mean	SD	Cronbach's α
scale	6.14	0.745	0.856

(Source: Calculated value)

The scale in this study exhibits a commendable mean of 6.14, indicating a high overall agreement among participants. Despite a moderate standard deviation of 0.745, the scale maintains reliability with a Cronbach's α of 0.856, underscoring its internal consistency in measuring the intended construct.

Table 4.37: Item Reliability Statistics

			If item dropped
	Mean	**SD**	**Cronbach's α**
Information_Quality1	5.92	0.937	0.839
Information_Quality2	6.23	0.939	0.825
Information_Quality3	6.10	1.077	0.833
Information_Quality4	6.22	0.867	0.814
Information_Quality5	6.25	0.839	0.821

(Source: Calculated value)

The above table 4.37 illustrates Item Reliability Statistics related to an organization's Human Resource Information System (HRIS). Each row corresponds to a specific item (question) regarding the HRIS, and the columns provide statistical measures of reliability. The "Mean" represents the average score given by respondents, indicating their perception of each statement. The "SD" (Standard Deviation) reflects the variability or dispersion of responses around the mean. Cronbach's α, a measure of internal consistency, assesses the reliability of the items as a scale. Higher α values generally suggest greater reliability. In this case, the HRIS items demonstrate relatively high means, suggesting positive perceptions among respondents. The low standard deviations indicate a narrow spread of responses, and the Cronbach's α values, ranging from 0.814 to 0.839, indicate a good level of internal consistency among the items, reinforcing the reliability of the survey instrument.

V) Section VII: User Satisfaction

Dimension VII focuses on user satisfaction with HRIS. The satisfaction level towards work using HRIS is assessed through seven carefully crafted items (Items User_Satisfaction_Work1 to User_Satisfaction_Work2), exploring aspects such as the ease and enjoyment of work with HRIS applications, enhancement of job satisfaction, increased work productivity, and improved job quality. Furthermore, Dimension VII

delves into user satisfaction towards service quality with four items (Items User_Satisfaction_ServiceQuality1 to User_Satisfaction_ServiveQuality4), investigating the responsiveness, personal attention, timeliness, and expertise of the service staff providing assistance with HRIS-related issues. These items collectively capture the multifaceted nature of user satisfaction, reflecting the diverse ways in which HRIS impacts both the work experience and the quality of service for employees in the banking and insurance sectors. To validate the reliability of the measurement, the Cronbach's alpha coefficient for all these items is calculated and shown below in table 4.38

Table 4.38: Scale Reliability Statistics of user satisfaction

	Mean	SD	Cronbach's α
scale	5.87	0.647	0.910

(Source: Calculated value)

The scale in this study demonstrates a solid mean of 5.87, reflecting a consistent level of agreement among participants. With a low standard deviation of 0.647 and a robust Cronbach's α of 0.910, the scale exhibits both precision and internal consistency, affirming its reliability in measuring the intended construct with accuracy.

Table 4.39: Item Reliability Statistics

			If item dropped
	Mean	SD	Cronbach's α
User_Satisfaction_Work1	5.82	0.836	0.879
User_Satisfaction_Work2	5.90	0.918	0.874
User_Satisfaction_Work3	5.87	0.937	0.874
User_Satisfaction_Work4	5.69	1.038	0.885
User_Satisfaction_Work5	5.98	0.932	0.877
User_Satisfaction_Work6	6.00	0.907	0.876
User_Satisfaction_Work7	6.04	0.842	0.882

(Source: Calculated value)

Table 4.40: Item Reliability Statistics

			If item dropped
	Mean	**SD**	**Cronbach's α**
User_Satisfaction_ServiceQuality1	5.79	0.817	0.743
User_Satisfaction_ServiceQuality2	5.79	0.905	0.760
User_Satisfaction_ServiceQuality3	5.85	0.829	0.743
User_Satisfaction_ServiceQuality4	5.85	0.832	0.755

(Source: Calculated value)

Table 4.39 and table 4.40 presents the Item Reliability Statistics for a survey assessing the impact of Human Resource Information System (HRIS) applications on various aspects of work satisfaction and productivity. The table includes mean scores, standard deviations (SD), and Cronbach's α reliability coefficients for each item. The first set of items (User_Satisfaction_Work1 to Work_Satisfaction_Work7) explores the respondents' perceptions of how HRIS applications positively influence their work experience, with high mean scores indicating agreement. The second set of items (User_Satisfaction_ServiceQuality1 to User_Satisfactio_ServiceQuality4) evaluates the reliability of HRIS-related services, measuring respondents' satisfaction with the assistance and attention provided by service staff. The mean scores, standard deviations, and Cronbach's α values (0.743 to 0.755) suggest a generally favourable perception of HRIS and its associated services among the survey participants. The high Cronbach's α values indicate good internal consistency reliability for both sets of items, reinforcing the robustness of the survey instrument.

VI) Section VIII: Subjective Norms

Dimension VIII, titled "Subjective Norms," encompasses four critical items (items Subjective_Norms1 to Subjective_Norms4) that shed light on the perceived influence and

approval from various sources regarding the incorporation of Human Resource Information Systems (HRIS) into the regular work regimen. The first item highlights the influence of respected individuals whose ideas align with the adoption of HRIS. The second item emphasizes the importance of approval from significant individuals in one's personal and professional sphere as a motivating factor for integrating HRIS into daily work practices. The third item delves into the impact of individuals wielding power over one's actions, suggesting a perceived obligation to utilize HRIS in alignment with influential figures' recommendations. Lastly, the fourth item underscores the practical aspect of HRIS usage, suggesting a potential requirement within the regular job routine. Together, these items capture the subjective norms associated with HRIS adoption. To assess the internal consistency of these items, a Cronbach's alpha is calculated below in table 4.41

Table 4.41: Scale Reliability Statistics of subjective norms

	Mean	SD	Cronbach's α
Scale	5.66	0.833	0.798

(Source: Calculated value)

The scale in this study demonstrates a mean of 5.66, reflecting a moderate level of agreement among participants. With a standard deviation of 0.833 and a Cronbach's α of 0.798, the scale exhibits a satisfactory level of internal consistency.

Table 4.42: Item Reliability Statistics

			If item dropped
	Mean	SD	Cronbach's α
Subjective_Norms1	5.54	1.03	0.691
Subjective_Norms2	5.37	1.11	0.720
Subjective_Norms3	5.52	1.07	0.744

Table 4.42: Item Reliability Statistics

			If item dropped
	Mean	**SD**	**Cronbach's α**
Subjective_Norms4	6.20	1.00	0.820

(Source: Calculated value)

Table 4.42 displays the Item Reliability Statistics for a survey segment examining the influence of social factors on individuals' adoption of HRIS into their daily work practices. The table includes mean scores, standard deviations (SD), and Cronbach's α reliability coefficients for each item. Items Subjective_Norms1 to Subjective_Norms3 assess the perceived approval and influence of respected individuals, important associates, and authority figures on the respondent's decision to incorporate HRIS into their regular work routine. The relatively high mean scores suggest a positive social influence, indicating that individuals are more likely to adopt HRIS if they believe that respected individuals or those with power over their actions endorse its use. Item Subjective_Norms4, with the highest mean score, suggests that respondents feel a requirement in their regular job routine to use HRIS, emphasizing the perceived necessity of HRIS integration. The Cronbach's α values ranging from 0.691 to 0.820, though moderate, indicate acceptable internal consistency reliability for this set of items, highlighting the importance of social factors in shaping individuals' attitudes towards HRIS adoption in the workplace.

VII) Section IX: Comparison of HRIS and Manual HR Practices

The dimension IX, "Comparison of HRIS and Manual HR Practices," encompasses crucial facets of the ongoing shift towards Human Resource Information Systems (HRIS) over traditional manual HR practices. Items ComparisonHRIS_ManualHR1 to ComparisonHRIS_ManualHR6 shed light on various advantages associated with HRIS implementation. Firstly, item ComparisonHRIS_ManualHR1 highlights how HRIS facilitates employee tracking, a

feature absents in manual HR practices. Additionally, item ComparisonHRIS_ManualHR2 emphasizes the reduction in paperwork and stationary work achieved through HRIS, contrasting with the labor-intensive manual practices that involve extensive manual file updates. Item ComparisonHRIS_ManualHR3 draws attention to the manpower efficiency of HRIS, enabling an individual to perform multiple tasks that would require more personnel in manual HR practices. Furthermore, item ComparisonHRIS_ManualHR4 underscores the improvement in data maintenance with HRIS, mitigating biases associated with manual data maintenance. Item ComparisonHRIS_ManualHR5 notes the reduced document storage requirements of HRIS compared to manual HR practices. Lastly, item ComparisonHRIS_ManualHR6 highlights the superior data accuracy achieved through HRIS, minimizing errors that are more prevalent in manual HR processes. The reliability of these items is further substantiated by a calculated Cronbach's alpha value, which provides a measure of internal consistency among these items in assessing the dimension.

Table 4.43: Scale Reliability Statistics of comparison of HRIS and manual HR practices

	Mean	SD	Cronbach's α
scale	6.20	0.658	0.837

(Source: Calculated value)

The mean score of 6.20 indicates the average response across all items within the scale, portraying the central tendency of participants' perceptions. The standard deviation (SD) of 0.658 reflects the degree of variability or dispersion in these responses, suggesting a relatively cohesive set of participant ratings. The most noteworthy metric, Cronbach's α, attaining a value of 0.837, signifies a high level of internal consistency among the items in the scale. This indicates that the items collectively measure the intended construct reliably, contributing to the overall trustworthiness of the dimension's assessment of the comparison between HRIS and manual HR practices.

Table 4.44: Item Reliability Statistics

			If item dropped
	Mean	**SD**	**Cronbach's α**
ComparisonHRIS_ManualHR1	5.94	1.048	0.809
ComparisonHRIS_ManualHR2	6.21	0.909	0.816
ComparisonHRIS_ManualHR3	6.23	0.784	0.803
ComparisonHRIS_ManualHR4	6.21	0.913	0.799
ComparisonHRIS_ManualHR5	6.27	0.785	0.813
ComparisonHRIS_ManualHR6	6.32	0.849	0.822

(Source: Calculated value)

The Item Reliability Statistics for items ComparisonHRIS_ManualHR1 to ComparisonHRIS_ManualHR6 provide insights into the perceived advantages of utilizing Human Resource Information System (HRIS) over manual HR practices. The mean scores reflect a strong consensus among respondents in favor of HRIS implementation. Items ComparisonHRIS_ManualHR1 and ComparisonHRIS_ManualHR3 (Cronbach's α = 0.809, 0.803) highlight the efficiency of employee tracking and the reduction in manpower requirements when using HRIS compared to manual HR practices. Items ComparisonHRIS_ManualHR2, ComparisonHRIS_ManualHR4, and ComparisonHRIS_ManualHR5 (Cronbach's α = 0.816, 0.799 and 0.813) emphasize the advantages of reduced paperwork, improved data maintenance, and lower document storage needs associated with HRIS, addressing common challenges faced in manual HR processes. The last item, ComparisonHRIS_ManualHR6, demonstrates a high mean rating of 6.32 with a standard deviation of 0.849, indicating strong agreement among respondents. Additionally, its Cronbach's α of 0.822 suggests that removing this item would only marginally improve the overall reliability of the scale measuring the perceived superiority of data accuracy achieved through HRIS compared to manual HR processes.

The high mean scores across these items underscore the perceived benefits of HRIS in terms of accuracy, efficiency, and resource optimization. The corresponding Cronbach's α values indicate good internal consistency reliability, reinforcing the robustness of the survey items in capturing respondents' opinions on the advantages of HRIS implementation in HR practices.

4. 6 Correlations

Correlation matrix examines the relationships among five variables: Age group (in years), Educational qualification, Work experience, Level of employment, and User Satisfaction. Each cell in the matrix contains Pearson's correlation coefficient (r), degrees of freedom (df), and p-value for the corresponding pair of variables.

Table 4.45: Correlation Matrix

		Age group (in years)	Educational qualification	Work experience	Level of employment	User_Satisfaction
Age group (in years)	Pearson's r	—				
	df	—				
	p-value	—				
Educational qualification	Pearson's r	0.189	—			
	df	275	—			
	p-value	0.002	—			
Work experience	Pearson's r	0.752	0.206	—		
	df	275	275	—		
	p-value	< .001	< .001	—		
Level of employment	Pearson's r	0.573	0.196	0.673	—	
	df	275	275	275	—	
	p-value	< .001	0.001	< .001	—	
User_Satisfaction	Pearson's r	0.022	-0.117	0.071	0.166	—

Table 4.45: Correlation Matrix

		Age group (in years)	Educational qualification	Work experience	Level of employment	User_Satisfaction
	df	275	275	275	275	—
	p-value	0.716	0.051	0.236	0.006	—

(Source: Calculated value)

The correlation between Age group and educational qualification is weak, with a Pearson's *r* of 0.189 and a statistically significant p-value of 0.002, indicating a positive but not very strong association. The weak correlation might be attributed to the fact that age and educational qualification might not have a strong linear relationship; individuals of different ages can have similar educational backgrounds, leading to a modest correlation. The correlation between Age group and Work experience is notably strong, with a Pearson's *r* of 0.752, and the association is highly statistically significant (p-value < 0.001), suggesting a substantial positive relationship between these two variables. These strong correlations may be explained by the natural progression of careers, where individuals tend to gain more experience as they age and typically secure higher-level employment positions as their work experience increases. Similarly, the correlation between Age group and Level of employment is strong, with a Pearson's *r* of 0.573, and a highly significant p-value of < 0.001. This implies a substantial positive association between Age group and Level of employment. The correlation between educational qualification and Work experience is moderate, with a Pearson's *r* of 0.206, and the association is highly statistically significant (p-value < 0.001), indicating a positive relationship.

The correlation between educational qualification and Level of employment is also moderate, with a Pearson's r of 0.196, and a significant p-value of 0.001, indicating a positive association. This suggests that individuals with higher educational qualifications and more work experience tend to hold higher-level employment positions. The

correlation between Work experience and Level of employment is strong, with a Pearson's r of 0.673, and a highly significant p-value of < 0.001, suggesting a substantial positive relationship. There is a negative correlation with educational qualification (Pearson's r = -0.117), and a positive correlation with Level of employment (Pearson's *r* = 0.166). The p-values indicate that the correlation with User Satisfaction and Level of employment is statistically significant (p-value = 0.006), while the correlation with educational qualification is not (p-value = 0.051). Possible explanations for the weak correlation could be that job satisfaction may be influenced by factors other than educational background, or there might be variations in satisfaction levels among individuals with similar educational qualifications.

The below correlation matrix table 4.46 illustrates the relationships between different variables related to Assistance/Training on HRIS (Human Resource Information System). The matrix displays Pearson's correlation coefficients (*r*), degrees of freedom (df), and p-values for the correlations.

Table 4.46: Correlation Matrix

		Assistance/Training on HRIS	HRIS_well documented	HRIS mobile application	User_Satisfaction
Assistance/Training on HRIS	Pearson's r	—			
	df	—			
	p-value	—			
HRIS_well documented	Pearson's r	0.151	—		
	df	275	—		
	p-value	0.012	—		
HRIS mobile application	Pearson's r	-0.130	-0.046	—	
	df	275	275	—	
	p-value	0.030	0.446	—	
User_Satisfaction	Pearson's r	-0.032	0.018	-0.089	—
	df	275	275	275	—
	p-value	0.591	0.765	0.139	—

Table 4.46: Correlation Matrix

	Assistance/Training on HRIS	HRIS_well documented	HRIS mobile application	User_Satisfaction

(Source: Calculated value)

Firstly, the correlation between "Assistance/Training on HRIS" and "HRIS_well documented" is positive with a Pearson's r of 0.151 and a p-value of 0.012, indicating a statistically significant positive correlation. Secondly, the correlation between "Assistance/Training on HRIS" and "HRIS mobile application" is negative with a Pearson's r of -0.130 and a p-value of 0.030, suggesting a statistically significant negative correlation. Thirdly, the relationship between "HRIS_well documented" and "HRIS mobile application" is weakly positive with a Pearson's r of -0.046 and a non-significant p-value of 0.446. Lastly, the correlations involving "User_Satisfaction" show weak relationships with other variables. The correlation between "User_Satisfaction" and "Assistance/Training on HRIS" is slightly negative (Pearson's r = -0.032, p-value = 0.591), with "HRIS_well documented" is slightly positive (Pearson's r = 0.018, p-value = 0.765), and with "HRIS mobile application" is negative (Pearson's r = -0.089, p-value = 0.139).

The correlation between Assistance/Training on HRIS and User Satisfaction is weakly positive This suggests that the assistance and training provided on HRIS may not be a strong predictor of user satisfaction. The correlation between HRIS well-documented and User Satisfaction is positive but again, the p-value is high indicating a lack of statistical significance. This implies that a well-documented HRIS may not necessarily correlate significantly with user satisfaction in these companies. The correlation between HRIS mobile application and User Satisfaction is negative. This negative correlation suggests that as the usage or effectiveness of the HRIS mobile application increases, user satisfaction tends to decrease slightly.

4.6.1 Correlations of the independent and dependent variables

The correlation matrix provided presents the relationships between different variables in a study, each represented by Pearson's correlation coefficient (r), degrees of freedom (df), p-value, and the number of observations (N). The variables include Adoption_Usage, Use_HRIS, Characteristics, Information_Quality, User_Satisfaction, Subjective_Norms, and ComparisonHRIS_ManualHR. The correlation matrix provides a comprehensive overview of the relationships between the variables in the study, with the inclusion of statistical significance levels (p-values) to help assess the reliability of these correlations. The higher the absolute value of the correlation coefficient, the stronger the relationship between the two variables, and the lower the p-value, the more confident researcher gain in the statistical significance of the observed correlation.

Table 4.47: Correlation Matrix

		Adoption_ Usage	Use_H RIS	Characte ristics	Information_ Quality	User_Satisf action	Subjective_ Norms	ComparisonHRIS _ManualHR
Adoption_Usage	Pears on's r	—						
	df	—						
	p-value	—						
	N	—						
Use_HRIS	Pears on's r	0.400	—					
	df	275	—					
	p-value	< .001	—					
	N	277	—					
Characteristics	Pears on's r	0.381	0.279	—				
	df	275	275	—				
	p-value	< .001	< .001	—				
	N	277	277	—				
Information_Quali ty	Pears on's r	0.462	0.318	0.459	—			
	df	275	275	275	—			
	p-value	< .001	< .001	< .001	—			
	N	277	277	277	—			

Table 4.47: Correlation Matrix

		Adoption_ Usage	Use_H RIS	Characte ristics	Information_ Quality	User_Satisf action	Subjective_ Norms	ComparisonHRIS _ManualHR
User_Satisfaction	Pears on's r	0.194	0.130	0.309	0.358	—		
	df	275	275	275	275	—		
	p-value	0.001	0.031	< .001	< .001	—		
	N	277	277	277	277	—		
Subjective_Norms	Pears on's r	0.198	0.071	0.328	0.269	0.496	—	
	df	275	275	275	275	275	—	
	p-value	< .001	0.239	< .001	< .001	< .001	—	
	N	277	277	277	277	277	—	
ComparisonHRIS _ManualHR	Pears on's r	0.406	0.355	0.452	0.387	0.284	0.203	—
	df	275	275	275	275	275	275	—
	p-value	< .001	< .001	< .001	< .001	< .001	< .001	—
	N	277	277	277	277	277	277	—

(Source: Calculated value)

The correlation coefficient (Pearson's r) between Adoption_Usage and Use_HRIS is 0.400, indicating a positive correlation. The associated p-value is less than 0.001, suggesting that this correlation is statistically significant. The degrees of freedom (df) for this correlation are 275, and the sample size (N) is 277. Similarly, the correlation between Use_HRIS and Characteristics is 0.381 with a p-value less than 0.001, indicating a significant positive correlation. The matrix provides similar information for all variable pairs, allowing for a comprehensive understanding of the relationships between the studied variables. Additionally, p-values below 0.05 generally suggest statistically significant correlations, while values above 0.05 indicate non-significant relationships.

The above correlation matrix table 4.47 reveals that there are statistically significant positive correlations among all the research variables. To ascertain whether characteristics of HRIS, information quality, use of HRIS, subjective norms and

comparison of HRIS and manual HR practices serve as predictors for user satisfaction and HRIS adoption, multiple linear regressions are conducted.

4.7 Test of Normality

Statistical data can undergo analysis through either parametric or non-parametric tests. Determining the appropriate statistical analysis depends on assessing the normality of the data. If the data follows a normal distribution, parametric tests should be employed for analysis. Conversely, if the data distribution is non-normal, non-parametric tests are more suitable. The assessment of normality involves conducting a normality test, such as the Shapiro-Wilk test, to ascertain whether the data distribution is normal. The Shapiro-Wilk test is a statistical test used to assess whether a set of data follows a normal distribution. In the study, all variables underwent normality checks, and the outcomes are presented in Table 4.48.

Table 4.48: Descriptives

	Adoption_ Usage	Use_H RIS	Character istics	Information_ Quality	User_Satisf action	Subjective_ Norms	ComparisonHRIS_ ManualHR
N	277	277	277	277	277	277	277
Shapiro-Wilk W	0.880	0.703	0.767	0.795	0.871	0.896	0.782
Shapiro-Wilk p	< .001	< .001	< .001	< .001	< .001	< .001	< .001

(Source: Calculated value)

The table 4.48 outlines descriptive statistics and the results of the Shapiro-Wilk normality test for various variables related to the adoption and usage of Human Resource Information Systems (HRIS). The variables examined include Adoption_Usage, Use_HRIS, Characteristics, Information_Quality, User_Satisfaction, Subjective_Norms, ComparisonHRIS_ManualHR, and ComparisonHRIS_ManualHR, with a sample size of 277 for each. The Shapiro-Wilk test statistics (W) and associated p-values reveal insights

into the normality of the data distributions. Notably, all variables demonstrate statistically significant p-values (<0.001), suggesting strong evidence to reject the null hypothesis of normal distribution for each variable. The values of W, ranging from 0.703 to 0.896, further indicate deviations from normality.

Parametric tests involve utilizing characteristics of the target population to make inferences about expected population assumptions. In contrast, non-parametric tests assume uncertainty about the underlying population (Hinton et al., 2014) and are considered beneficial in statistical processes not reliant on the restrictive assumptions of parametric tests (Field, 2009). Nonetheless, non-parametric statistics are favored over parametric ones for several reasons. They are adept at testing population parameters even in the presence of non-normal variables, making them versatile for a wide range of scenarios. Furthermore, non-parametric methods can be applied to test hypotheses that are not directly related to population parameters, offering flexibility in research inquiries. This approach is well-suited for assessing hypotheses involving variables that exhibit either normal or ordinal characteristics. Despite these advantages, it's important to acknowledge that non-parametric statistics come with certain limitations: they are less efficient than their parametric counterparts, utilize less information, and demonstrate less sensitivity when dealing with larger differences in anticipation of the null hypothesis (Field, 2009).

This limitation underscores the importance of carefully considering the statistical approach employed in the study. To address these concerns and enhance the statistical power of the analysis, the researcher has opted to incorporate parametric tests i.e., analysis of variance (ANOVA). This strategic choice aims to capitalize on the strengths of parametric statistics, which are known for their efficiency in handling larger datasets and increased sensitivity to detect meaningful effects, ultimately contributing to the methodological rigor and validity of the research findings.

To examine the appropriate dimensions of HRIS that influences the use and adoption of HRIS (*Objective 2*)

To fulfill Objective 2, which centers on the exploration of the pertinent dimensions of Human Resource Information Systems (HRIS) influencing their use and adoption, a comprehensive analysis was conducted encompassing six distinct hypotheses. Through a combination of regression analysis and ANOVA, the study delved into the intricate relationships between various dimensions of HRIS and user satisfaction, as well as the subsequent impact on overall HRIS adoption.

4.8 Regression Analysis

Regression analysis is a numerical approach employed to assess the connection between dependent and independent variables (Horowitz, 1981). This method estimates the conditional expectations of both the dependable and independent variables, aiming to establish an average (Wisnowski, 2001). The analysis illustrates that while the dependent variable remains constant, the independent variable undergoes variation. Initially, regression analysis involves inputting all variables simultaneously into the regression model to assess their impact on the overall model. Subsequently, the analysis proceeds to stepwise regression, where each variable is sequentially added to the model. Variables that contribute to the model are retained, while those that do not make a meaningful contribution are excluded. Stepwise regression entails the examination of multiple models, and the final model incorporates all the variables that have demonstrated contribution across the various models (Olive, 2005).

Multiple regression was employed to offer a more comprehensive examination and assessment of hypotheses. Unlike a regular regression model that focuses on a single variable, the multiple regression model considers numerous independent variables to predict the dependent variables. Additionally, it facilitates a more in-depth exploration of topics that align with real-world situations rather than being confined to laboratory-based subjects. It is crucial, however, to carefully select variables, as the study's outcomes hinge on their appropriateness for addressing the research objectives and hypotheses (Pallant, 2007).

Conducting a multiple regression model analysis tested the proposed HRIS model. In this study, the regression model was implemented across two levels. At the first level, the researcher examined the multiple regression analysis and ANOVA between independent variables—subjective norms, characteristics of HRIS, information quality, and the comparison of HRIS and manual HR practices—and the dependent variable, user satisfaction. Moving to the second level, the study explored the relationship between the User satisfaction and Use of HRIS as independent variables and the dependent variable, adoption of HRIS. The second level encompasses a linear regression analysis to identify the relationship between user satisfaction and use of HRIS with adoption of HRIS. A linear regression model will assess the impact of user satisfaction on adoption of HRIS. By applying regression techniques at these two levels, the hypotheses outlined were systematically tested.

Hypothesis 1

H_o: Use of the HRIS is not expected to make a significant difference to the user satisfaction.

H_a: Use of the HRIS is expected to make a significant difference to the user satisfaction.

Hypothesis 2

H_o: Characteristics of the HRIS is not likely to significantly affect the user satisfaction.

H_a: Characteristics of the HRIS is likely to significantly affect the user satisfaction.

Hypothesis 3

H_o: Information quality of HRIS is not expected to significantly affect the user satisfaction.

H_a: Information quality of HRIS is expected to significantly affect the user satisfaction.

Hypothesis 4

H_o: Subjective norms of HRIS is not poised to significantly affect the user satisfaction.

H_a: Subjective norms of HRIS is poised to significantly affect the user satisfaction.

Hypothesis 5

H_o: Comparison of HRIS and Manual HR practices is not likely to significantly affect the user satisfaction.

H_a: Comparison of HRIS and Manual HR practices is likely to significantly affect the user satisfaction.

Hypothesis 6

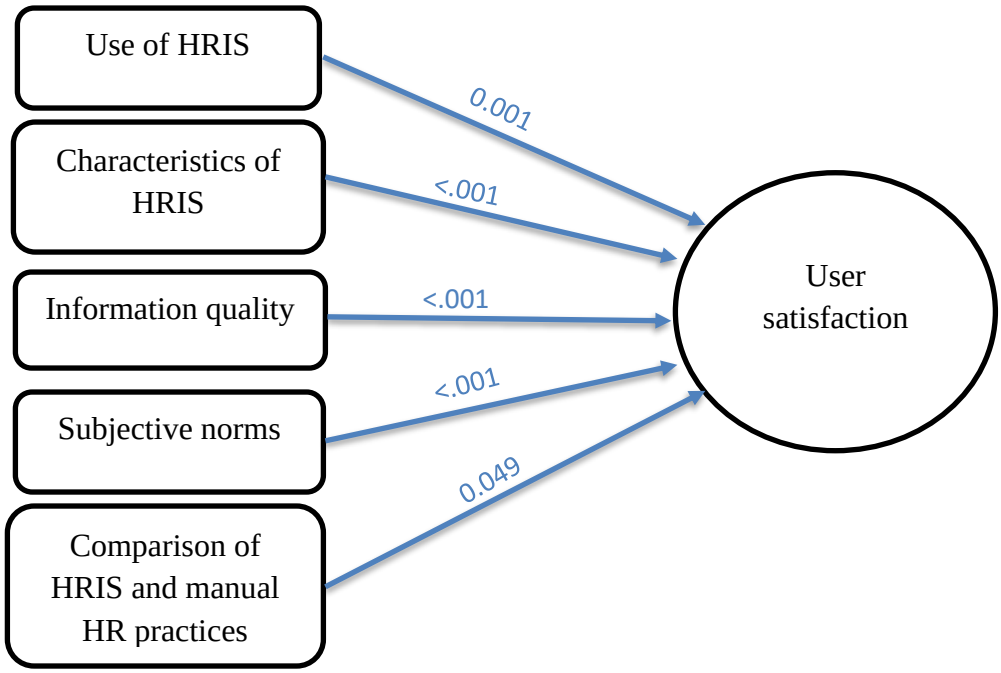
H_o: User satisfaction is not expected to significantly affect the adoption of HRIS.

H_a: User satisfaction is expected to significantly affect the adoption of HRIS.

4.8.1 Predictors of User Satisfaction

A regression analysis was conducted to assess the impact of use of HRIS, characteristics of HRIS, information quality, subjective norms and comparison of HRIS and manual HR practices on user satisfaction. In order to determine the significance p-values for the variables, all variables were included in the model. The p-values can be referenced in Figure 4.4.

Figure 4.4: p-values of independent variables on User satisfaction



The stepwise regression model was re-executed to identify the independent variable influencing the determinant coefficient. Results show that use of HRIS, information quality, characteristics of HRIS, subjective norms and comparison of HRIS and manual HR practices collectively explain 66.8% of the variation in user satisfaction. This regression analysis provides a comprehensive overview of the model's overall fit and the individual contributions of predictors to the variation in User_satisfaction, helping understand the factors influencing the dependent variable.

Table 4.49: Model Fit Measures

				Overall Model Test			
Model	**R**	**R^2**	**Adjusted R^2**	**F**	**df1**	**df2**	**p**
1	0.818	0.668	0.662	109	5	271	< .001

(Source: Calculated value)

The model fit measures table presents the outcomes of a linear regression analysis, offering insights into the model fit and specific results for Model 1. The overall model test indicates that the regression model performs well, with an R-squared value of 0.668, adjusted R-squared of 0.662, and an F-statistic of 109. The associated p-value is less than 0.001, suggesting that the overall model is statistically significant in explaining the variance in the dependent variable.

Table 4.50: Coefficients - User_satisfaction

Predictor	**Estimate**	**SE**	**t**	**p**
Intercept	0.2829	0.2682	1.05	0.292
Information_quality	0.2393	0.0458	5.22	< .001
Subjective_norms	0.2668	0.0412	6.48	< .001
ComparisonHRIS_ManualHR	0.1697	0.0481	3.52	< .001

Table 4.50: Coefficients - User_satisfaction

Predictor	Estimate	SE	t	p
Use_HRIS	0.1710	0.0520	3.29	0.001
Characteristics_features	0.0809	0.0408	1.98	0.049

(Source: Calculated value)

User satisfaction = β_0 + β_1 * Information Quality + β_2 * Subjective Norms + β_3 * Comparison (HRIS vs. Manual HR) + β_4 * Use of HRIS + β_5 * Characteristics /Features + ε

Where:

- β_0 is the intercept,
- β_1, β_2, β_3, β_4, β_5 are the coefficients for each predictor,
- Information Quality, Subjective Norms, Comparison (HRIS vs. Manual HR), Use of HRIS, Characteristics/Features are the predictor variables,
- ε is the error term

In table 4.50, the estimates for the coefficients are:

- Intercept (β_0) = 0.2829
- Information Quality (β_1) = 0.2393
- Subjective Norms (β_2) = 0.2668
- Comparison (HRIS vs. Manual HR) (β_3) = 0.1697
- Use of HRIS (β_4) = 0.1710
- Characteristics/Features (β_5) = 0.0809

Therefore, the multiple linear regression equation becomes:

User satisfaction = 0.2829 + 0.2393 * Information Quality + 0.2668 * Subjective Norms + 0.1697 * Comparison (HRIS vs. Manual HR) + 0.1710 * Use of HRIS + 0.0809 * Characteristics/Features + ε

This equation is used to predict user satisfaction based on the values of the predictor variables.

The model-specific results for Model 1, the coefficients for various predictors are provided. The intercept is 0.2829, with a standard error (SE) of 0.2682. The predictor variables, including "Information_quality," "Subjective_norms," "ComparisonHRIS_ManualHR," "Use_HRIS," and "Characteristics_features," each have associated estimates, standard errors, t-values, and p-values. The coefficients represent the strength and direction of the relationship between each predictor and the dependent variable, User_satisfaction. Notably, "Information_quality" has a coefficient of 0.2393 with a low p-value (< .001), indicating a statistically significant positive relationship. Similarly, "Subjective_norms," "ComparisonHRIS_ManualHR," and "Use_HRIS" also exhibit significant positive associations with User_satisfaction, as evidenced by their low p-values (< .001, < .001, and 0.001, respectively). However, it's worth noting that "Characteristics_features" has a coefficient of 0.0809 with a p-value of 0.049, which is marginally below the conventional significance level of 0.05.

4.8.2 Analysis of Variance (ANOVA)

ANOVA has been incorporated into the model to conduct a more in-depth analysis and enhance the understanding of the data. ANOVA comes in two forms: one-way ANOVA and two-way ANOVA. As the names suggest, one-way ANOVA focuses on a single independent variable, while two-way ANOVA examines two or more independent variables. Both types are univariate tests that assess the overall impact of groups on a dependent variable (Gay et al., 2006). The chosen ANOVA test, employed in this study, is instrumental in investigating the factors influencing the adoption of HRIS, addressing the underlying research hypotheses related to this phenomenon. The ANOVA table for the regression model, featuring five independent variables (use of HRIS, characteristics of HRIS, information quality, subjective norms and comparison of HRIS and manual HR practices), facilitates a comprehensive exploration of the reasons for HRIS adoption. The below ANOVA analysis table 4.51 provides valuable insights into the significance of individual predictors and their interactions in influencing user satisfaction.

Table 4.51: ANOVA - User_satisfaction

	Sum of Squares	df	Mean Square	F	p
Overall model	109.94338	67	1.64095	15.0370	< .001
Characteristics_Features	65.73855	3	21.91285	200.8015	< .001
Information_quality	13.57799	4	3.39450	31.1060	< .001
Subjective_norms	13.44456	3	4.48152	41.0671	< .001
ComparisonHRIS_ManualHR	1.68861	3	0.56287	5.1579	0.002
Use_HRIS	1.20385	4	0.30096	2.7579	0.029
Characteristics_Features ✻ Information_quality	0.26822	2	0.13411	1.2289	0.295
Characteristics_Features ✻ Subjective_norms	2.77924	4	0.69481	6.3670	< .001
Information_quality ✻ Subjective_norms	0.56218	5	0.11244	1.0303	0.401
Characteristics_Features ✻ ComparisonHRIS_ManualHR	0.39209	3	0.13070	1.1977	0.312
Information_quality ✻ ComparisonHRIS_ManualHR	0.61233	3	0.20411	1.8704	0.136
Subjective_norms ✻ ComparisonHRIS_ManualHR	1.76989	6	0.29498	2.7031	0.015
Characteristics_Features ✻ Use_HRIS	2.25659	4	0.56415	5.1696	< .001
Information_quality ✻ Use_HRIS	0.89902	3	0.29967	2.7461	0.044
Subjective_norms ✻ Use_HRIS	2.52223	5	0.50445	4.6226	< .001
ComparisonHRIS_ManualHR ✻ Use_HRIS	0.34439	3	0.11480	1.0520	0.371
Characteristics_Features ✻ Information_quality ✻ Subjective_norms	0.35584	2	0.17792	1.6304	0.198
Characteristics_Features ✻ Information_quality ✻ ComparisonHRIS_ManualHR	0.00900	1	0.00900	0.0825	0.774
Characteristics_Features ✻ Subjective_norms ✻ ComparisonHRIS_ManualHR	0.73723	3	0.24574	2.2519	0.083
Information_quality ✻ Subjective_norms ✻ ComparisonHRIS_ManualHR	0.02346	1	0.02346	0.2149	0.643
Characteristics_Features ✻ Information_quality ✻ Use_HRIS	0.45724	1	0.45724	4.1899	0.042
Characteristics_Features ✻ Subjective_norms ✻ Use_HRIS	0.03521	2	0.01760	0.1613	0.851
Information_quality ✻ Subjective_norms ✻ Use_HRIS	0.00000	NaN			
Characteristics_Features ✻ ComparisonHRIS_ManualHR ✻ Use_HRIS	0.14635	1	0.14635	1.3411	0.248

Table 4.51: ANOVA - User_satisfaction

	Sum of Squares	df	Mean Square	F	p
Information_quality ✻ ComparisonHRIS_ManualHR ✻ Use_HRIS	0.11932	1	0.11932	1.0934	0.297
Subjective_norms ✻ ComparisonHRIS_ManualHR ✻ Use_HRIS	0.00000	NaN			
Characteristics_Features ✻ Information_quality ✻ Subjective_norms ✻ ComparisonHRIS_ManualHR	0.00000	NaN			
Characteristics_Features ✻ Information_quality ✻ Subjective_norms ✻ Use_HRIS	0.00000	NaN			
Characteristics_Features ✻ Information_quality ✻ ComparisonHRIS_ManualHR ✻ Use_HRIS	0.00000	NaN			
Characteristics_Features ✻ Subjective_norms ✻ ComparisonHRIS_ManualHR ✻ Use_HRIS	0.00000	NaN			
Information_quality ✻ Subjective_norms ✻ ComparisonHRIS_ManualHR ✻ Use_HRIS	0.00000	NaN			
Characteristics_Features ✻ Information_quality ✻ Subjective_norms ✻ ComparisonHRIS_ManualHR ✻ Use_HRIS	0.00000	NaN			
Residuals	22.80752	209	0.10913		

(Source: Calculated value)

The ANOVA analysis for user satisfaction provides a detailed breakdown of the sources of variation in the model. The overall model test demonstrates a highly significant F-statistic of 15.0370 ($p < 0.001$), indicating that the combined influence of the independent variables significantly explains the variance in user satisfaction. Examining individual predictors, Characteristics_Features, Information_quality, Subjective_norms, ComparisonHRIS_ManualHR, and Use_HRIS all contribute significantly to the model, as evidenced by their respective F-statistics and p-values. Interaction terms between these predictors also show varying degrees of significance. Notably, Characteristics_Features, Information_quality, Subjective_norms, and the interaction term Characteristics_Features ✻ Subjective_norms exhibit particularly strong effects, contributing significantly to the

observed variation in user satisfaction. The residuals, representing unexplained variance, are minimal (Sum of Squares = 22.80752), indicating that the model effectively captures and explains the majority of the observed variation in user satisfaction. Therefore, the results of the hypotheses, as derived from the regression model, are presented in Table 4.52.

Table 4.52: Results of the hypotheses

Results of the hypotheses	Failed to Reject /Rejected
Hypothesis 1 H_o: Use of the HRIS is not expected to make a significant difference to the user satisfaction.	Rejected
Hypothesis 2 H_o: Characteristics of the HRIS is not likely to significantly affect the user satisfaction.	Rejected
Hypothesis 3 H_o: Information quality of HRIS is not expected to significantly affect the user satisfaction.	Rejected
Hypothesis 4 H_o: Subjective norms of HRIS is not poised to significantly affect the user satisfaction.	Rejected
Hypothesis 5 H_o: Comparison of HRIS and Manual HR practices is not likely to significantly affect the user satisfaction.	Rejected

Contrary to the original DeLone and McLean model, the revised model in this study incorporates subjective norms, characteristics of HRIS, and a comparison of HRIS with manual HR practices. Remarkably, the findings reveal that these factors play a significant role as contributing factors in motivating user satisfaction. The inclusion of subjective norms, HRIS characteristics and comparison HRIS and manual HR practices underscores their positive impact on user satisfaction, suggesting that individuals'

perceptions and the features of HRIS contribute meaningfully to overall contentment. Moreover, the consideration of the HRIS-manual HR practices comparison emphasizes its relevance, as organizations seek to distinguish themselves from competitors. Thus, the findings allow organizations to adopt superior systems, ultimately enhancing satisfaction levels. Consequently, user satisfaction consistently bears the positive influence of these factors, highlighting their pivotal role in organizational decision-making and competitiveness.

4.8.3 Predictor of Adoption of HRIS

A regression analysis was conducted to examine how user satisfaction impact the adoption of HRIS within banking and insurance companies. The linear regression analysis aimed to assess the relationship between Adoption_Usage and its predictor, User_satisfaction. Through a regression analysis, the study investigated the extent to which user satisfaction serves as a predictor for the adoption of HRIS within the organizational context.

Table 4.53: Model Fit Measures

				Overall Model Test			
Model	**R**	**R^2**	**Adjusted R^2**	**F**	**df1**	**df2**	**p**
1	0.471	0.222	0.219	78.4	1	275	< .001

(Source: Calculated value)

The overall model fit measures indicate that the model explains a significant proportion of the variance, with an R-squared value of 0.222. The adjusted R-squared, accounting for model complexity, is 0.219. The overall model test, characterized by an F-statistic of 78.4 with 1 and 275 degrees of freedom, is highly significant ($p < 0.001$), suggesting that the model provides a meaningful fit to the data. Model 1, focusing on Adoption_Usage, reveals specific coefficients for the intercept and User_satisfaction.

Table 4.54: Model Coefficients - Adoption_Usage

Predictor	Estimate	SE	t	p
Intercept	0.944	0.5129	1.84	0.067
User_satisfaction	0.766	0.0865	8.86	< .001

(Source: Calculated value)

The intercept is 0.944, and while its p-value is 0.067 (slightly above the conventional significance level), User_satisfaction emerges as a highly significant predictor with an estimate of 0.766 ($p < 0.001$). This implies that for each unit increase in User_satisfaction, there is a substantial positive effect on Adoption_Usage, as indicated by the coefficient values and their associated significance levels. Given the low p-value and the magnitude of the coefficient, it can be inferred that User_satisfaction is a statistically significant predictor of HRIS adoption. The strong positive association suggests that higher levels of user satisfaction are associated with increased adoption of HRIS within the organizational context.

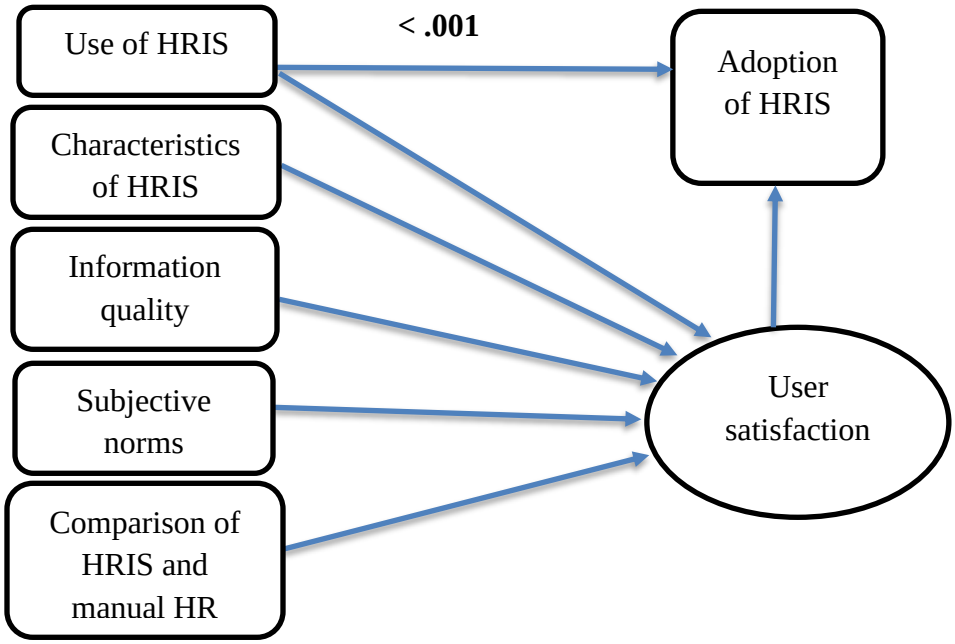
4.8.4 To study the current level of use and adoption of HRIS in banking and insurance sector *(Objective 1)*

Hypothesis 7

H_o: Use of HRIS is not likely to positively affect the adoption of HRIS.

H_a: Use of HRIS is likely to positively affect the adoption of HRIS.

Figure 4.5: Direct influence of HRIS utilization



(Source: Researcher's own proposed conceptual framework)

In pursuit of Objective 1, which aims to investigate the existing levels of use and adoption of Human Resource Information Systems (HRIS) in the banking and insurance sector, a linear regression analysis was undertaken. This analytical approach was chosen to assess the relationship between the two key variables, namely the Use of HRIS and the Adoption of HRIS. Hypothesis 7, formulated to test this relationship, posits that the Use of HRIS will not have a significant effect on the Adoption of HRIS (Ho), while the alternative hypothesis suggests a positive influence (Ha). By employing linear regression, the study seeks to empirically evaluate whether the degree of HRIS utilization is associated with variations in the overall adoption levels within the banking and insurance industry. Hypothesis 7 introduces an additional dimension by investigating the direct influence of HRIS utilization on its overall adoption.

Table 4.55: Model Fit Measures

				Overall Model Test			
Model	**R**	**R^2**	**Adjusted R^2**	**F**	**df1**	**df2**	**p**
1	0.395	0.156	0.153	50.8	1	275	< .001

(Source: Calculated value)

The overall model fit measures indicate that the model is statistically significant, as evidenced by the F-statistic of 50.8 with 1 and 275 degrees of freedom ($p < .001$). The model explains 15.6% (R^2) of the variance in Adoption_Usage, and the adjusted R^2, which accounts for the number of predictors, is 15.3%. The significant F-statistic suggests that the independent variable, Use_HRIS, contributes significantly to predicting the dependent variable.

Table 4.56: Model Coefficients - Adoption_Usage

Predictor	**Estimate**	**SE**	**t**	**p**
Intercept	1.794	0.5173	3.47	< .001
Use_HRIS	0.616	0.0865	7.13	< .001

(Source: Calculated value)

Examining the model-specific results, the regression coefficients reveal valuable insights. The intercept is 1.794 ($p < .001$), indicating the estimated Adoption_Usage when the Use_HRIS is zero. The Use_HRIS coefficient is 0.616 ($p < .001$), signifying the change in Adoption_Usage associated with a one-unit change in Use_HRIS. The t-statistic of 7.13 indicates that the relationship is statistically significant. Therefore, the positive coefficient suggests that increased Use_HRIS is associated with higher levels of Adoption_Usage. Overall, these findings support the conclusion that Use of HRIS is a significant predictor of Adoption_Usage in the model, providing valuable insights into the nature and strength of this relationship.

4.8.5 Low value of R-square (R^2) and adjusted R-square

In regression analysis, R-square (R^2) and adjusted R-square are crucial metrics that assess the goodness of fit of a model.

R-square (R^2) value

R-square (R^2) represents the proportion of the variance in the dependent variable that is explained by the independent variables. It ranges from 0 to 1, with higher values indicating a better fit (Gujarati, Porter & Gunasekar, 2012). However, a limitation of R-square is its tendency to increase when additional independent variables are added, even if they contribute minimally to the model (Sarstedt & Mooi, 2011; Kumar, 2023).

An R-squared value ranging from 0 to 0.09 (equivalent to 0% to 9%) is deemed insufficient for an empirical model in social science research and is considered unacceptable, warranting rejection. In social science research, a more acceptable R-squared falls within the range of 0.10 to 0.50 (10 percent to 50 percent when expressed as a percentage), provided that some or most of the explanatory variables demonstrate statistical significance. Furthermore, an R-squared falling between 0.50 and 0.99 is considered acceptable in social science research, particularly when a majority of the explanatory variables exhibit statistical significance (Ozili, 2023).

The R^2 signifies the comprehensive connection between independent variables and the dependent variable. Establishing universal guidelines for an appropriate R^2 proves challenging, given the variation across different research domains. For instance, longitudinal studies often exhibit common R^2 values of 0.90 and above. In cross-sectional studies, typical values pertain around 0.30, whereas exploratory research utilizing cross-sectional data tends to feature values around 0.10 (Sarstedt & Mooi, 2011).

Adjusted R-square value

The adjusted R-square adjusts the R-square value based on the sample size and the number of independent variables, offering a more reliable measure of a model's explanatory power. It is crucial to emphasize that interpreting the adjusted R^2 as the

percentage of explained variance in the sample employed for regression analysis is not valid. The adjusted R^2 serves solely as an estimate of how much the model explain, taking into account the complexity of the model (Sarstedt & Mooi, 2011; Kumar, 2023).

Conclusion drawn from R-square (R2) and Adjusted R-square

Anticipating a high R-squared in models within the realm of pure science is logical. Conversely, the social sciences deal with human behaviour and relationships, which are liable to fluctuations. Human behaviour, influenced by individual self-interest, group dynamics, emotions, and other factors, proves challenging to accurately predict in the social sciences. Consequently, modeling human behaviour becomes an imperfect science, where creating a single model that comprehensively captures all predicting factors at a given time is intricate. Even if one attempts to include all explanatory variables, some may exhibit weak or non-linear relationships with the dependent variable, potentially diminishing the goodness-of-fit of the model as reflected by the R-squared value (Ozili, 2023).

Various scholars offer insights into the interpretation of R^2 values in the context of behavioural and social sciences. Cohen (1988) categorizes R^2 values differently, proposing that in the social sciences, values of 0.02, 0.13, and 0.26 correspond to low, moderate, and high effect sizes, respectively in "Statistical Power Analysis for the Behavioural Sciences,". Field (2013), in "Discovering Statistics Using IBM SPSS Statistics," aligns with Cohen's perspective, noting that R^2 values around 0.02, 0.13, and 0.26 can be considered low, moderate, and high effect sizes within the realm of regression analysis. Hinkle, Wiersma, and Jurs (2003), in "Applied Statistics for the Behavioural Sciences," contribute to this discourse by providing general guidelines, suggesting that R^2 values of 0.10, 0.20, and 0.30 may be classified as low, moderate, and high effect sizes, respectively.

This implies that empirical models in social science, characterized by a low R-squared, can still be considered robust if certain explanatory variables are statistically significant. Focusing solely on R-squared and Adjusted R-squared for model evaluation

is not sufficient. Instead, researchers should also take into account the statistical significance of the explanatory variables in the model. In other words, even if the overall fit of the model is not very high (as indicated by a low R-squared), individual variables within the model may still have a meaningful and statistically significant impact on the dependent variable.

Therefore, the use of "User Satisfaction" as a predictor for HRIS adoption, with $R^2 = 0.222$ and Adjusted $R^2 = 0.219$, and the utilization of HRIS as a predictor for Adoption Usage in the model, with $R^2 = 0.156$ and Adjusted $R^2 = 0.153$, indicates a moderate level of explanatory power. Therefore, the results of the hypothesis 6 and hypothesis 7, as derived from the regression model, is presented in below Table 4.56.

Table 4.57: Results of the hypotheses

Result of the hypotheses	Failed to Reject/Rejected
Hypothesis 6 H_o: User satisfaction is not expected to significantly affect the adoption of HRIS.	Rejected
Hypothesis 7 H_o: Use of HRIS is not likely to positively affect the adoption of HRIS.	Rejected

In conclusion, the outcomes of the hypotheses testing, as revealed through the regression model, are summarized in Table 4.56. Hypothesis 6, which posited that user satisfaction would not affect HRIS adoption, was decisively rejected, providing evidence that user satisfaction significantly influences the adoption of HRIS. On the other hand, Hypothesis 7, asserting that the use of HRIS would not impact adoption, was also rejected, indicating a positive correlation between the utilization of HRIS and its overall adoption. These results underscore the importance of user satisfaction and active utilization in shaping the successful integration of HRIS within organizational settings. The study's outcomes contribute valuable insights to the understanding of the intricate dynamics involved in HRIS adoption, providing a basis for informed decision-making in the realm of human resource management and technology integration.

4.9 Summary

In this chapter, the results obtained from the quantitative phase are presented. The findings are derived from the analysis of data collected from 277 participants involved in the study. The hypotheses proposed were tested through the examination of data and the exploration of relationships among different constructs outlined in Chapter Three of the HRIS conceptual model. The reliability of the measurement scales employed in this study was evaluated using the Cronbach's alpha test, and the normality of the data was assessed through a normality test. An exploratory factor analysis was conducted to identify underlying variables, and a regression model was employed to validate the proposed hypotheses. The primary aim of this research was to affirm the advantages of the HRIS adoption model and the constructs established by previous researchers. Specifically, the study sought to develop an HRIS adoption model by adapting existing models that are widely used, with a focus on investigating HRIS utilization within banking and insurance companies in India. Confirmatory factor analysis (CFA) and structural equation modeling (SEM) were employed as tools to measure the constructs in the study.

The results of this investigation indicate a favorable and noteworthy impact of all the independent variables (subjective norms, HRIS characteristics, information quality, HRIS usage, and the comparison between HRIS and manual HR practices) on the dependent variables (user satisfaction and HRIS adoption). Specifically, the constructs related to information and system quality exhibit a positive and substantial influence on the utilization of HRIS. In summary, the study establishes a significant association between user satisfaction and the adoption of HRIS within the organization. The subsequent chapter will expound on these findings, providing a detailed discussion of the data analysis results to elucidate each hypothesis utilized in the study.

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CHAPTER 5

FINDINGS, CONCLUSIONS AND SUGGESTIONS

5.1 Introduction

The chapter unfolds a comprehensive presentation of findings derived from meticulous data analysis, leading to insightful conclusions and practical suggestions. The examination of diverse dimensions related to Human Resource Information Systems (HRIS) within the banking and insurance sectors offers nuanced insights. A crucial objective was to pinpoint problem areas and challenges associated with the adoption and utilization of HRIS. Through rigorous examination and empirical testing, various obstacles and difficulties in the implementation of HRIS emerged. These findings were thoroughly discussed in this chapter, shedding light on the complexities and variations that organizations face when incorporating HRIS into their operations. The comprehensive exploration of these issues provides valuable insights for practitioners, researchers, and decision-makers seeking to enhance the efficacy of HRIS implementation in the dynamic landscape of human resource management. The chapter concludes by offering suggestions aimed at mitigating these challenges and fostering a more seamless integration of HRIS within organizational structures.

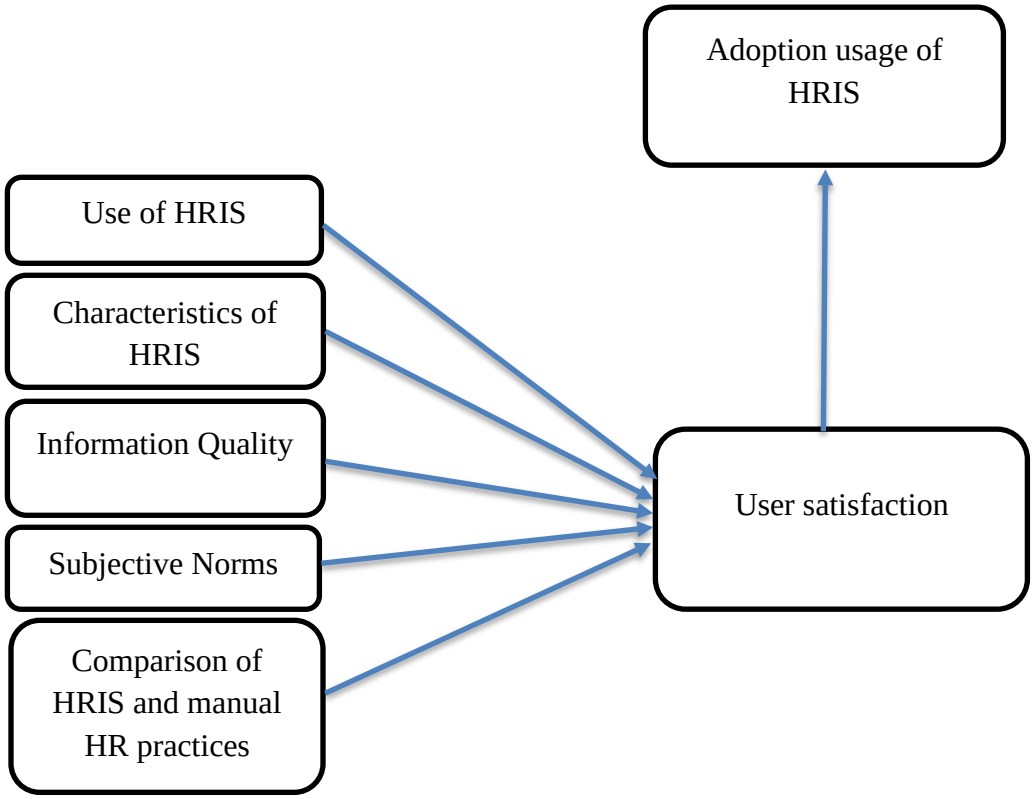
5.2 Impact of the conceptual framework of HRIS

5.2.1 Development of the HRIS model

Utilizing the DeLone and McLean model as a guiding framework, this study devised a conceptual framework to assess its objectives and test hypotheses. The conceptual framework for Human Resource Information Systems (HRIS) encompassed dimensions such as the utilization of HRIS, characteristics inherent to HRIS, information quality, subjective norms, a comparative analysis between HRIS and manual HR practices, user satisfaction, and notably, the crucial aspect of HRIS adoption and usage. This framework served as a comprehensive structure to investigate and evaluate various

facets of HRIS within the context of the study, providing a systematic approach for analyzing the relationships and influences among these dimensions.

Figure 5.1: Final Conceptual Framework of HRIS Model



(Source: Researcher's own proposed conceptual framework of HRIS)

The proposed conceptual framework of HRIS model depicted in the above figure illustrates the connections between the independent and dependent variables. The model formulated in this study serves as an enhanced iteration of the DeLone and McLean model (2003). Distinguishing itself from the original DeLone and McLean model (2003), this study introduces a distinctive and significant contribution by incorporating an additional dimension, specifically the inclusion of subjective norms (Aletaibi, 2016), characteristics of HRIS, and a comparative analysis of HRIS and manual HR practices into the DeLone and McLean model. This addition has a positive influence on user satisfaction and serves

as an indirect predictor of HRIS utilization through the user satisfaction dimension within the context of banking and insurance companies in India.

5.2.2 Implications of the Study

The distinctive aspect of this study lies in its inclusive approach towards examining the adoption and utilization of HRIS. Unlike many studies that solely focus on the banking sector, this research uniquely extends its scope to include insurance companies in its investigation. By incorporating both banking and insurance sectors, the study provides a more comprehensive and nuanced understanding of the dynamics surrounding HRIS adoption and use. This broader perspective not only enriches the generalization of findings but also recognizes the diverse operational contexts within which HRIS functions. Consequently, the study contributes to bridging a gap in existing research by offering insights that have implications for both the banking and insurance industries, fostering a more holistic understanding of HRIS practices across different financial sectors.

5.3 Key Findings

Key findings refer to the central and pivotal results or discoveries derived from a research study or investigation. These findings present the essential outcomes and insights that answer the research objectives and hypotheses outlined at the beginning of the study. They represent the core contributions and significant observations that emerge from the data analysis or experimentation, providing a foundation for drawing conclusions and making suggestions.

5.3.1 Demographic profile

Section I: Part A

The findings from the demographic profile of the respondents reveal a diverse range of perspectives among employees in the banking and insurance industries. The analysis of general information, including gender, age, educational qualifications, work experience, employment level, time spent on HRIS activities, and duration of HRIS usage,

establishes a comprehensive foundation for understanding how various factors may influence perceptions and usage patterns of HRIS within the surveyed population. The data indicates a higher representation of males, a substantial presence of young adults, a varied educational background, and a diverse distribution of work experience and employment levels.

In terms of gender distribution, males encompass 62.8% of the sample, while females constitute 37.2%. The age dynamics reveal that nearly half of the population falls within the 18 to 30 age range, with subsequent age groups contributing to the cumulative distribution. Educational qualifications showcase a significant presence of graduate degree holders (61.0%) and postgraduates (35.0%), with a smaller group of undergraduates (3.6%) and a single individual with a doctorate (0.4%). Work experience distribution reflects a diverse professional background, with 47.7% having 1 to 5 years of experience, 25.6% with 6 to 10 years, and 15.5% with over 10 years. Employment levels illustrate a substantial presence of entry-level (38.6%) and middle-level (51.6%) professionals, with senior-level individuals constituting 9.7%. The time spent on HRIS activities indicates that 39.4% of respondents spend 1-5 hours, 9.0% invest 5-10 hours, 50.5% dedicate less than 1 hour, and 1.1% spend over 10 hours. The duration of HRIS usage reveals that 50.2% have been using HRIS for 1-5 years, 23.5% for 5-10 years, 12.3% for less than a year, and 14.1% for over 10 years. These demographic details collectively provide nuanced insights into the composition of the surveyed population.

Part B

Industry profile

Moving on to the industry profile, the analysis focuses on the banking and insurance sectors, considering both public and private entities. The distribution of respondents across service industry categories, size of the service industry, HRIS access options, and HRIS utilization patterns offers a detailed understanding of the industry's scale, structure, and technological preferences. The analysis shows a notable presence of HRIS users in both private and public banking institutions, with the private category

dominating in the insurance sector. The size distribution within the service industry highlights the diversity of operations, with a significant representation of mid-sized and large-scale enterprises. HRIS access options indicate a prevalent dual accessibility through both internet and intranet platforms, emphasizing the adaptability of workplaces. Regarding HRIS utilization, 63.2% rely on outsourced solutions, while 36.8% opt for in-house developed HRIS, showcasing diverse strategies within the industry.

Section II: Close-ended questions

In the section on closed-ended questions, the findings reveal specific insights into HRIS implementation, documentation, and user satisfaction within the banking and insurance sectors. The data indicates a positive trend in the use of HRIS mobile applications, with 54.5% of respondents finding them convenient and easy to use. A significant 86.3% reported receiving assistance or training on HRIS, reflecting a widespread engagement in learning initiatives. The overwhelming majority (99.6%) affirm that their HRIS features and functions are well-documented, underscoring a strong commitment to clarity and transparency. Regarding the presence of a separate HR department, 77.6% of respondents indicate its existence, while 22.4% report its absence, revealing variations in organizational structures.

It was observed that there is a weak positive or non-significant correlation between Assistance/Training on HRIS, HRIS well-documented, HRIS mobile application, and User Satisfaction indicating potential areas for improvement, possibly rooted in inadequacies in training programs, documentation processes, or mobile application functionalities. Possible reasons for these weak correlations could include inadequacies in the training programs, documentation processes, or mobile application functionalities. Additionally, organizational culture, employee preferences, and the specific context of these companies may contribute to the observed patterns. Further investigation and qualitative analysis may be conducted to uncover the detailed reasons behind these correlations and to inform strategies for improving HRIS and user satisfaction within these banking and insurance companies.

5.3.2 Model specification and Evaluation

The study systematically assesses the appropriateness of factor analysis and structural equation modeling (SEM) for the proposed Human Resource Information Systems (HRIS) conceptual framework. Initial evaluations using Kaiser-Meyer-Olkin (KMO) measure and Bartlett's Test of Sphericity confirm the dataset's suitability for factor analysis. Confirmatory Factor Analysis (CFA) explores the underlying structure, revealing substantial and statistically significant factor loadings across latent constructs. The model fit assessment, incorporating chi-square tests and fit indices (CFI, RMSEA, SRMR), suggests a moderate fit. Structural Equation Modeling (SEM) unveils intricate relationships within HRIS adoption and usage, highlighting correlations among variables such as age group, educational qualification, work experience, level of employment, and user satisfaction. Positive associations and detailed dynamics within HRIS components emerge, emphasizing the need for strategic approaches in the banking and insurance sectors. The findings validate the HRIS conceptual framework, affirming its robustness and applicability, with a comprehensive evaluation supporting the study's methodology and achieving its objectives.

5.3.3 Reliability analysis of the research instrument

The research instrument, comprising seven dimensions, underwent rigorous reliability analysis to assess the internal consistency and stability of measurements within each dimension. These dimensions, namely "Adoption and Usage of HRIS," "Use of HRIS," "Characteristics of HRIS Implemented," "Information Quality," "User Satisfaction," "Subjective Norms," and "Comparison of HRIS and Manual HR Practices," encompass diverse facets of the broader domain of HRIS within banking and insurance companies.

Dimension 1: “Adoption and Usage of HRIS,” focused on the multifaceted contributions of HRIS implementation, and the reliability analysis, measured by Cronbach's alpha, revealed a highly reliable scale with a value of 0.943. This indicates strong internal

consistency among the items, emphasizing the robustness of the instrument in capturing insights into HRIS adoption and usage behaviours.

Dimension 2: “Use of HRIS,” explored the diverse functionalities employees engage in with HRIS, and the reliability analysis demonstrated a consistent and reliable measurement with a Cronbach's alpha of 0.832. The assessment of item reliability statistics highlighted the nuanced contribution of individual items to the reliability of the scale, underscoring the importance of each question in capturing the construct effectively.

Dimension 3: "Characteristics of HRIS Implemented," addressed various facets crucial for effective organizational management. The reliability analysis, with a Cronbach's alpha of 0.935, indicated a robust and reliable scale with high internal consistency across different sub-dimensions. This affirmed the positive impact of HRIS implementation on various dimensions of organizational functionality.

Dimension 4: "Information Quality," assessed the quality of information provided by HRIS, and the reliability analysis resulted in a Cronbach's alpha of 0.856. Despite a moderate standard deviation, the scale-maintained reliability, emphasizing its internal consistency in measuring the intended construct.

Dimension 5: "User Satisfaction," explored the satisfaction levels of users with HRIS applications and services, and the reliability analysis yielded a high Cronbach's alpha of 0.910. This indicated both precision and internal consistency, reinforcing the reliability of the survey instrument in measuring user satisfaction.

Dimension 6: "Subjective Norms," focused on the perceived influence and approval from various sources regarding HRIS adoption. The reliability analysis resulted in a satisfactory Cronbach's alpha of 0.798, indicating a moderate level of internal consistency.

Dimension 7: "Comparison of HRIS and Manual HR Practices," assessed the advantages of HRIS over traditional manual HR practices. The reliability analysis, with a Cronbach's alpha of 0.837, affirmed the high internal consistency among the items in the scale,

highlighting the reliability of the survey items in capturing respondents' opinions on the benefits of HRIS implementation.

5.3.4 Correlation analysis of independent and dependent variables

The correlation analysis conducted in this study unveils intricate relationships among key variables, shedding light on the dynamics within the context of Human Resource Information Systems (HRIS) adoption and usage. The correlation matrix examines five variables—Age group, educational qualification, Work experience, Level of employment, and User Satisfaction—providing insights into their interplay. The correlation between Age group and educational qualification is weak but statistically significant, indicating a positive but not very strong association. This may be attributed to the diverse educational backgrounds among individuals of different age groups. In contrast, the correlation between Age group and Work experience is notably strong, suggesting a substantial positive relationship, aligning with the natural progression of careers. Similarly, the correlation between Age group and Level of employment is strong, indicating that as individuals age, they tend to secure higher-level employment positions. The correlation between educational qualification and Work experience is moderate but highly significant, emphasizing the positive relationship between higher education and work experience. Moreover, the correlation between educational qualification and Level of employment is moderate, indicating that individuals with higher educational qualifications tend to hold higher-level employment positions. Work experience and Level of employment exhibit a strong positive correlation, reflecting the progression of careers with increasing experience.

The correlations involving User Satisfaction reveal nuanced relationships with other variables. The correlation between User Satisfaction and Level of employment is statistically significant, suggesting that job satisfaction is influenced by the level of employment. However, the correlation with educational qualification is not statistically significant, indicating that factors other than educational background may influence user satisfaction. The subsequent correlation matrix focuses on variables related to

Assistance/Training on HRIS, HRIS well-documented, HRIS mobile application, and User Satisfaction. The findings suggest interesting associations: Assistance/Training on HRIS correlates positively with HRIS well-documented but negatively with HRIS mobile application. User Satisfaction shows weak relationships with these variables, implying that the effectiveness of assistance/training and the documentation of HRIS may not strongly predict user satisfaction. Additionally, a negative correlation between HRIS mobile application and User Satisfaction suggests that increased usage or effectiveness of the HRIS mobile application may slightly decrease user satisfaction.

The final section discusses the correlation matrix involving independent and dependent variables in the study. The variables, such as Adoption_Usage, Use_HRIS, Characteristics, Information_Quality, User_Satisfaction, Subjective_Norms, and ComparisonHRIS_ManualHR, are examined for their relationships. The correlations are generally positive and statistically significant, indicating strong associations among these variables. This paves the way for further analyses, including multiple linear regressions, to explore whether characteristics of HRIS, information quality, HRIS usage, subjective norms, and the comparison of HRIS and manual HR practices serve as predictors for user satisfaction and HRIS adoption.

To enhance the robustness of statistical analyses, a test of normality was conducted, revealing that the variables in the study deviate from normal distributions. Despite the benefits of non-parametric tests for non-normal data, the researcher opted for parametric tests, specifically analysis of variance (ANOVA), to capitalize on their efficiency and sensitivity. The strategic choice aims to ensure that the statistical analyses conducted are robust and provide meaningful insights into the relationships and predictors within the HRIS adoption and usage context. Thus, the correlation and normality analyses contribute to a comprehensive understanding of the intricate dynamics at play in the study, laying the foundation for subsequent statistical investigations.

5.3.5 Regression Analysis

Level I: Analysis

Objective 2 of the study aimed to examine the dimensions of Human Resource Information Systems (HRIS) that influence their use and adoption. The analysis involved six hypotheses, utilizing regression analysis and analysis of variance (ANOVA) to explore the relationships between various HRIS dimensions and user satisfaction, as well as the subsequent impact on overall HRIS adoption. The hypotheses were systematically tested through regression analysis, beginning with the examination of the impact of independent variables—subjective norms, HRIS characteristics, information quality, and the comparison of HRIS with manual HR practices—on the dependent variable, user satisfaction. Subsequently, the relationship between user satisfaction and use of HRIS as an independent variable and the adoption of HRIS as the dependent variable was explored.

The results of the regression analysis demonstrated that the combined influence of the independent variables explained a substantial portion of the variance in user satisfaction (R-squared = 0.668), and the overall model was statistically significant ($p < 0.001$). The analysis provided specific insights into the contribution of each predictor to user satisfaction. Notably, information quality, subjective norms, the comparison of HRIS with manual HR practices, and the use of HRIS exhibited statistically significant positive relationships with user satisfaction. However, characteristics of HRIS showed a marginally significant relationship ($p = 0.049$).

ANOVA was then employed to conduct a more in-depth analysis of the factors influencing the adoption of HRIS. The overall model test revealed a highly significant F-statistic (15.0370, $p < 0.001$), indicating that the combined influence of the independent variables significantly explained the variance in user satisfaction. Examining individual predictors, characteristics of HRIS, information quality, subjective norms, the comparison of HRIS with manual HR practices, and the use of HRIS all contributed significantly to the model. Interaction terms between these predictors also showed varying degrees of significance.

The findings provide valuable insights into the dimensions of HRIS that significantly impact user satisfaction and adoption. The integration of subjective norms, HRIS characteristics, and the comparison of HRIS with manual HR practices in the model enhances the understanding of these relationships, offering practical implications for organizations seeking to enhance user satisfaction and facilitate the successful adoption of HRIS.

Level II: Analysis

The findings from second level analysis examine into predictors of the adoption of Human Resource Information Systems (HRIS) within the banking and insurance sectors. Utilizing regression analysis, the study primarily focuses on the relationship between Adoption_Usage and its predictor, User_satisfaction. The model demonstrates a significant fit to the data, with an R-squared value of 0.222, indicating that user satisfaction plays a crucial role in HRIS adoption. The intercept is 0.944, and User_satisfaction emerges as a highly significant predictor ($p < 0.001$), highlighting a substantial positive effect on Adoption_Usage with increasing user satisfaction levels.

Additionally, the study explores the direct influence of HRIS utilization on adoption. The linear regression analysis for Hypothesis 7 indicates a statistically significant model (F-statistic of 50.8, $p < 0.001$), explaining 15.6% of the variance in Adoption_Usage. The positive coefficient (0.616, $p < 0.001$) for Use_HRIS suggests that increased utilization is associated with higher levels of Adoption_Usage. These results, supported by a significant t-statistic of 7.13, affirm that the use of HRIS is a substantial predictor of HRIS adoption.

5.3.6 Accepting the Low R-squared and Adjusted R-squared value

The significance of R-square (R^2) and adjusted R-square in regression analysis cannot be overstated when assessing the goodness of fit of a model (Gujarati, Porter & Gunasekar, 2012). While R-square measures the proportion of variance explained by independent variables, its limitations, such as susceptibility to inflation with additional

variables, are acknowledged (Sarstedt & Mooi, 2011; Kumar, 2023). The social sciences, dealing with human behaviour, exhibit varied R-squared expectations; however, values below 0.10 are generally deemed insufficient, and those between 0.50 and 0.99 are considered acceptable (Ozili, 2023). Adjusted R-square, adjusting for sample size and independent variables, provides a more reliable measure of explanatory power (Sarstedt & Mooi, 2011; Kumar, 2023). Interpreting R-squared values in the social sciences demands consideration of the unpredictable nature of human behaviour, making modeling an imperfect science (Ozili, 2023). Scholars like Cohen (1988), Field (2013), and Hinkle et al., (2003) offer differing categorizations of R-squared values in behavioural and social sciences. Despite the challenges, a low R-squared doesn't negate model robustness if individual variables are statistically significant.

Applying these principles to a regression model examining HRIS adoption reveals that the predictors "User Satisfaction" and "HRIS Usage" have moderate explanatory power ($R^2 = 0.222$, Adj $R^2 = 0.219$, and $R^2 = 0.156$, Adj $R^2 = 0.153$, respectively). Hypotheses 6 and 7, relating to the impact of user satisfaction and HRIS usage on adoption, are accepted, indicating their significance in shaping HRIS integration. These findings contribute valuable insights to the intricate dynamics of HRIS adoption, aiding informed decision-making in human resource management and technology integration (Field, 2013; Hinkle et al., 2003).

5.4 Conclusion based on the findings

The key findings of this research work encompass a comprehensive understanding of the demographics and industry profiles within the banking and insurance sectors. The demographic profile revealed diverse perspectives among employees, with notable representations of males, young adults, varied educational backgrounds, and a range of work experience and employment levels. The industry profile highlighted the presence of HRIS users in both private and public banking institutions, showcasing a diversity of operations and technological preferences. The section on closed-ended questions delved into HRIS implementation, documentation, and user satisfaction, uncovering positive

trends in mobile application usage, widespread engagement in learning initiatives, and strong documentation practices. Correlation analyses unveiled intricate relationships among variables, emphasizing the interplay between demographic factors, user satisfaction, and HRIS dimensions.

The model specification and evaluation, the study systematically assessed the appropriateness of factor analysis and structural equation modeling (SEM) for the proposed HRIS conceptual framework. The results confirmed the robustness and applicability of the conceptual framework, emphasizing the intricate relationships within HRIS adoption and usage. The reliability analysis of the research instrument ensured the internal consistency and stability of measurements, affirming the reliability of the survey items across different dimensions. Correlation analyses provided insights into the complex dynamics between variables, paving the way for subsequent statistical investigations.

Regression analyses at two levels explored the dimensions influencing HRIS adoption and the predictors of adoption within the banking and insurance sectors. The findings revealed that user satisfaction and HRIS usage had moderate explanatory power in the model, underscoring their significance in shaping HRIS integration. Accepting the low R-squared values, as guided by principles in the social sciences, emphasized the importance of individual variable significance in model robustness.

The analysis contributes valuable insights to the refined dynamics of HRIS adoption, offering practical implications for organizations seeking to enhance user satisfaction and facilitate successful technology integration in the realm of human resource management. The findings underscore the complexity of factors influencing HRIS dynamics and emphasize the need for strategic approaches within the banking and insurance sectors.

5.4.1 Exploring Weak Correlations in HRIS Implementation

Correlation Analysis Insights

The correlation analysis within the banking and insurance sectors highlights several instances of weak or non-significant correlations among key variables related to HRIS implementation. Below are some of the challenging areas:

I. **HRIS Documentation:** The weak positive correlation between "HRIS_well documented" and "HRIS mobile application" suggests that having a well-documented HRIS may not strongly influence the usage or effectiveness of the HRIS mobile application. This finding prompts further exploration into the dynamics between documentation practices and the mobile app's utility, signaling potential areas for improvement in documentation strategies or mobile application functionalities.

II. **Training Program Challenges:** Another observed weak positive correlation exists between "User_Satisfaction" and "Assistance/Training on HRIS." This implies that the assistance and training provided on HRIS may not be robust predictors of user satisfaction. Employees express concerns over the inadequacy of training programs, emphasizing the need for more comprehensive and tailored initiatives. Some employees report a lack of practice and hands-on training, hindering their ability to navigate the HRIS effectively. Addressing these concerns and aligning training programs with user needs could lead to a more positive correlation with user satisfaction.

III. **Mobile App Usage and Satisfaction:** The negative correlation between "HRIS mobile application" and "User_Satisfaction" raises intriguing questions about the satisfaction levels of users who do not have access to the mobile app, particularly in government insurance companies in India. Employees from these organizations, not using the mobile app, express reservations about providing feedback on satisfaction, as their experience with HRIS is limited to office desktops. Their perspectives underline the need for a more inclusive approach, recognizing the diverse technology access challenges faced by different segments of users.

Employee Perceptions and Recommendations

Employee perceptions contribute significantly to these correlations. Some employees argue that without access to the mobile app, they cannot offer a clear view of HRIS documentation or express satisfaction with the mobile application. This aligns with the challenge faced by government insurance company employees who primarily update information on office desktops, struggling to find convenient times for these updates. To address these issues, there is a call for optimization of mobile applications, comprehensive training programs, and cultural sensitivity in HRIS adoption.

The analysis aligns with critical pain points encountered by HR and finance professionals in utilizing HRIS software. The pain points include issues such as complicated user interfaces, slow troubleshooting, lengthy deployment times, and challenges with cross-border payroll compliance. The pain points underscores the demand for multi-device access and feature customization to enhance user experience and productivity. Moreover, concerns regarding data security and integration with emerging technologies like AI and IoT are evident. Addressing these pain points through improved user experience, enhanced security measures, and technological integration can significantly enhance the effectiveness and efficiency of HRIS software in addressing the diverse needs of organizations (Chandroday, 2021).

5.4.2 Navigating Hurdles in HRIS Adoption: Unveiling Challenges

The study examines into the intricacies faced by employees in government insurance companies, uncovering noteworthy challenges that impede the seamless integration of HRIS into daily operations. Two primary hurdles emerge from the comprehensive analysis: the first pertains to the accessibility constraints encountered by employees, particularly in terms of limited access to HRIS mobile applications. This compels reliance on office desktops, creating difficulties as employees endeavour to find convenient moments for HRIS updates. The second challenge centers around training disparages among employees with mobile app access, highlighting a gap that threatens to

compromise the effectiveness of identified predictors in HRIS adoption. As navigating through these challenges, the researcher illuminates the pressing need for targeted strategies to enhance accessibility, bridge training gaps, and foster a more inclusive and user-friendly HRIS landscape in government insurance companies.

I. **Accessibility Challenges in Government Insurance Companies**: The research findings shed light on a significant barrier to the adoption of Human Resource Information Systems (HRIS) in government insurance companies—employees' limited access to mobile applications. A prevalent practice is the reliance on office desktops for HRIS updates, posing challenges as employees seek convenient times for information input. This limitation underscores the need for strategic interventions to enhance accessibility and streamline the HRIS updating process. Respondents claimed that they face difficulties accessing their HRIS platform when they are not in the office, or not in front of their workstations (Chandroday, 2021).

II. **Training Disparities for Mobile App Users:** Another notable observation from the study is the disparity in training facilities for employees with access to the mobile app of HRIS. While the study identifies characteristics of HRIS, use of HRIS, information system, subjective norms, and comparison as effective independent variables in HRIS adoption, the effectiveness of these predictors may be compromised without proper training. Addressing this training gap becomes crucial for maximizing the potential benefits offered by HRIS.

HR/finance professionals have claimed that it would be beneficial if the HRIS software can be accessed from multiple devices that include smartphones & tablets. Further, demand for remote access has been noted among employees as well. Employees have claimed that they feel more comfortable to have the HRIS software in their smartphones/tablets as it would allow them to update information such as leave of absence, etc. from their mobile devices (Chandroday, 2021).

III. **Intranet vs. Internet Usage:** In the context of government insurance companies, a distinct challenge arises with employees expressing a preference for using intranet over the internet. The need to update information solely on office desktops contributes to this preference. This poses a dilemma as it restricts employees' flexibility and convenience, hindering the seamless integration of HRIS. Exploring solutions to bridge this accessibility gap is paramount for ensuring widespread adoption and engagement.

IV. **Absence of a Dedicated HR Department:** Compounding the accessibility issues is the absence of a dedicated HR department in certain insurance companies. This absence deprives employees of a centralized support system for HRIS operations. The lack of a resource to seek assistance hampers the overall user experience and may contribute to inefficiencies in HRIS utilization. The establishment of support mechanisms becomes imperative to address queries and challenges faced by employees.

Implications for HRIS Adoption Strategies

Despite the model's significance and the effectiveness of identified predictors, the study unveils critical challenges that necessitate targeted strategies for HRIS adoption in government insurance companies. Crafting comprehensive initiatives to enhance accessibility, provide tailored training programs, address the intranet-internet usage dilemma, and establish supportive structures like HR departments can fortify the foundation for successful HRIS integration.

Recommendations for Overcoming Accessibility Hurdles

To overcome the identified accessibility hurdles, recommendations include exploring mobile-friendly solutions, implementing flexible HRIS access policies, and instituting targeted training programs. Additionally, facilitating a smooth transition from desktop-centric to mobile-enabled HRIS updates can contribute to improved employee satisfaction and operational efficiency.

The study not only highlights the significance of various predictors in HRIS adoption but also underscores the pivotal role of addressing accessibility challenges for a holistic and effective implementation. Tailoring strategies to the unique context of government insurance companies is essential to unlock the full potential of HRIS and ensure its seamless integration into daily workflows.

5.5 Suggestions to the financial institutions/organizations

Based on the comprehensive findings and analyses, several suggestions can be made to enhance the adoption and utilization of Human Resource Information Systems (HRIS) within the banking and insurance sectors. These suggestions aim to address challenges and promote a more seamless integration of HRIS into organizational structures. These suggestions are tailored to the specific nuances uncovered in the study and are designed to guide organizations and decision-makers in optimizing the adoption and utilization of HRIS within the dynamic landscape of human resource management in the banking and insurance sectors.

I. **Training and Development Programs:** Develop and implement training and development programs for employees at all levels. The positive trend in the use of HRIS mobile applications suggests a willingness to engage with technology. Enhancing the effectiveness of training programs can further boost user confidence and proficiency in HRIS usage.

II. **Documentation Enhancement:** While the majority of respondents reported that their HRIS features and functions are well-documented, continuous efforts should be made to enhance the clarity and comprehensiveness of documentation. This can contribute to a more positive user experience and potentially improve user satisfaction.

III. **User Support Mechanisms:** Recognize the importance of user support mechanisms, especially in the context of HRIS mobile applications. Since there is a weak correlation between HRIS mobile application usage and user

satisfaction, organizations may need to explore and address potential issues related to mobile application functionalities.

IV. **Organizational Culture and Structure:** Given the variations in the presence of a separate HR department and organizational structures, organizations should assess their specific contexts and consider aligning HRIS implementation with their unique cultures. Understanding how organizational culture influences HRIS dynamics can aid in tailoring strategies for successful adoption.

V. **Strategic HRIS Implementation:** Organizations should strategically align HRIS implementation with organizational goals and objectives. The correlations between various dimensions of HRIS and user satisfaction highlight the need for a holistic and strategic approach. This may involve customizing HRIS solutions to meet specific organizational needs.

VI. **Continuous Monitoring and Adaptation:** Establish mechanisms for continuous monitoring and adaptation based on user feedback and evolving technology trends. The weak correlations observed in certain areas suggest the need for ongoing assessments and adjustments to ensure that HRIS remains aligned with user expectations and organizational requirements.

VII. **In-Depth Qualitative Analysis:** Consider conducting in-depth qualitative analysis to uncover nuanced reasons behind observed correlations and patterns. This can involve gathering insights directly from employees through interviews or focus group discussions, providing a deeper understanding of the factors influencing HRIS adoption.

VIII. **Promotion of Collaboration and Communication:** Encourage collaboration and communication between different levels of employees, especially considering the variations in work experience and employment levels. This can contribute to a more inclusive and collaborative HRIS implementation process, taking into account diverse perspectives and needs.

IX. **Benchmarking and Best Practices:** Explore industry benchmarking and best practices in HRIS implementation. Understanding how other organizations in the banking and insurance sectors have successfully addressed similar challenges can provide valuable insights and inform strategies for improvement.

X. **Flexibility and Adaptability:** Foster a culture of flexibility and adaptability to accommodate the dynamic nature of HRIS technology. This includes staying informed about emerging trends, regularly updating systems, and remaining open to innovative solutions that can enhance HRIS functionality and user satisfaction.

5.6 Directions for Future Research on HRIS in Banking and Insurance Sectors in India

By addressing the below future research suggestions, researchers can contribute to a more nuanced and comprehensive understanding of HRIS adoption and use in banking and insurance companies in India, thereby informing strategic decision-making and fostering continuous improvement in HRIS practices.

I. **Explore Industry-Specific Variables**: Given the unique nature of the banking and insurance sectors, future researchers can delve deeper into industry-specific variables that may impact the adoption and use of HRIS. Consider factors such as regulatory compliance, security concerns, and the dynamic nature of financial services that might influence the effectiveness of HRIS implementation.

II. **Evaluate Emerging Technologies**: With the rapid evolution of technology, researchers should focus on assessing the integration of emerging technologies such as artificial intelligence, machine learning, and analytics within HRIS in banking and insurance companies. Investigate how these technologies can enhance the functionalities of HRIS, improve decision-making processes, and contribute to overall organizational performance.

III. **Longitudinal Studies for Adoption Trends**: Conduct longitudinal studies to track the adoption trends of HRIS in banking and insurance companies over an extended period. This approach will enable researchers to identify patterns, changes, and challenges in the adoption process, providing a more comprehensive understanding of the long-term impact of HRIS on these sectors.

IV. **Employee Training and Change Management**: Investigate the role of employee training programs and change management strategies in facilitating the successful adoption of HRIS. Understand how organizations can effectively prepare their workforce for the transition to HRIS, addressing potential resistance and ensuring a smooth integration process.

V. **Cross-Comparisons Across Organizations**: Expand research by conducting cross-comparisons across various banking and insurance organizations in India. Explore how differences in organizational size, structure, and culture influence the adoption and use of HRIS. This comparative analysis can provide valuable insights into the contextual factors that contribute to successful HRIS implementation.

VI. **Incorporate Employee Feedback Mechanisms**: Integrate robust mechanisms for collecting and analyzing employee feedback on HRIS usability and functionality. Understand user perspectives to identify areas for improvement and innovation. This user-centric approach can enhance user satisfaction and contribute to the continuous refinement of HRIS in the banking and insurance sectors.

VII. **Examine the Impact on Organizational Performance**: Extend research efforts to assess the direct impact of HRIS adoption on organizational performance indicators within the banking and insurance sectors. Analyze how improved HRIS functionalities correlate with enhanced employee productivity, cost-effectiveness, and overall business outcomes.

5.7 Limitations of the study

The study was conducted acknowledging the following limitations:

- **Scope limitation:** This study solely focuses on the adoption and usage of Human Resource Information Systems within the banking and insurance companies in India. Other aspects of HRIS implementation or different industries are not considered, limiting the breadth of the study.
- **Generalizability**: The findings of this study may not be applicable to organizations outside the banking and insurance sectors in India. The limited focus on these specific industries restricts the generalizability of the research findings to other sectors.
- **External validity:** The findings of this study may not be applicable to organizations operating in different cultural, regulatory, or economic contexts outside of India. The specific conditions prevalent in the Indian banking and insurance sectors might limit the external validity of the research findings.
- **Time constraint:** The researchers faced time constraints during the study, which could have impacted the depth and thoroughness of data collection and analysis. This limitation may have restricted the comprehensiveness of the findings and potential insights that could have been gained with more time.
- **Data collection methods:** The study relied on specific data collection methods, such as surveys or interviews, which may have inherent limitations, such as response bias or subjectivity. The reliance on these methods may impact the reliability and validity of the findings.

5.8 Summary

In this chapter, the study on Human Resource Information Systems (HRIS) in the banking and insurance sectors unveils insightful findings through correlation analysis, shedding light on key challenges and suggesting recommendations for enhancing HRIS adoption. Weak correlations are identified in areas such as HRIS documentation, training program effectiveness, and mobile app usage satisfaction. These findings prompt a deeper exploration into the dynamics between documentation practices and mobile app utility,

the inadequacy of training programs, and the impact of limited mobile app access on user satisfaction. Employee perceptions play a crucial role in shaping these correlations, emphasizing the need for cultural sensitivity in HRIS adoption. The chapter also uncovers accessibility challenges faced by employees, training disparities among mobile app users, and a preference for intranet over internet usage. To overcome these hurdles, recommendations include mobile-friendly solutions, flexible HRIS access policies, and targeted training programs. The study concludes with strategic suggestions for financial institutions, emphasizing the importance of continuous monitoring, tailored HRIS implementation, and fostering a culture of flexibility and adaptability. Finally, the chapter outlines directions for future research, urging exploration of industry-specific variables, emerging technologies, longitudinal studies, and the impact of HRIS on organizational performance. Thus, contributing to a detailed understanding of HRIS adoption in the dynamic landscape of the banking and insurance sectors in India.

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Appendices

Questionnaire of the Ph.D. work entitled

Adoption and Use of Human Resource Information System (HRIS) with special reference to Banking and Insurance Companies in India

Undertaken at the Mizoram University, Tanhril, Mizoram

It is my honour to inform you that I am currently undertaking Ph.D. research entitled '**Adoption and Use of Human Resource Information System (HRIS) with special reference to Banking and Insurance Companies in India'** under the supervision of Prof. L. S. Sharma, Department of Management, Mizoram University.

The purpose of my research is to study the various challenges and other problem areas while implementing HRIS within a company. The questionnaire is intended to collect data about HRIS in banking and insurance companies from a multifaceted perspective. The findings of this study will offer helpful feedback on the adoption and use of HRIS in banking and insurance companies. I request you to kindly spare some time and fill the questionnaire so that the valuable information provided by you can be utilised for writing the Ph.D thesis.

I declare that the information provided by you will not be disclosed and will be purely used for academic purpose.

Thanking you for your cooperation.

Yours sincerely,

Moneswari Boro
Ph.D. Scholar
Department of Management
Mizoram University, Aizawl, Mizoram
Contact: 9862627738
Email: boromoneswari@gmail.com

CONFIDENTIAL

The data collected is purely for research purpose, and will not be used for any other purpose

Section I: General Information

Part A: Respondent profile

1. Name of the Respondent: …….……
2. Email address: ……
3. Contact number (*optional*): ……...
4. Age group (in years):

   ☐ 18-30 ☐ 30-40 ☐ 40-50 ☐ >50

5. Gender:

   ☐ Male ☐ Female

6. Educational qualification:

   ☐ Undergraduate ☐ Graduate ☐ Post Graduate ☐ Doctorate

7. Work experience:

   ☐ < 1 year ☐ 1-5 years

   ☐ 6-10 years ☐ >10 years

8. Level of employment:

   ☐ Entry ☐ Middle ☐ Senior

9. No. of executives report to you:

   ☐ 0 ☐ 1-5 ☐ 5-10 ☐ >10

10. No. of superiors you report to:

    ☐ 0 ☐ 1 ☐ 2 ☐ >2

11. How many hours do you spend to update information on HRIS:

    ☐ < 1 ☐ 1-5 ☐ 5-10 ☐ >10

12. How long have you been using HRIS (in years):

    ☐ <1 ☐ 1-5 ☐ 5-10 ☐ >10

Part B: Industry profile

13. Service industry:

☐ Banking ☐ Insurance

14. Service industry category:

☐ Public ☐ Private

Banking sector (Public)

- ☐ State Bank of India
- ☐ Bank of Baroda
- ☐ Punjab National Bank
- ☐ Canara Bank
- ☐ Bank of India
- ☐ Union Bank of India
- ☐ Central Bank of India
- ☐ Indian Bank

Banking sector (Private)

- ☐ HDFC Bank
- ☐ ICICI Bank
- ☐ Axis Bank
- ☐ Kotak Mahindra Bank
- ☐ Yes Bank
- ☐ Federal Bank
- ☐ IndusInd Bank
- ☐ RBL Bank
- ☐ Karur Vysya Bank
- ☐ Bandhan Bank

Insurance sector (Public)

- ☐ Life Insurance Corporation of India
- ☐ Agriculture Insurance Company of India
- ☐ National Insurance Company of India
- ☐ New India Assurance
- ☐ The Oriental Insurance company
- ☐ United India Insurance company
- ☐ General Insurance Corporation of India

Insurance sector (Private)

- ☐ HDFC Standard Life Insurance Co. Ltd.
- ☐ Max Life Insurance Co. Ltd.
- ☐ ICICI Prudential Life Insurance Co. Ltd.
- ☐ Kotak Mahindra Life Insurance Co. Ltd.
- ☐ Aditya Birla Sun Life Insurance Co. Ltd.
- ☐ TATA AIA Life Insurance Co. Ltd.
- ☐ SBI Life Insurance Co. Ltd.
- ☐ Exide Life Insurance Co. Ltd.
- ☐ Bajaj Allianz Life Insurance Co. Ltd.
- ☐ PNB MetLife Insurance Co. Ltd.

15. Size of your service industry:

☐ < 100 employees ☐ 100 – 500 employees

☐ 501 – 1000 employees ☐ > 1000 employees

16. Name of HRIS software used in your industry (*optional*):
……..

17. HRIS being used in your industry is a:

☐ In - House developed ☐ Outsourced

18. HRIS access options:

☐ Internet ☐ Intranet ☐ Both

Section II: closed- ended questions

19. Did the company provide any sort of assistance/training about HRIS to the employees?

☐ Yes ☐ No

20. Are all of HRIS's features and functions well documented?

☐ Yes ☐ No

21. Does your office have separate Human Resource (HR) department?

☐ Yes ☐ No

22. Are you using HRIS mobile application?

☐ Yes ☐ No

23. Is the mobile application convenient/easy to use?

☐ Yes ☐ No

Section III: Adoption usage of HRIS

24. Please evaluate the impact of HRIS implementation in your company. Please mark the box that corresponds to the item that best represents your viewpoint.

Rating scale: Strongly Disagree (SD) - 1, Disagree (D) - 2, Disagree Somewhat (DS) - 3, Neutral (N) – 4, Agree Somewhat (AS) – 5, Agree (A) – 6, Strongly Agree (SA) – 7

Sl. No.	Statements	Please respond by putting a tick mark (√)						
		1 SD	2 D	3 DS	4 N	5 AS	6 A	7 SA
1.	HRIS has helped our company enhance the efficiency of internal operations.							
2.	HRIS has improved our company's quality of work.							
3.	HRIS has helped our company make itself an overall success.							
4.	HRIS has aided our company in enhancing and improving internal collaboration.							
5.	HRIS application resulted in proper HR function feedback and control.							
6.	HRIS has aided in the differentiation of our company from others.							
7.	HRIS has helped our company improve competitiveness.							

Section IV: Use of HRIS

25. Please indicate how much you rely on HRIS to complete the following duties. Please mark the box that corresponds to the item that best represents your viewpoint.

Rating scale: Strongly Disagree (SD) - 1, Disagree (D) - 2, Disagree Somewhat (DS) - 3, Neutral (N) – 4, Agree Somewhat (AS) – 5, Agree (A) – 6, Strongly Agree (SA) - 7

Sl. No.	Statements	Please respond by putting a tick mark (√)						
		1 SD	2 D	3 DS	4 N	5 AS	6 A	7 SA
1.	I use HRIS to get information.							
2.	I use HRIS to store and to share important files with my colleagues.							
3.	I use HRIS to announce important dates of meeting.							
4.	I use HRIS to fetch contact details of my colleagues' and other staff members.							

5.	I use HRIS to carry out my work procedures.							
6.	I use HRIS to mark myself present or absent on duty.							
7.	I use HRIS to update my leave/tour/any other visit.							
8.	I use HRIS to interact with colleagues and other staff members.							
9.	I use HRIS to access relevant data and documents.							

Section V: Characteristics of HRIS implemented

26. The following elements define your company's HRIS characteristics. Please mark the box that corresponds to the item that best represents your viewpoint.

Rating scale: Strongly Disagree (SD) - 1, Disagree (D) - 2, Disagree Somewhat (DS) - 3, Neutral (N) – 4, Agree Somewhat (AS) – 5, Agree (A) – 6, Strongly Agree (SA) – 7

Sl. No.	**Statements**	**Please respond by putting a tick mark (√)**						
		1 SD	**2 D**	**3 DS**	**4 N**	**5 AS**	**6 A**	**7 SA**
Features of HRIS								
1.	User - friendly							
2.	Reliability							
3.	Efficiency							
4.	Security							
5.	Clarity							
6.	Consistency							
7.	Maintainability							
8.	Accuracy							
Employee self – service								

1.	HRIS allows to access important documents from anywhere.							
2.	HRIS has minimized the time spent rectifying mistakes.							
3.	HRIS allows for quick access to essential corporate information.							
4.	HRIS encourages secure information sharing.							
5.	HRIS applications reduce the amount of time spent per process output.							
Payroll process through HRIS								
1.	HRIS aids in the accurate receipt of salary slips.							
2.	When it comes to creating pay slips, HRIS saves time.							
3.	Pay structure is easily accessible.							
4.	HRIS facilitates tax related information and documents.							
Training and Learning HRIS								
1.	Interactive in-house training sessions are possible with HRIS.							
2.	Post-training evaluations are made easier with HRIS.							
3.	HRIS guarantees that input is given at several levels.							
4.	HRIS assists me in choosing online training courses that are appropriate for my skill sets.							

Section VI: Information Quality

27. Please evaluate the accuracy of the data given by your company's HRIS. Please mark the box that corresponds to the item that best represents your viewpoint.

Rating scale: Strongly Disagree (SD) - 1, Disagree (D) - 2, Disagree Somewhat (DS) - 3, Neutral (N) – 4, Agree Somewhat (AS) – 5, Agree (A) – 6, Strongly Agree (SA) – 7

Sl. No.	**Statements**	**Please respond by putting a tick mark (√)**						
		1 SD	**2 D**	**3 DS**	**4 N**	**5 AS**	**6 A**	**7 SA**
1.	Our HRIS provides us with important information.							
2.	Our HRIS provides information that is easy to comprehend.							
3.	Our HRIS provides us with some intriguing data.							
4.	Our HRIS has given us with accurate data.							
5.	Our HRIS system provides up-to-date information.							

Section VII: User Satisfaction

28. Please evaluate the satisfaction level towards work and service quality in charge of your company's HRIS support. Please mark the box that corresponds to the item that best represents your viewpoint.

Rating scale: Strongly Disagree (SD) - 1, Disagree (D) - 2, Disagree Somewhat (DS) - 3, Neutral (N) – 4, Agree Somewhat (AS) – 5, Agree (A) – 6, Strongly Agree (SA) – 7

Sl. No.	**Statements**	**Please respond by putting a tick mark (√)**						
		1 SD	**2 D**	**3 DS**	**4 N**	**5 AS**	**6 A**	**7 SA**
Satisfaction level towards work using HRIS								
1.	Using HRIS applications made my work easy and enjoyable.							

2.	HRIS practices have helped me to enhance my job satisfaction level.							
3.	HRIS application augments my work productivity.							
4.	HRIS has enabled me to be happier with my chores and job.							
5.	Use of HRIS has improved the quality of my job.							
6.	HRIS has aided me in being more satisfied with the work I do.							
7.	HRIS has enhanced the amount of valuable data available.							
Satisfaction level towards service quality								
1.	When I require assistance with the HRIS, the appropriate service staffs are always eager to assist.							
2.	When I have issues with the HRIS, the responsible service staff provides me personal attention.							
3.	The HRIS-related services are delivered on schedule by the relevant service employees.							
4.	The responsible service employees have sufficient expertise of the HRIS to address my inquiries.							

Section VIII: Subjective Norms

29. When utilising HRIS in your daily duties, the following assertions pertain to social influence that may be significant (e.g., family, friends, and coworkers).

Rating scale: Strongly Disagree (SD) - 1, Disagree (D) - 2, Disagree Somewhat (DS) - 3,

Neutral (N) – 4, Agree Somewhat (AS) – 5, Agree (A) – 6, Strongly Agree (SA) – 7

Sl. No.	Statements	Please respond by putting a tick mark (√)						
		1 SD	2 D	3 DS	4 N	5 AS	6 A	7 SA
1.	People whose ideas I respect would agree with me and so, I'm incorporating HRIS into my everyday work regimen.							
2.	If I used HRIS in my regular job routine, those who are important to me would approve.							
3.	People who have power over my actions would have me believe that I should utilize HRIS to complete my everyday job responsibilities.							
4.	In my regular job routine, I am required to use HRIS.							

Section IX: Comparison of HRIS and Manual HR Practices

30. Traditional HR practices and HRIS practices can be compared using the following criteria. Please mark the box that corresponds to the item that best represents your viewpoint.

Rating scale: Strongly Disagree (SD) - 1, Disagree (D) - 2, Disagree Somewhat (DS) - 3, Neutral (N) – 4, Agree Somewhat (AS) – 5, Agree (A) – 6, Strongly Agree (SA) – 7

Sl. No.	Statements	Please respond by putting a tick mark (√)						
		1 SD	2 D	3 DS	4 N	5 AS	6 A	7 SA
1.	Employee tracking is possible using HRIS whereas; manual HR practices do not have tracking facility.							
2.	Using HRIS reduces paperwork and stationary work whereas, manual HR practices involve lots of paperwork and files to update manually.							

3.	Manual HR practices need more manpower whereas; an individual can perform many tasks using HRIS.							
4.	Data maintenance has improved using HRIS whereas; it creates lots of biasness while maintaining various data manually.							
5.	Manual HR practices requires more document storage capacity compare to HRIS							
6.	Manual HR's data accuracy is poor whereas; HRIS results in very few errors.							

Any suggestion(s) (please feel free to share): ……...

……

Thank you for your valuable time and cooperation

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DEGREE : DOCTOR OF PHILOSOPHY

DEPARTMENT : MANAGEMENT

TITLE OF THESIS : ADOPTION AND USE OF HUMAN RESOURCE INFORMATION SYSTEM (HRIS) WITH SPECIAL REFERENCE TO BANKING AND INSURANCE COMPANIES IN INDIA

DATE OF ADMISSION : 19TH MARCH, 2019

APPROVAL OF RESEARCH PROPOSAL:

1. DRC : 16TH SEPTEMBER, 2019
2. BOS : 23RD SEPTEMBER, 2019
3. SCHOOL BOARD : 3RD OCTOBER, 2019

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EXTENSION (IF ANY) : NA

Head

Department of Management

AN ABSTRACT

ON

ADOPTION AND USE OF HUMAN RESOURCE INFORMATION SYSTEM (HRIS) WITH SPECIAL REFERENCE TO BANKING AND INSURANCE COMPANIES IN INDIA

AN ABSTRACT SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF DOCTOR OF PHILOSOPHY

MONESWARI BORO

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AND INFORMATION SCIENCE

FEBRUARY, 2024

ADOPTION AND USE OF HUMAN RESOURCE INFORMATION SYSTEM (HRIS) WITH SPECIAL REFERENCE TO BANKING AND INSURANCE COMPANIES IN INDIA

BY

MONESWARI BORO

DEPARTMENT OF MANAGEMENT

SUPERVISOR: PROF. L. S. SHARMA

SUBMITTED

IN PARTIAL FULFILLMENT OF THE REQUIREMENT OF THE DEGREE OF DOCTOR OF PHILOSOPHY IN MANAGEMENT OF MIZORAM UNIVERSITY, AIZAWL

Adoption and Use of Human Resource Information System (HRIS) with special reference to Banking and Insurance Companies in India

1.1 Introduction

In the era of challenging and evolving human resource management approach for organizational development, HRIS drives successful organizational learning, appreciable efficiency and above all sustainability (Oruh, 2013). Organizational management procedures have undergone a revolution as a result of the quick development of new concepts and technology. The efficiency of management procedures and increased technological knowledge, which are essential for improved managerial performance inside organisations, have been evaluated by a number of studies (Wilcox, 1997; Maund, 2001; Lippert and Swiercz 2005; Troshani et al., 2011).

HRM has recently shifted its focus on knowledge-sharing and strategic workforce analysis and has been increasingly evolving into a significant contributor in the strategic management of organisations (Peres and Abok, 2015). This shift is seen as an outcome of advent of HR technologies i.e., HRIS, which is believed to be a system of procedures and functions for acquiring, storing, manipulating, retrieving, analysing and disseminating pertinent information concerning organisational HR. To increase the effectiveness of HRM, organisations are becoming increasingly reliant on HRIS (Ball, 2001; Troshani et al., 2011). HRIS's core objective is to procure data, process this data to generate information and disseminate the same to its intended users for their specific purposes. With the growth in the number of employees and management objectives, different departments in an organisation now cannot afford to operate in isolation. They require sharing common information about one personnel employed in one department with another department of the organisation quite often. For instance, to prepare an employee's salary for a particular month, finance wing of the organisation would require inputs related to his/her attendance, overtimes, leaves, incentives, etc. from the HR department. This task would be hassle free only if an efficient HRIS is in place and being used efficiently. Today, HRIS would be more accurately viewed as a hybrid of several classical types of information systems. Along with office automation system (OAS) capabilities, current HRIS include features of transaction processing systems (TPS), decision

support systems (DSS), communication systems with elements of artificial intelligence (Kovach et al., 2002).

In order to efficiently carry out HR duties and address current and future issues of HR in today's knowledge-driven economy, HRIS have acquired a crucial role. Specialized information and expertise have emerged as a result of the expansion and development of organisational operations, necessitating the use of an information system (IS) for better data management. This system could make it possible to use the data for HRM purposes more effectively. In practical every organisation, the development of HRIS software is seen as essential for HR Departments (Aletaibi, 2016). The value of HRIS to organisations states that HRIS is an organization's "soul" and a key piece of intellectual property. Its contribution to the organization's achievement of its strategic goals cannot be disputed. From an organisational standpoint, HRM constantly aspires to use the most recent developments in HRIS, which will allow them to manage conventional processes utilising the most recent technology (Lee, 2008).

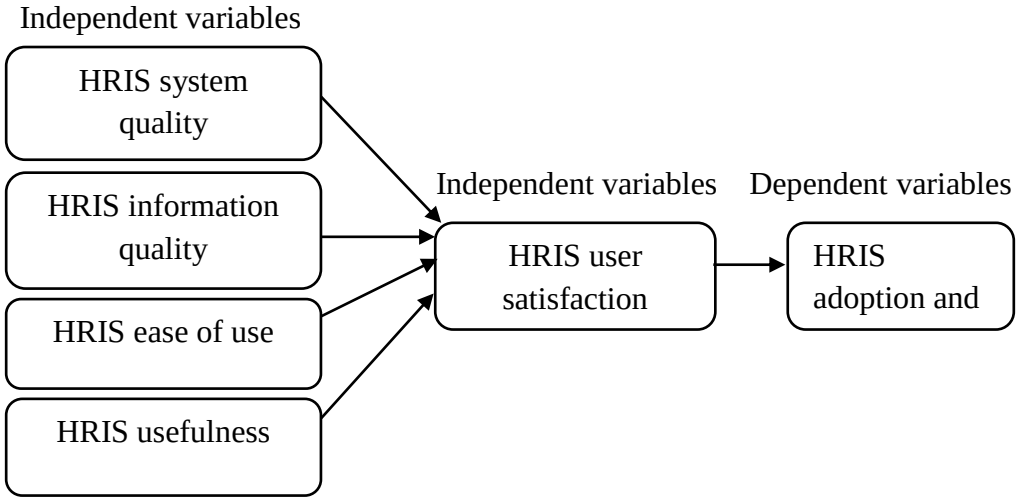
1.2 DeLone and McLean IS Success Model

One of the most often utilised models to describe IS effectiveness in various organisational setups was developed by DeLone and McLean in 1992. DeLone and McLean's (1992) model was designed primarily to decrease the number of factors that had been generated to explain the adoption and performance of HRIS. It was challenging to compare the findings of related research and to compile a comprehensive body of empirical information since there were so many distinct dimensions used to gauge the effectiveness of HRIS adoption (DeLone and McLean, 1992).

DeLone and McLean's (1992) assessment of other authors' IS research from 1981 to 1987 resulted in the development of the model, which served as the basis for the taxonomy of an IS success model. As illustrated in Figure 1.1, the model proposed six interconnected characteristics to gauge the effectiveness of IS: system quality, information quality, ease of use, HRIS usefulness, user satisfaction and HRIS adoption and use success. The six criteria are interrelated however system and information quality can have a combined or separate impact on user satisfaction and utilisation. Numerous scholars have examined HRIS adoption, acceptability, and

success using the DeLone and McLean model since its creation in 1992 (Landrum and Prybutok, 2004; Hosnavi and Ramezan, 2010; Al-Shibly, 2011).

Figure 1.1: HRIS success model



(Source: Adopted from the DeLone and McLean, 1992)

The concept of information quality is used to assess the output of the IS, and it is often assessed by taking into account elements like originality, usefulness, clarity, dependability, readability, relevance, correctness, precision, completeness, and report format. The total effectiveness of IS tools is assessed using the system's quality by comparing it to factors including dependability, adaptability, job completion time, reaction time, resourcefulness, and simplicity of use. The "usage" construct is the one that is most frequently used to gauge an IS's effectiveness. The number of sessions the user spends using IS tools, the number of hours per day, the number of days per week, the number of reports generated, the cost of use, the frequency of the time spent and the number of functions used to complete a single task are some examples of the metrics used to measure this. Organizations that require the usage of the IS have reported having trouble assessing the "use" dimension. The quality of the system and the information become the less preferable options in such circumstances.

The perception of the HRIS's usefulness is an intriguing element because it is extremely individualised and needs to make sense to the employee. Together, these elements influence user satisfaction and ultimately the success of the HRIS. User satisfaction is therefore the most crucial component of the IS success model (DeLone

and McLean, 1992). User satisfaction is often calculated by building a multi-item scale and taking into account factors like users' degree of satisfaction with the result of the IS. Another component known as adoption and use success is utilised to gauge how much an IS user's utilisation has an influence on the organization's overall success. The efficacy of decisions, the amount of time spent making decisions; knowledge retention, learning and task efficiency are a few of the factors that are used to gauge an individual's influence.

The IS success model developed by DeLone and McLean (1992) has been widely applied, either in its original form or after being modified, to make significant contributions to the literature on HRIS success. DeLone and McLean (1992) came to the conclusion that information flows through a number of states from its production to its use or consumption to its effect on individual and/or organisational performance based on Shannon and Weaver's (1949) findings. The three-construct model developed by Shannon and Weaver (1949), which includes system quality at the technical level, information quality at the semantic level, and usage, user satisfaction, individual impact, and organisational impact at the effectiveness level. DeLone and McLean's (1992) approach was utilised by Rai, Lang, and Welker (2002) to analyse an organization's effective adoption of IS. Their findings bolster the contention made by DeLone and McLean (1992) that in order to explain adoption success, HRIS success models need be properly tailored to a particular situation.

DeLone and McLean (1992) were utilised by Shin (2003) to assess the impact of HRIS success on user satisfaction in a data warehouse in terms of system quality, information quality, and service quality. They demonstrated that the DeLone and McLean (1992) model is able to explain the efficacy of HRIS success using survey questionnaires and interviews with respondents. Thatcher and Oliver (2001) used product quality, manufacturing efficiency, and business productivity to examine the effects of technology expenditures on organisational performance. The conclusions of Thatcher and Olivers (2001) are thorough and explain whether IS investment enhances performance.

1.3 Selected Banking and Insurance companies for the study

In recent times, mergers and amalgamation have become increasingly common in the Indian banking industry, especially among public sector banks. The banks that have undergone mergers now function as integrated entities within the

anchoring banks. The customers of the merged banks have been treated as customers of the anchor banks into which they have merged. Over the past five years, several mergers involving public sector banks have taken place. For instance, in 2017, the State Bank of India, the country's largest public lender, acquired five of its associate banks and Bharatiya Mahila Bank. In 2014, Kotak Mahindra Bank merged with ING Vysya Bank, and in 2008, HDFC Bank merged with Centurion Bank of Punjab Ltd. The merger of State Bank of India and its associate banks commenced with the merger of its subsidiary, State Bank of Saurashtra, on August 13, 2008. Subsequently, the State Bank of Indore was consolidated with the State Bank of India on August 27, 2010. The remaining subsidiaries, namely State Bank of Bikaner and Jaipur, State Bank of Hyderabad, State Bank of Mysore, State Bank of Patiala, State Bank of Travancore, and Bharatiya Mahila Bank, were merged with the State Bank of India, effective from April 1, 2017. Vijaya Bank and Dena Bank were merged into Bank of Baroda in 2018. As of January 2019, IDBI Bank was reclassified as a privately managed bank.

The Central Government of India has announced the merger of several public sector banks in order to enhance the effectiveness of the banking system. On March 4, 2020, the consolidation of Public Sector Banks was approved by the Union cabinet, with the effective date set as April 1, 2020. As part of this initiative, the Oriental Bank of Commerce (OBC) and United Bank of India were amalgamated into Punjab National Bank (PNB), Syndicate Bank merged with Canara Bank, Andhra Bank and Corporation Bank merged with Union Bank of India, and Allahabad Bank merged with Indian Bank. Prior to this, in January 2019, the cabinet had approved the unification of Vijaya Bank, Dena Bank with Bank of Baroda. The data were collected from top ten companies of each service sector and are as following: -

Table 1.1: Top ten companies of each financial sector

Service Industry (Category)	Public	Private
Insurance	1. Life Insurance Corporation of India 2. Agriculture Insurance Company of India 3. National Insurance Company of India	1. HDFC Standard Life Insurance Co. Ltd. 2. Max Life Insurance Co. Ltd. 3. ICICI Prudential Life Insurance Co. Ltd. 4. Kotak Mahindra Life Insurance

	4. New India Assurance 5. The Oriental Insurance company 6. United India Insurance company 7. General Insurance Corporation of India	Co. Ltd. 5. Aditya Birla Sun Life Insurance Co. Ltd. 6. TATA AIA Life Insurance Co. Ltd. 7. SBI Life Insurance Co. Ltd. 8. Exide Life Insurance Co. Ltd. 9. Bajaj Allianz Life Insurance Co. Ltd. 10. PNB MetLife India Insurance Co. Ltd.
Banking	1. State Bank of India 2. Bank of Baroda 3. Punjab National Bank 4. Canara Bank 5. Bank of India 6. Union Bank of India 7. Central Bank of India 8. Indian Bank	1. HDFC Bank 2.ICICI Bank 3. Axis Bank 4. Kotak Mahindra Bank 5. Yes Bank 6. Federal Bank 7. IndusInd Bank 8. RBL Bank 9. Karur Vysya Bank 10. Bandhan Bank

Source:

1. https://m.rbi.org.in/scripts/bs_viewcontent.aspx?Id=3657
2. https://financialservices.gov.in/insurance-divisions/Public-Sector-Insurance-Companies
3. https://irdai.gov.in/list-of-life-insurers
4. https://www.mapsofindia.com/my-india/business/top-10-largest-public-sector-banks-in-india-2019#

The above-mentioned Insurance companies are selected as per the list given by Insurance Regulatory and Development authority (IRDA). All the public and private banks which are selected for the study are listed under reserve Bank of India (RBI) and are ranked as per their economic performance as per RBI Bulletin Sept., 2019.

The banks and insurance companies selected may change in the near future as the environment of banking and insurance is highly dynamic. Currently, mega mergers are taking place. Therefore, banks selected for the study may change but the top ten banks will remain. Similarly, the case may take place for insurance companies also.

1.4 Role of HRIS in Banking and Insurance sector

Information systems and information technology (IT) are now the most important components of any organisation (Troshani et al., 2011; Bal et al., 2013). Because of this, it appears difficult for any organisation to operate without them. In fact, in order to maintain its high quality and raise their success rate, both public and private organisations have made significant financial investments in this field, particularly in areas like computer hardware and software (Seddon et al., 2002). It has become a crucial component of development in all contemporary fields that demand improvement, therefore the amount of money and effort invested in its development and implementation is vital (Al-Gahtani, 2003).

In order to accomplish the goals of the HR, the human resource information system has established itself as a crucial multidisciplinary instrument. In handling financial services and maintaining organised records in the database, the HRIS is crucial. Additionally, it guarantees the financial sectors' high level of security and dependability (Rahman et al., 2016). The banking industry contributes significantly to the country's economy and serves as its foundation. The bank provides a range of financial services, including credit and deposits for the right consumers. Banking organisations have to handle a lot of transactions, most of which are drawn-out and complicated (Troshani et al., 2011).

Customers expect transactions to be completed quickly so they may utilise their money with ease. By offering the safe databases to access the information, the HRIS system enables the bank to complete a lot of transactions in a relatively short period of time. The HRIS databases created for the banks encompass every facet of client identification and demand analysis. Information is kept secure throughout banking operations with the aid of the customer database and services offered to account holders. According to earlier researches, the HRIS primarily concentrates the many ratios and indices used in banking operations (Rahman et al., 2016).

1.5 Selected variables for the study

In research, investigators frequently aim to determine the impact and manner in which an independent variable causes changes in other variables. When examining the connections among elements of a study, researchers commonly seek to identify the factors that prompt changes in the dependent variable and the manner in which they do so. Independent variables have the ability to influence dependent variables, whereas the reverse relationship does not hold true.

Independent variables: An independent variable that remains unaffected by the other measured variables or factors (Cramer et al., 2004; Penslar et al., 2010).
Dependent variables: A variable that is dependent on and can be influenced by other measured factors (Cramer et al., 2004; Penslar et al., 2010).

Table 1.2: list of variables

Sl. No.	Independent variables	Dependent variables
1	Characteristics of HRIS implemented ● Features of HRIS ● Employee self-service ● Payroll process through HRIS ● Training and learning HRIS	Adoption of HRIS
2	User-satisfaction ● Towards work using HRIS ● Towards service quality	Use of HRIS
3	Information quality	
4	Subjective norms	
5	Comparison of HRIS and Manual HR practices	

(Source: Author's compilation)

1.6 Significance and scope of the study

Today's world of business and economies around the world are deeply interrelated. As many businesses need to take a global view on their operations rather than a local or regional information systems that they use have to be designed in order to meet the needs of global business processes adequately. Human Resources Information Systems (HRIS) is no exception to this. A global company needs to have an HRIS in place that functions properly in all its branches across the global, meaning that these systems should meet needs of users in different political, economical and cultural settings. This is a major challenge for many global companies.

Boateng (2007) revealed that HR professionals not only consider HRIS usage as a support for strategic HR tasks but also perceive it as an enabling technology. The study also indicates that large firms are most likely to experience considerable HRIS usage in support of strategic HR tasks. Moreover, there was no significant

difference in proportion to the size of a company regarding HRIS usage in support of commitment management and managing trade union relations with organisations.

Globalisation, increased competition, fast changing technology, rising costs, mergers and acquisitions, retaining top performers, employee relationship management, the heightened demand for communication via multiple electronic communication channels, in addition to traditional print formats; are forcing the employers and employees to align HR strategies and functions with company's overall goals. Having a global scope is no longer a competitive advantage; it is now a necessary component of doing business. Information management is the key to employee productivity, competitive strength and corporate excellence. Therefore, the shift from industrial society to information society is desirable in the developed world. HRIS provides solution for all these challenges.

Most of the Indian organisations which have implemented HRIS system by spending huge amount on the purchase of software are not able to get the desired results as were originally designed and perceived at the time of making a case for the purchase of HRIS. Therefore, a need arises to explore the adoption and use of HRIS in companies so that employer and employees should know the use and actual benefits of implementing HRIS.

1.7 Statement of the problem

People are the most important organisational asset. An organisation's people define its character, affect its capacity to perform and represent the knowledge-base of the organisation. One of the major problems faced by many organisations in today's fast paced market is how to grasp and retain workforce that is of the best calibre. In the highly competitive business environment, the best talent quickly gets swept up by employers eager to strengthen the quality and efficacy of their employees.

Employees touch every aspect of the business as they are the most valuable asset in any organisation. It's time to automate HR operations and human capital management system to support all the employee interactions. From recruitment to retirement, from stable economies to rapidly changing environments, one need to track, manage and analyse employee programs, policies and cost. With HRIS in place the organisation can effectively and economically streamline human resource processes across organisations entire operation, saving money and increasing

employee morale. Using HRIS software, one can have total control over the entire human resource management cycle. From human capital management to employee performance and talent management systems to planning and scheduling software, the organisation will have full insight into every aspect of employee management.

Introducing new technology into the workplace presents both opportunities and challenges. Human Resource Information System (HRIS) has the potential to transform HR into a more efficient and strategic function by allowing HR to move beyond simple administrative tasks to strategic applications. However, while HRIS are the norm rather than the exception in national organisations, HR has not transformed (David, 2009). Globalization is forcing HR to expand its horizons, perspectives and use of technology. This has led to the information of global HRIS in a number of multinational organisations and different HRIS opportunities and challenges have emerged.

1.8 Methodology

Method

The study is approached as an exploratory and cross-sectional field survey study.

Area of Study

The study area is banking and insurance sector consisting of both public and private. These industries are the predominant contributors to the economy of India.

Population

The study population consists of employees from the Banking and Insurance sectors in India.

Sample Unit

To ensure a more manageable and reliable estimation of the number of operating Banking and Insurance companies in India, the study opted to focus on a subset of the population. Therefore, the leading companies in both the sector i.e., the top ten companies from both the public and private sectors in the banking and insurance industries in India were selected as the sampling unit. This approach was adopted due to the large size of the overall population and the potential for anomalies in obtaining accurate figures.

Sampling Technique

Given the requirements defined by the research objectives and the hypotheses, the researcher is adopting the stratified sampling technique for the study. This method involves dividing the population into distinct strata or subgroups based on relevant characteristics such as public banks and private banks. Similarly, public insurance companies and private insurance companies in India.

Data Collection

Both primary and secondary sources were used to collect the data. Primary data is collected through personal interview with a questionnaire to obtain information regarding the use, adoption and to assess the perception towards Human Resources Information System (HRIS). The questionnaire is designed using the scales adopted which are discussed in chapter 3. The data is collected through both offline and online survey method.

Secondary Information related to HRIS was collected from web sites, journals, books, HRIS articles and management publications, databases, rbi.org, blogs, news articles.

Data Analysis

The data analysis was meticulously conducted utilizing the Jamovi software, a powerful statistical analysis tool. This software was chosen for its user-friendly interface and robust capabilities, allowing for a comprehensive examination of the dataset. The analysis process involved employing various statistical techniques and tests available in Jamovi, ensuring a rigorous exploration of the research variables. The utilization of Jamovi facilitated seamless data manipulation, exploration, and visualization, enabling a thorough understanding of the underlying patterns and relationships within the dataset. The outcomes of the data analysis, encompassing key findings and insights, are comprehensively presented in Chapter 4, providing a detailed account of the research outcomes and contributing to the overall narrative of the study. The use of Jamovi underscores the commitment to employing cutting-edge tools for robust statistical analysis, enhancing the credibility and reliability of the study's results.

1.9 Systematic Literature Review (SLR)

Human Resource Information System (HRIS) has fostered effective organisational learning, noticeable productivity, and, above all, sustainability in a period of demanding and changing human resource management approaches for organisational growth and development of information technology. The current study combines bibliometric analysis with a systematic literature review (SLR). The systematic review is used methodically to collect available material and then evaluate it against established criteria (Tranfield et al., 2003). The current study examines peer-reviewed articles from the year 2001 to 2021 from Scopus database. Specific keywords are used to find articles with the different search string resulting in articles which were undertaken for further study after inclusion and exclusion criteria. This review-based work aims to provide qualitative insight into HRIS's overall evolutionary trend, knowledge structure, and literature gaps and suggests some future research possibilities with special reference to the financial sector by using open-source software. The study offers a clear insight into the benefits of implementing HRIS in the financial sectors and also a comprehensive picture of the advancement of publications and research diversification within the domain. Furthermore, it gives scholars and practitioners an analytical idea to implement HRIS in different sustainable sectors.

However, very few review studies are available on the subject. The study thoroughly evaluated the content of the existing HRIS literature to increase comprehension of the current state of knowledge in order to get over the restriction. The current study examines the HRIS publishing trend, significant publications, and most productive and significant writers. Then, to find topic clusters, a bibliometric analysis was done using VOS Viewer. The creation of the network map utilising co-citation analysis and bibliographic coupling uncovers intriguing themes and trends in the area of HRIS. The present study helps to clarify the HRIS in banking and insurance companies.

The current study is an amalgamation of Systematic Literature Review (SLR) and Bibliometric Analysis. SLR is used in the study because the procedure it involves is systematic, reproducible, transparent, and iterative. Electronic databases are becoming more widely available, making it simpler for academics to conduct

systematic research in a timely way. Therefore, SLR is conducted strictly following the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) statement, i.e., PRISMA checklist and flow diagram. The PRISMA declaration also guarantees the research's accuracy and completeness (Mother et. al., 2010). In the present study, for new systematic reviews, the PRISMA 2020 flow diagram is utilised, which solely includes database and registry searches. To begin with a database search, it is important to establish the scope of the study and to choose the suitable keywords that are to be utilised during the search.

1.10 Discussion

A modern-day organization has various reasons to opt for HRIS (Human Resource Information System). According to comparehris.com (2012), some of the major reasons for the usage of HRIS include better time management, generating excellent reports, smooth recruitment, and organizational development. The adoption and implementation of HRIS is not limited to business enterprises only, researchers are working on its usage and benefits and its future advantages in sectors such as military domain, hotels and restaurants, aviation industry, educational institutions, hospitals, IT industries and financial institutions.

The concept of HRIS does not represent a distinct stage in the development of HRM, but rather a decision about the approach an organization will take towards HRM. The three areas of HRM where organizations can choose to deliver HR services either face-to-face or through electronic means are transactional HRM, traditional HRM, and transformational HRM (Wright and Dyer, 2000; Lepak and Snell, 1998). Operational HRM also known as transactional HRM is concerned with managing the administrative aspects of HR, such as recruitment, selection, and compensation. Relational HRM focuses on building and maintaining positive relationships between employees and the organization through communication, teamwork, and employee involvement. Transformational HRM involves creating a strategic HR function that is aligned with the overall goals of the organization, and that can help to drive change and innovation. This approach involves developing HR systems and processes that are aligned with the organization's overall goals and that can help to create a more flexible and adaptable workforce.

These types of HRM emphasize different aspects of HR, including administration and registration, operational HRM instruments, and the strategic role of HR. Choices can be made within each type of HRM in terms of which HR activities will be offered face-to-face and which will be offered through web-based HR. For example, in operational HRM, organizations can choose to have employees update their own personal data through an HR website or to have an administrative force in place to do this. In relational HRM, there is a choice between supporting recruitment and selection through a web-based application or using a paper-based approach. Finally, in transformational HRM, organizations can create a change-ready workforce through an integrated set of web-based tools or using paper-based materials. When organizations choose to implement web technology for HRM purposes, based on the idea that management and employees should play an active role in carrying out HR work, this is referred to as e-HRM (Ruel and Magalhaes, 2008). Some of the authors and their contribution are as follows in table 2.6:

Table 1.3: List of author(s) with the findings

Author(s)	**Findings**
Biswas and Chakraborty (2018)	The implementation and adoption of HRIS in manufacturing companies have been found to be impacted by most HR practices. The HR department considers the system to be a crucial element that supports the organization's competitive efforts, adds value to the department, and facilitates smooth internal operations.
Cates (2016)	The main advantages of cloud-based systems are their accessibility through the internet, the ability to run payrolls outside of working hours, and always having the latest compliant system updates. It is important to find a system that is easy to use and offers both accounting and payroll services from a single provider.
Zhang (2014)	By utilizing HRMS for information management, enterprises can benefit from increased efficiency, reduced repetitive work, lower management costs, and elevated management standards. The HRMS is a simple, easy-to-maintain, and cost-effective system that facilitates the rational management of employees and optimization of human resource management.
Troshani et. al.,	The success of HRIS adoption was found to be strongly influenced

(2011)	by management commitment, human capability, and environmental factors, including regulatory compliance.
Wiblen et. al., (2010)	The impact of technology on talent management is influenced by the agency of individuals and the social context of the organization. Therefore, a comprehensive understanding of E-HR and talent management requires consideration of both material and social factors. As organizations increasingly compete for talent, effective talent management through HRIS and access to comprehensive information may enable organizations to strategically allocate resources.
Ying et. al., (2009)	By utilizing HRMS for information management, enterprises can benefit from increased efficiency, reduced repetitive work, lower management costs, and elevated management standards.
Hussain et. al., (2007)	There were minimal variations in the usage of HRIS between small and large companies. Additionally, the adoption of HRIS has improved the professional status of HR professionals.
Tansley and Newell (2007a)	HRIS development involves a temporary, multi-disciplinary team working together in an intensive intellectual practice, making it essential to set a clear agenda for future action.
Emilio (2007)	The company's internal factors, such as the HRIS implementation capability and the strategic importance of HRIS, determine whether the function is outsourced or kept in-house. The company's capability must be superior and enable them to implement HRIS cheaper and faster while obtaining an application that better suits their needs to become a key determinant of IS sourcing decisions. This is because the company can outperform IT suppliers only when they have a certain level of cumulative knowledge generated from previous HRIS implementations and economies of communication and knowledge transfer derived from the close relationship between IS and HR employees.
Ngai and Wat (2006)	HRIS was mainly used for general information and payroll services. Quick response and access to information, improved data control, fewer errors, and increased customer satisfaction were the most

	significant benefits of implementing HRIS. Additionally, insufficient financial support, lack of information technology expertise, and a lack of commitment from top management were the main barriers to implementing HRIS.
Ball (2001)	The size of an organization determines whether it has an HRIS and which modules it adopts. Smaller organizations tend to choose low-cost options and in-house development to minimize risk. Smaller organizations prioritize cost and risk reduction when selecting HRIS, which is consistent with earlier surveys. The study supports the idea that smaller firms tend to hold only basic and relevant information in their HRIS, which is consistent with earlier research.

(Source: Author's compilation)

1.11 Digital transformation in HR

Okar and Nachit (2020), the objective of digital transformation in Human Resources (HR) management is to attain its strategic goals and enhance the quality, efficiency, and cost-effectiveness of HR services. The integration of digital technology in HR activities such as hiring, compensation, assessment, workforce planning, and training is becoming increasingly popular. Digital technologies for HR encompass a range of tools such as HRIS, electronic pointing, chatbots, gamification, and other services and techniques used to optimize HR management and support organizational transformations (Pennaforte et.al., 2018). According to Ashbaugh and Miranda (2002), the development of the internet has been the most important aspect of information technology in organizational processes. The integration of internet with HRIS has brought several benefits such as wider diffusion, lower transaction costs, less use of paper, and access to resources. Intranets in HRIS have introduced the virtual nature of the HR department, allowing employees to directly interact with enterprise information through web pages or other client/server technology tools (Kelly, 1997). This has reduced the administrative staff workload and increased efficiency, making the investment in intranets secure, easy-to-use, and economical (Cortese, 1998).

1.12 Gap Identification

The extensive review of literature reveals a notable research gap in the context of measuring the adoption and use of HRIS within the specific domain of banking and insurance companies, particularly in developing countries like India. Despite the increasing demands and requirements of these organizations, there is limited empirical evidence and scholarly attention directed towards understanding the unique challenges, opportunities, and outcomes associated with HRIS implementation in the banking and insurance sectors. Existing studies have predominantly focused on various industries, such as manufacturing, educational institutions, hospitality, and information technology, leaving a noticeable void in the exploration of HRIS dynamics within the financial services sector. Factors influencing the adoption and success of HRIS in this specific sector may differ from those observed in other industries, making it imperative to conduct targeted research that addresses the nuanced needs and complexities of HRIS implementation within banking and insurance institutions. Exploring the challenges, benefits, and performance outcomes of HRIS adoption in these sectors will not only contribute to the academic discourse on HRIS but also offer practical insights for organizations in the financial services industry seeking to enhance their human resource management practices through technological advancements.

1.13 Research Design

Research design refers to a systematic approach used by researchers to gather, examine, and interpret evidence in order to address their investigative inquiries (Flick et al., 2004). It encompasses various aspects of the research process, including data collection methods and the analytical techniques employed. The research design encompasses elements such as the theoretical framework, the selection of empirical data, the methods and procedures used, the objective of generalization, and considerations related to quality control. The quantitative research design was chosen and integrated for the study because of the specific nature of the research. In line with this design, the study will explore into the perspectives and viewpoints of individuals concerning the main topic discussed in the research study. This will be accomplished by referring to suitable and applicable literature, as suggested by Taylor (2005). The quantitative research approach will be employed to successfully accomplish the goals and objectives of the study.

1.14 Population/Sample Unit/Sample size

1.14.1 Population of the study

In order for a research study to be considered valid and dependable, it is necessary to acquire and examine data, which are subsequently converted into a valuable asset for future studies and/or enhancing organizational strategies. The term "population" refers to the specifically chosen group of individuals who are given priority in order to ensure the success of the research. According to Robson (2011), the population described in the context refers to the collective group of individuals engaged in the collection of investigative data. The population does not necessarily encompass an entire country or state, but rather should be confined to the specific object, phenomena, or subject relevant to the sampling purpose (Robson, 2011). Thus, the study population consists of employees from the banking and insurance sectors in India.

1.14.2 Selected Banking Companies in India

For the comprehensive investigation into the adoption and use of Human Resource Information Systems (HRIS), selected set of banks will serve as the primary sources of data. The chosen banks represent a mix of public and private sector institutions, ensuring a diverse and comprehensive understanding of HRIS practices within the banking sector. In the public sector, the selected banks include the State Bank of India, Bank of Baroda, Punjab National Bank, Canara Bank, Bank of India, Union Bank of India, Central Bank of India, and Indian Bank, with a combined workforce totalling 7,13,888 employees.

On the private sector front, the selected banks encompass HDFC Bank, ICICI Bank, Axis Bank, Kotak Mahindra Bank, Yes Bank, Federal Bank, IndusInd Bank, RBL Bank, Karur Vysya Bank, and Bandhan Bank, boasting a collective employee count of 7,49,650. The below table 3.1 shows list of selected public and private banks in India.

Table 1.4: List of Banks in India

Sl. No.	Name of the Bank	Sector	Year	No. of employees
1.	State Bank of India	Public	2022	2,44,250
2.	Bank of Baroda	Public	2022	79,016
3.	Punjab National Bank	Public	2022	1,03,144

4.	Canara Bank	Public	2022	86,919
5.	Bank of India	Public	2022	51,459
6.	Union Bank of India	Public	2022	75,500
7.	Central Bank of India	Public	2022	32,335
8.	Indian Bank	Public	2022	41,265
Total				**7, 13,888**
1.	HDFC Bank	Private	2022	1,20,093
2.	ICICI Bank	Private	2022	1,30,170
3.	Axis Bank	Private	2022	78,300
4.	Kotak Mahindra Bank	Private	2022	71,000
5.	Yes Bank	Private	2022	2,38,000
6.	Federal Bank	Private	2022	12,592
7.	IndusInd Bank	Private	2022	33,582
8.	RBL Bank	Private	2022	9,257
9.	Karur Vysya Bank	Private	2022	7,211
10.	Bandhan Bank	Private	2022	49,445
Total				**7, 49, 650**

(Source: https://financialservices.gov.in)

1.14.3 Sample Size

The concept of sample size refers to a subset of a population that is carefully chosen to provide enough data for making reliable conclusions. Sekaran and Bougie (2010), emphasize that sample size should be sufficient to yield the necessary information. Kumar et al., (2013) explains sample size as “total number of subjects in the sample”.

The Krejcie and Morgan table (KMT) is widely recognized in the fields of behavioural and social sciences as a tool for determining sample sizes. Researchers can easily utilize this table without the need for complex calculations, and it is applicable to various population sizes. According to the KMT, a sample size of 384 is considered adequate for populations of 1,000,000 or greater. As a result, 384 have gained significant prominence as the "magic" number in research and have been utilized in numerous articles and theses. Additionally, when employing the KMT, it is crucial to ensure that the chosen sample accurately represents the specific population under investigation (Memon et al., 2020).

Krejcie and Morgan (1970) developed a formula to determine the sample size in educational research. This formula is often used when the population is finite and the researcher wants to ensure a representative sample. The formula is as follows:

$$\mathbf{n = \chi^2 NP(1-P)/e^2(N-1)+\chi^2 P(1-P)}$$

where,

χ^2 = chi – square value

N = Population size

P = Population proportion

e^2 = Margin of error

The table value of chi-square depends on a degree of freedom at a given confidence level.

At 95% confidence level with degree of freedom 1 the chi-square value is ($\chi^{2)}$ = 3.841

At 95% confidence level the margin of error is (e) = 0.05

Population proportion (P) = 0.5

N = 1,825,465

Now, substituting these values into the formula gives the sample size (n):

$$\mathbf{n = 3.841*1825465*0.5*0.5/((0.05)^2*(1825465-1))+(3.841*0.5*0.5)}$$

$$\mathbf{n = 1752902.77/4564.62025}$$

$$\mathbf{n \approx 384.019409}$$

So, the calculated sample size (n) is approximately 384.019409

Rounding to the nearest whole number makes the sample size more practical and easier to work with in real-world situations. Therefore, the sample size value 384.019409 is rounded off to the nearest whole number, which is 385.

1.15 Survey instrument

A survey instrument is a tool designed to collect data and information from participants in a systematic and structured manner. It serves as a key component of research methodology, allowing researchers to gather insights, opinions, and responses from individuals or groups relevant to the study. The survey instrument typically includes a set of questions or items that respondents answer based on their experiences, perceptions, or opinions. The survey instrument is meticulously structured into various sections, each designed to explore specific dimensions related to the adoption and use of Human Resource Information Systems (HRIS).

1.15.1 Structure of the survey questionnaire

The first section, General Information (Section I), encompasses 18 items, serving as a comprehensive introduction to collect fundamental demographic details from the study participants. Following this, Section II, characterized by Close-ended Questions and comprising 5 items, focuses on eliciting precise responses through closed-ended inquiries, without specific references provided.

Moving forward, Section III, titled Adoption Usage of HRIS, incorporates 7 items and draws on the influential works of DeLone and McLean (2003), Davis (1989), Urbach et al., (2010), and Sabherwal (1991) to gain insights into the adoption and usage patterns of HRIS. Section IV, Use of HRIS, consisting of 9 items, delves into the utilization aspects of HRIS, referencing key works such as DeLone and McLean (1992, 2003), Almutairi and Subramanian (2005), and Urbach et al., (2010).

The subsequent section, Characteristics of HRIS Implemented (Section V), with its 21 self-administered items, systematically explores the diverse features and attributes of the implemented HRIS. Section VI, Information Quality, is dedicated to assessing the quality of information within HRIS, comprising 5 items and referencing seminal works by DeLone and McLean (1992, 2003), Almutairi and Subramanian (2005), Lin and Lee (2006), McKinney et al., (2002), Yang et al., (2005), and Urbach et al., (2010).

Section VII, User Satisfaction, with 11 items, investigates user satisfaction in the context of HRIS, citing works by DeLone and McLean (1992, 2003), Seddon and Kiew (1994), and Urbach et al., (2010). Lastly, Section VIII, Subjective Norms, explores subjective norms through 4 items, referencing Ajzen, 1991; Venkatesh and Davis, 2000. These meticulously designed sections collectively contribute to a comprehensive understanding of the multifaceted aspects surrounding HRIS adoption, usage, and its impact on user perception. The table 3.4 represents the dimensions

Table 1.5: Dimensions of the scale

Section	Dimensions/Construct	No. of Statements/Items	References
I	General Information	18	N/A
II	Close-ended questions	5	N/A
III	Adoption usage of HRIS	7	DeLone and McLean, 2003; Davis, 1989; Urbach et al., 2010; Sabherwal and King,1991
IV	Use of HRIS	9	DeLone and McLean,1992; DeLone and McLean, 2003;

			Almutairi and Subramanian, 2005; Urbach et al., 2010
V	Characteristics of HRIS implemented	21	Self-administered
VI	Information Quality	5	DeLone and McLean,1992; DeLone and McLean, 2003; Almutairi and Subramanian, 2005; Lin and Lee, 2006; McKinney et al. ,2002; Yang et al., 2005; Urbach et al., 2010
VII	User Satisfaction	11	DeLone and McLean,1992; DeLone and McLean, 2003; Seddon and Kiew, 1994; Urbach et al., 2010
VIII	Subjective Norms	4	Ajazen, 1991; Venkatesh and Davis, 2000
IX	Comparison of HRIS and Manual HR Practices	7	Self-administered

(Source: Researcher's compilation)

1.15.2 Development of Questionnaire

The development of a questionnaire is a crucial step in any research endeavour, serving as the primary tool for data collection and analysis. In the context of studying the adoption and usage of Human Resource Information Systems (HRIS) in banking and insurance companies in India, crafting a well-designed questionnaire is imperative. This process involves a systematic approach, starting with a clear definition of research objectives and the identification of key variables. The questionnaire is designed to gather relevant and reliable information, addressing each dimension of the research comprehensively. Careful consideration is given to the phrasing of items, ensuring clarity and avoiding biases. A well-crafted questionnaire is essential for obtaining accurate and meaningful data, contributing to the validity and reliability of the research findings.

1.16 Reliability and Validity of the Survey Instrument

Reliability and validity are essential aspects when evaluating the accuracy of a measurement tool. In the quantitative phase of the study, the reliability of the instruments employed was assessed through the utilization of Cronbach's alpha which does a statistical measure employed to gauge the internal consistency of a

construct, specifically examining the level of coherence among the items comprise it (Tavakol and Dennick, 2011).

1.16.1 Reliability

The focus of reliable measurement pertains to how well an instrument can gauge internal consistency within a dataset (Tavakol and Dennick, 2011). In other words, reliability assesses the degree to which the variables (such as characteristics of HRIS, information quality, comparison of HRIS and manual HR practices, subjective norms, use of HRIS, user satisfaction, and adoption usage of HRIS) are consistently measured. Cronbach's alpha is the most commonly used method for assessing the reliability of data gathered through a Likert scale. In this study, Cronbach's alpha was employed to determine the reliability of the items within the constructs. The findings revealed that all constructs exhibited a Cronbach's alpha value exceeding 0.7, as detailed in chapter 4. Cronbach's alpha assists in assessing the degree to which the items within a scale measure the same concept or construct. Moreover, this reliability estimates gauges the level of measurement error present in a test. Developed by Lee Cronbach in 1951, Cronbach's alpha provides a measure of the internal consistency of an item or scale and is expressed as a value ranging from 0 to 1. According to established guidelines by Nunnally and Bernstein (1994) and Bland and Altman (1997), acceptable values for Cronbach's alpha should fall between 0.70 and 0.95.

1.17 Data collection

For the present study, primary data collection was carried out by using survey method. Aaker et al., (2000) states that a variety of variables, including sampling, population type, question format, content, response rate, expenses, and time required for data collection, may influence the decision to choose a particular survey method.

The responses collected from Google Forms were transferred to Excel spreadsheets for further analysis. After organizing and preparing the data in these spreadsheets, it was imported into Jamovi for the analysis. A common reason cited by those who chose not to participate was a lack of interest or being preoccupied with other commitments. The participants were duly informed about the purpose of the study. They were provided with reassurances regarding the security and

confidentiality of the data collected. Along with the questionnaire a request letter is attached with a detailed explanation of the study's rationale, as well as guaranteeing the participants' confidentiality and privacy. For reference, copies of the information sheet can be found in Appendices.

1.17.1 Data Analysis

In chapter 4, methods employed for the quantitative data analysis is discussed and illustrated. Jamovi software is being utilized to assess data reliability. Structural Equation Modelling (SEM) is employed as a comprehensive statistical technique to examine the intricate relationships among variables within the context of the DeLone and McLean (IS) model. SEM allows for the testing and validation of complex theoretical models, making it an ideal choice for assessing the interplay among latent constructs in the proposed IS model. Following the SEM analysis, Chapter 4 will proceed to Conduct Confirmatory Factor Analysis (CFA) using Jamovi software, designed specifically for the DeLone and McLean model. CFA is instrumental in evaluating how well the observed data aligns with the hypothesized factor structure, providing insights into the model's goodness of fit. This sequential approach, utilizing SEM followed by CFA, ensures a rigorous examination of the theoretical framework and enhances the study's validity and reliability by aligning the empirical findings with the established IS.

Following the completion of SEM and CFA in Chapter 4, a thorough reliability analysis was conducted to assess the robustness of the survey instrument employed in this study. This analysis aimed to gauge the internal consistency and dependability of the measurement tool, ensuring that it consistently measures the intended constructs. Reliability indicators such as Cronbach's alpha were computed to evaluate the extent to which the survey items within each construct converge and provide reliable measurements. Additionally, validity assessments were conducted to confirm that the instrument indeed measures the intended theoretical constructs, aligning with the DeLone and McLean IS model. The integration of SEM, CFA, and reliability analysis enhances the overall methodological rigor of this study, ensuring the accuracy and credibility of the findings obtained through the employed survey.

The examination of the impact of preceding constructs on the augmentation of HRIS utilization in banking and insurance companies was conducted through

multiple regression analysis, where HRIS adoption and usage served as the dependent variables. This analytical approach assesses the significance of each construct, considered an independent variable, in relation to the overall comprehensiveness of the envisaged HRIS model (Pallant, 2013). Additionally, a correlation analysis was performed to elucidate the relationships between various variables and describe their strengths and directions. Utilizing the Kendall Tau-b test, a non-parametric correlation was calculated for observed ranked variables and research variables. The dataset for this analysis was acquired from an online survey conducted through Google Forms, transferred to an Excel spreadsheet, coded, and then imported into Jamovi for further reliability analysis. This multifaceted analytical approach provides a comprehensive understanding of the relationships and contributions of individual constructs in shaping HRIS adoption and usage within the surveyed banking and insurance companies.

1.18 Research Objectives

The primary objective of this research is to examine the adoption and use of HRIS (Human Resource Information Systems) and its potential impact on the overall effectiveness of financial sectors specially banking and Insurance. In order to accomplish this aim, the study aims to attain the following specific objectives:

1. To study the current level of use and adoption of HRIS in banking and insurance sector.
2. To examine the appropriate dimensions of HRIS that influences the use and adoption of HRIS.
3. To propose a conceptual HRIS framework for examining the adoption and use of HRIS.
4. To test empirically the proposed conceptual framework of HRIS.
5. To identify the problem areas and difficulties in the adoption and use of HRIS.

The present study sets out with a comprehensive set of objectives aimed at advancing the understanding of the adoption and use of Human Resource Information Systems (HRIS) in the banking and insurance sector. In Chapter 3, the study addresses Objective 3 by proposing a robust conceptual framework for examining the adoption and use of HRIS. This conceptual framework serves as the

theoretical backbone for the subsequent empirical investigation. Moving to Chapter 4, the study delves into fulfilling Objectives 1, 2, and 4. Objective 1 is achieved by meticulously studying and analysing the current level of use and adoption of HRIS within the banking and insurance sector. Objective 2 is met through an in-depth examination of the dimensions of HRIS that exert influence on its use and adoption. Additionally, Objective 4 is tackled through empirical testing of the proposed conceptual HRIS framework, employing rigorous research methods to validate and refine the theoretical model. Finally, in Chapter 5, the study systematically presents the findings related to Objective 5, shedding light on the problem areas and difficulties encountered in the adoption and use of HRIS. Through a coherent and systematic structure, each chapter contributes to the overarching goal of enhancing insights into HRIS adoption in the specific context of the banking and insurance sector. The fulfilment of these objectives collectively enriches the academic discourse on HRIS, offering practical implications for organizations within this sector and beyond.

1.19 Hypotheses

Based on the laid research objectives, following hypotheses were proposed for analysis:

Hypothesis 1

H_o: Use of the HRIS is not expected to make a significant difference to the user satisfaction.

H_a: Use of the HRIS is expected to make a significant difference to the user satisfaction.

Hypothesis 2

H_o: Characteristics of the HRIS is not likely to significantly affect the user satisfaction.

H_a: Characteristics of the HRIS is likely to significantly affect the user satisfaction.

Hypothesis 3

H_o: Information quality of HRIS is not expected to significantly affect the user satisfaction.

H_a: Information quality of HRIS is expected to significantly affect the user satisfaction.

Hypothesis 4

H_o: Subjective norms of HRIS is not poised to significantly affect the user satisfaction.

H_a: Subjective norms of HRIS is poised to significantly affect the user satisfaction.

Hypothesis 5

H_o: Comparison of HRIS and Manual HR practices is not likely to significantly affect the user satisfaction.

H_a: Comparison of HRIS and Manual HR practices is likely to significantly affect the user satisfaction.

Hypothesis 6

H_o: User satisfaction is not expected to significantly affect the adoption of HRIS.

H_a: User satisfaction is expected to significantly affect the adoption of HRIS.

Hypothesis 7

H_o: Use of HRIS is not likely to positively affect the adoption of HRIS.

H_a: Use of HRIS is likely to positively affect the adoption of HRIS.

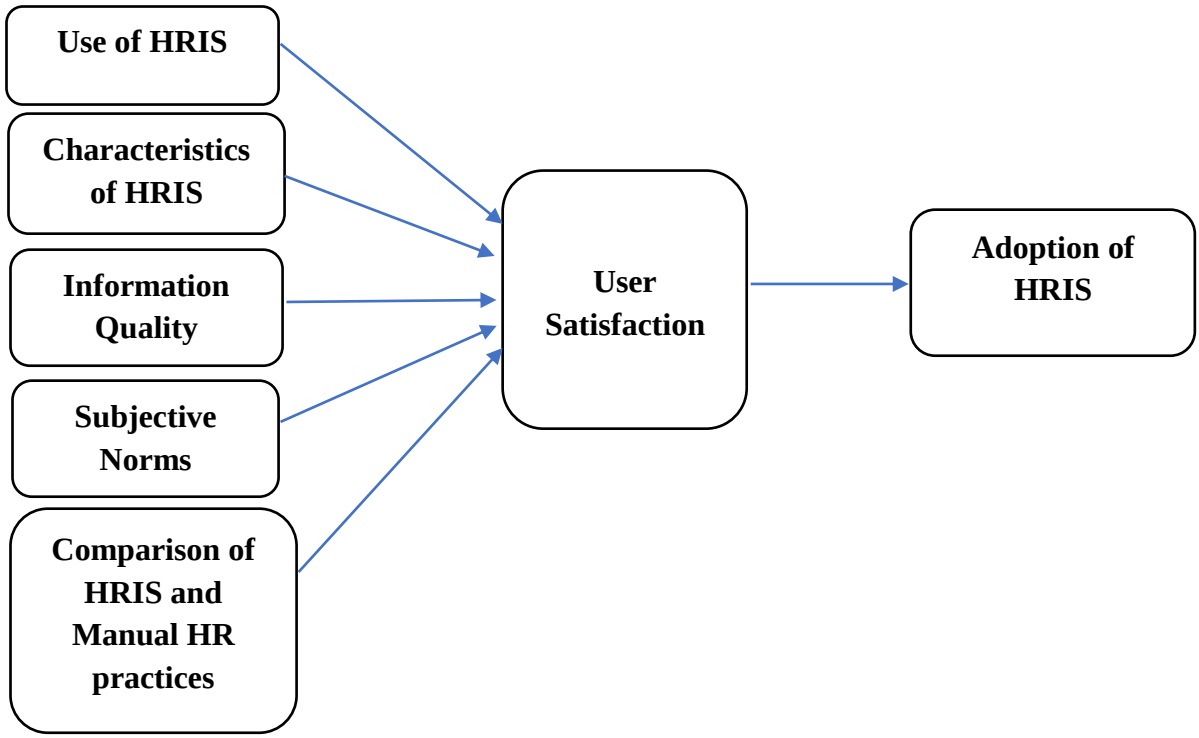
1.20 Proposed Conceptual Framework

To propose a conceptual HRIS framework for examining the adoption and use of HRIS *(Objective 3)*

The conceptual framework for this study is crafted on the foundation of the Delone and McLean Information Success Model. Delone and McLean's model has been widely recognized and utilized in the field of information systems research, providing a comprehensive and well-established framework for evaluating the success of information systems within various organizational contexts. The model encompasses key dimensions such as system quality, information quality, service quality, and user satisfaction, offering a holistic perspective on the factors influencing information success. The formulation of hypotheses within this study is intricately tied to the theoretical underpinnings of the DeLone and McLean model, aiming to empirically test and extend the understanding of the relationships between these dimensions. By leveraging this established model, the research endeavours to contribute valuable insights into the factors driving information success and their implications for organizational performance. Below figure 3.2 is the proposed conceptual framework offering a systematic approach to understanding the interplay

of factors that contribute to the effectiveness and overall success of HRIS in these industries.

Figure 1.2: Proposed conceptual framework



(Source: Researcher's own proposed framework)

Figure 1.2 represents a visual depiction of the researcher's conceptualization of the relationships and factors underpinning the adoption and use of HRIS in the specified industries, providing a clear and organized overview to understand the theoretical framework guiding the study.

1.20.1 Relationship between Proposed Framework and Hypotheses

The research hypotheses proposed in this study establish a comprehensive framework to investigate the intricate relationships between independent variables, including use of HRIS, characteristics of HRIS, information quality, subjective norms, and the comparison of HRIS with manual HR practices, and dependent variables such as user satisfaction and the adoption of HRIS. The conceptual framework of this study is intricately woven into the fabric of the Delone and McLean Information Success Model, a widely acknowledged and utilized model in information systems research. Delone and McLean's model provides a robust foundation, encompassing vital dimensions such as system quality, information quality, service quality, and user satisfaction. These dimensions collectively offer a

holistic view of the factors influencing information success within diverse organizational contexts. The hypotheses formulated in this study directly align with the theoretical underpinnings of the Delone and McLean model, seeking to empirically test and extend comprehension of the intricate relationships between these dimensions.

Hypotheses 1 to 6 specifically explore the impact of various factors, including the use and characteristics of the Human Resource Information System (HRIS), information quality, subjective norms, and the comparison of HRIS with manual HR practices, on user satisfaction. Additionally, Hypothesis 6 delves into the reciprocal relationship between user satisfaction and the adoption of HRIS. The hypotheses provide a structured basis for empirical testing, aiming to contribute valuable insights into the complex dynamics of HRIS adoption and usage in the specific context of the Indian banking and insurance industries. To complement these hypotheses, Hypothesis 7 introduces an additional dimension by investigating the direct influence of HRIS utilization on its overall adoption. Formulated with the null hypothesis (Ho) positing that the use of HRIS will not affect adoption and the alternative hypothesis (Ha) suggesting a positive impact, this hypothesis expands the scope of inquiry to specifically scrutinize the role of HRIS use in driving its broader adoption within the distinctive landscape of the Indian banking and insurance sectors.

1.21 Key Findings

Key findings refer to the central and pivotal results or discoveries derived from a research study or investigation. These findings present the essential outcomes and insights that answer the research objectives and hypotheses outlined at the beginning of the study. They represent the core contributions and significant observations that emerge from the data analysis or experimentation, providing a foundation for drawing conclusions and making suggestions.

1.21.1 Demographic profile: Section I & Section II

Section I: Part A

The findings from the demographic profile of the respondents reveal a diverse range of perspectives among employees in the banking and insurance industries. The analysis of general information, including gender, age, educational qualifications,

work experience, employment level, time spent on HRIS activities, and duration of HRIS usage, establishes a comprehensive foundation for understanding how various factors may influence perceptions and usage patterns of HRIS within the surveyed population. The data indicates a higher representation of males, a substantial presence of young adults, a varied educational background, and a diverse distribution of work experience and employment levels.

In terms of gender distribution, males encompass 62.8% of the sample, while females constitute 37.2%. The age dynamics reveal that nearly half of the population falls within the 18 to 30 age range, with subsequent age groups contributing to the cumulative distribution. Educational qualifications showcase a significant presence of graduate degree holders (61.0%) and postgraduates (35.0%), with a smaller group of undergraduates (3.6%) and a single individual with a doctorate (0.4%). Work experience distribution reflects a diverse professional background, with 47.7% having 1 to 5 years of experience, 25.6% with 6 to 10 years, and 15.5% with over 10 years. Employment levels illustrate a substantial presence of entry-level (38.6%) and middle-level (51.6%) professionals, with senior-level individuals constituting 9.7%. The time spent on HRIS activities indicates that 39.4% of respondents spend 1-5 hours, 9.0% invest 5-10 hours, 50.5% dedicate less than 1 hour, and 1.1% spend over 10 hours. The duration of HRIS usage reveals that 50.2% have been using HRIS for 1-5 years, 23.5% for 5-10 years, 12.3% for less than a year, and 14.1% for over 10 years. These demographic details collectively provide nuanced insights into the composition of the surveyed population.

Part B

Industry profile

Section II: close-ended questions

In the section on closed-ended questions, the findings reveal specific insights into HRIS implementation, documentation, and user satisfaction within the banking and insurance sectors. The data indicates a positive trend in the use of HRIS mobile applications, with 54.5% of respondents finding them convenient and easy to use. A significant 86.3% reported receiving assistance or training on HRIS, reflecting a widespread engagement in learning initiatives. The overwhelming majority (99.6%) affirm that their HRIS features and functions are well-documented, underscoring a

strong commitment to clarity and transparency. Regarding the presence of a separate HR department, 77.6% of respondents indicate its existence, while 22.4% report its absence, revealing variations in organizational structures.

It was observed that there is a weak positive or non-significant correlation between Assistance/Training on HRIS, HRIS well-documented, HRIS mobile application, and User Satisfaction indicating potential areas for improvement, possibly rooted in inadequacies in training programs, documentation processes, or mobile application functionalities. Possible reasons for these weak correlations could include inadequacies in the training programs, documentation processes, or mobile application functionalities. Additionally, organizational culture, employee preferences, and the specific context of these companies may contribute to the observed patterns. Further investigation and qualitative analysis may be conducted to uncover the detailed reasons behind these correlations and to inform strategies for improving HRIS and user satisfaction within these banking and insurance companies.

1.22.2 Model specification and Evaluation

The study systematically assesses the appropriateness of factor analysis and structural equation modelling (SEM) for the proposed Human Resource Information Systems (HRIS) conceptual framework. Initial evaluations using Kaiser-Meyer-Olkin (KMO) measure and Bartlett's Test of Sphericity confirm the dataset's suitability for factor analysis. Confirmatory Factor Analysis (CFA) explores the underlying structure, revealing substantial and statistically significant factor loadings across latent constructs. The model fit assessment, incorporating chi-square tests and fit indices (CFI, RMSEA, SRMR), suggests a moderate fit. Structural Equation Modelling (SEM) unveils intricate relationships within HRIS adoption and usage, highlighting correlations among variables such as age group, educational qualification, work experience, level of employment, and user satisfaction. Positive associations and detailed dynamics within HRIS components emerge, emphasizing the need for strategic approaches in the banking and insurance sectors. The findings validate the HRIS conceptual framework, affirming its robustness and applicability, with a comprehensive evaluation supporting the study's methodology and achieving its objectives.

1.23.3 Reliability analysis of the research instrument

The research instrument, comprising seven dimensions, underwent rigorous reliability analysis to assess the internal consistency and stability of measurements within each dimension. These dimensions, namely "Adoption and Usage of HRIS," "Use of HRIS," "Characteristics of HRIS Implemented," "Information Quality," "User Satisfaction," "Subjective Norms," and "Comparison of HRIS and Manual HR Practices," encompass diverse facets of the broader domain of HRIS within banking and insurance companies.

1.24.4 Correlation analysis of independent and dependent variables

The correlations involving User Satisfaction reveal nuanced relationships with other variables. The correlation between User Satisfaction and Level of employment is statistically significant, suggesting that job satisfaction is influenced by the level of employment. However, the correlation with educational qualification is not statistically significant, indicating that factors other than educational background may influence user satisfaction. The subsequent correlation matrix focuses on variables related to Assistance/Training on HRIS, HRIS well-documented, HRIS mobile application, and User Satisfaction. The findings suggest interesting associations: Assistance/Training on HRIS correlates positively with HRIS well-documented but negatively with HRIS mobile application. User Satisfaction shows weak relationships with these variables, implying that the effectiveness of assistance/training and the documentation of HRIS may not strongly predict user satisfaction. Additionally, a negative correlation between HRIS mobile application and User Satisfaction suggests that increased usage or effectiveness of the HRIS mobile application may slightly decrease user satisfaction.

The final section discusses the correlation matrix involving independent and dependent variables in the study. The variables, such as Adoption_Usage, Use_HRIS, Characteristics, Information_Quality, User_Satisfaction, Subjective_Norms, and ComparisonHRIS_ManualHR, are examined for their relationships. The correlations are generally positive and statistically significant, indicating strong associations among these variables. This paves the way for further analyses, including multiple linear regressions, to explore whether characteristics of HRIS, information quality, HRIS usage, subjective norms, and the comparison of

HRIS and manual HR practices serve as predictors for user satisfaction and HRIS adoption.

To enhance the robustness of statistical analyses, a test of normality was conducted, revealing that the variables in the study deviate from normal distributions. Despite the benefits of non-parametric tests for non-normal data, the researcher opted for parametric tests, specifically analysis of variance (ANOVA), to capitalize on their efficiency and sensitivity. The strategic choice aims to ensure that the statistical analyses conducted are robust and provide meaningful insights into the relationships and predictors within the HRIS adoption and usage context. Thus, the correlation and normality analyses contribute to a comprehensive understanding of the intricate dynamics at play in the study, laying the foundation for subsequent statistical investigations.

1.24.5 Regression Analysis

Level I: Analysis

The results of the regression analysis demonstrated that the combined influence of the independent variables explained a substantial portion of the variance in user satisfaction (R-squared = 0.668), and the overall model was statistically significant ($p < 0.001$). The analysis provided specific insights into the contribution of each predictor to user satisfaction. Notably, information quality, subjective norms, the comparison of HRIS with manual HR practices, and the use of HRIS exhibited statistically significant positive relationships with user satisfaction. However, characteristics of HRIS showed a marginally significant relationship ($p = 0.049$).

ANOVA was then employed to conduct a more in-depth analysis of the factors influencing the adoption of HRIS. The overall model test revealed a highly significant F-statistic (15.0370, $p < 0.001$), indicating that the combined influence of the independent variables significantly explained the variance in user satisfaction. Examining individual predictors, characteristics of HRIS, information quality, subjective norms, the comparison of HRIS with manual HR practices, and the use of

HRIS all contributed significantly to the model. Interaction terms between these predictors also showed varying degrees of significance.

The findings provide valuable insights into the dimensions of HRIS that significantly impact user satisfaction and adoption. The integration of subjective norms, HRIS characteristics, and the comparison of HRIS with manual HR practices in the model enhances the understanding of these relationships, offering practical implications for organizations seeking to enhance user satisfaction and facilitate the successful adoption of HRIS.

Level II: Analysis

The findings from second level analysis examine into predictors of the adoption of Human Resource Information Systems (HRIS) within the banking and insurance sectors. Utilizing regression analysis, the study primarily focuses on the relationship between Adoption_Usage and its predictor, User_satisfaction. The model demonstrates a significant fit to the data, with an R-squared value of 0.222, indicating that user satisfaction plays a crucial role in HRIS adoption. The intercept is 0.944, and User_satisfaction emerges as a highly significant predictor ($p < 0.001$), highlighting a substantial positive effect on Adoption_Usage with increasing user satisfaction levels.

Additionally, the study explores the direct influence of HRIS utilization on adoption. The linear regression analysis for Hypothesis 7 indicates a statistically significant model (F-statistic of 50.8, $p < 0.001$), explaining 15.6% of the variance in Adoption_Usage. The positive coefficient (0.616, $p < 0.001$) for Use_HRIS suggests that increased utilization is associated with higher levels of Adoption_Usage. These results, supported by a significant t-statistic of 7.13, affirm that the use of HRIS is a substantial predictor of HRIS adoption.

1.25 Accepting the Low R-squared and Adjusted R-squared value

The significance of R-square (R^2) and adjusted R-square in regression analysis cannot be overstated when assessing the goodness of fit of a model (Gujarati et al., 2012). While R-square measures the proportion of variance explained by independent variables, its limitations, such as susceptibility to inflation with additional variables, are acknowledged (Sarstedt and Mooi, 2011; Kumar, 2023). The

social sciences, dealing with human behaviour, exhibit varied R-squared expectations; however, values below 0.10 are generally deemed insufficient, and those between 0.50 and 0.99 are considered acceptable (Ozili, 2023). Adjusted R-square, adjusting for sample size and independent variables, provides a more reliable measure of explanatory power (Sarstedt & Mooi, 2011; Kumar, 2023). Interpreting R-squared values in the social sciences demands consideration of the unpredictable nature of human behaviour, making modelling an imperfect science (Ozili, 2023). Scholars like Cohen (1988), Field (2013), and Hinkle et al., (2003) offer differing categorizations of R-squared values in behavioural and social sciences. Despite the challenges, a low R-squared doesn't negate model robustness if individual variables are statistically significant.

Applying these principles to a regression model examining HRIS adoption reveals that the predictors "User Satisfaction" and "HRIS Usage" have moderate explanatory power ($R^2 = 0.222$, Adj $R^2 = 0.219$, and $R^2 = 0.156$, Adj $R^2 = 0.153$, respectively). Hypotheses 6 and 7, relating to the impact of user satisfaction and HRIS usage on adoption, are accepted, indicating their significance in shaping HRIS integration. These findings contribute valuable insights to the intricate dynamics of HRIS adoption, aiding informed decision-making in human resource management and technology integration (Field, 2013; Hinkle et al., 2003).

1.26 Conclusion based on the findings

The key findings of this research work encompass a comprehensive understanding of the demographics and industry profiles within the banking and insurance sectors. The demographic profile revealed diverse perspectives among employees, with notable representations of males, young adults, varied educational backgrounds, and a range of work experience and employment levels. The industry profile highlighted the presence of HRIS users in both private and public banking institutions, showcasing a diversity of operations and technological preferences. The section on closed-ended questions delved into HRIS implementation, documentation, and user satisfaction, uncovering positive trends in mobile application usage, widespread engagement in learning initiatives, and strong documentation practices. Correlation analyses unveiled intricate relationships among variables, emphasizing the interplay between demographic factors, user satisfaction, and HRIS dimensions.

The model specification and evaluation, the study systematically assessed the appropriateness of factor analysis and structural equation modelling (SEM) for the proposed HRIS conceptual framework. The results confirmed the robustness and applicability of the conceptual framework, emphasizing the intricate relationships within HRIS adoption and usage. The reliability analysis of the research instrument ensured the internal consistency and stability of measurements, affirming the reliability of the survey items across different dimensions. Correlation analyses provided insights into the complex dynamics between variables, paving the way for subsequent statistical investigations.

Regression analyses at two levels explored the dimensions influencing HRIS adoption and the predictors of adoption within the banking and insurance sectors. The findings revealed that user satisfaction and HRIS usage had moderate explanatory power in the model, underscoring their significance in shaping HRIS integration. Accepting the low R-squared values, as guided by principles in the social sciences, emphasized the importance of individual variable significance in model robustness.

The analysis contributes valuable insights to the refined dynamics of HRIS adoption, offering practical implications for organizations seeking to enhance user satisfaction and facilitate successful technology integration in the realm of human resource management. The findings underscore the complexity of factors influencing HRIS dynamics and emphasize the need for strategic approaches within the banking and insurance sectors.

1.26.1 Exploring Weak Correlations in HRIS Implementation

The analysis aligns with critical pain points encountered by HR and finance professionals in utilizing HRIS software. The pain points include issues such as complicated user interfaces, slow troubleshooting, lengthy deployment times, and challenges with cross-border payroll compliance. The pain points underscores the demand for multi-device access and feature customization to enhance user experience and productivity. Moreover, concerns regarding data security and integration with emerging technologies like AI and IoT are evident. Addressing these pain points through improved user experience, enhanced security measures, and technological integration can significantly enhance the effectiveness and efficiency

of HRIS software in addressing the diverse needs of organizations (Chandroday, 2021).

1.26.2 Navigating Hurdles in HRIS Adoption: Unveiling Challenges

The study examines into the intricacies faced by employees in government insurance companies, uncovering noteworthy challenges that impede the seamless integration of HRIS into daily operations. Two primary hurdles emerge from the comprehensive analysis: the first pertains to the accessibility constraints encountered by employees, particularly in terms of limited access to HRIS mobile applications. This compels reliance on office desktops, creating difficulties as employees' endeavours to find convenient moments for HRIS updates. The second challenge centres around training disparages among employees with mobile app access, highlighting a gap that threatens to compromise the effectiveness of identified predictors in HRIS adoption. As navigating through these challenges, the researcher illuminates the pressing need for targeted strategies to enhance accessibility, bridge training gaps, and foster a more inclusive and user-friendly HRIS landscape in government insurance companies.

I. **Accessibility Challenges in Government Insurance Companies**: The research findings shed light on a significant barrier to the adoption of Human Resource Information Systems (HRIS) in government insurance companies—employees' limited access to mobile applications. A prevalent practice is the reliance on office desktops for HRIS updates, posing challenges as employees seek convenient times for information input. This limitation underscores the need for strategic interventions to enhance accessibility and streamline the HRIS updating process.

II. **Training Disparities for Mobile App Users:** Another notable observation from the study is the disparity in training facilities for employees with access to the mobile app of HRIS. While the study identifies characteristics of HRIS, use of HRIS, information system, subjective norms, and comparison as effective independent variables in HRIS adoption, the effectiveness of these predictors may be compromised without proper training. Addressing this training gap becomes crucial for maximizing the potential benefits offered by HRIS.

III. **Intranet vs. Internet Usage:** In the context of government insurance companies, a distinct challenge arises with employees expressing a preference for using intranet over the internet. The need to update information solely on office desktops contributes to this preference. This poses a dilemma as it restricts employees' flexibility and convenience, hindering the seamless integration of HRIS. Exploring solutions to bridge this accessibility gap is paramount for ensuring widespread adoption and engagement.

IV. **Absence of a Dedicated HR Department:** Compounding the accessibility issues is the absence of a dedicated HR department in certain insurance companies. This absence deprives employees of a centralized support system for HRIS operations. The lack of a resource to seek assistance hampers the overall user experience and may contribute to inefficiencies in HRIS utilization. The establishment of support mechanisms becomes imperative to address queries and challenges faced by employees.

Implications for HRIS Adoption Strategies

Despite the model's significance and the effectiveness of identified predictors, the study unveils critical challenges that necessitate targeted strategies for HRIS adoption in government insurance companies. Crafting comprehensive initiatives to enhance accessibility, provide tailored training programs, address the intranet-internet usage dilemma, and establish supportive structures like HR departments can fortify the foundation for successful HRIS integration.

Recommendations for Overcoming Accessibility Hurdles

To overcome the identified accessibility hurdles, recommendations include exploring mobile-friendly solutions, implementing flexible HRIS access policies, and instituting targeted training programs. Additionally, facilitating a smooth transition from desktop-centric to mobile-enabled HRIS updates can contribute to improved employee satisfaction and operational efficiency.

The study not only highlights the significance of various predictors in HRIS adoption but also underscores the pivotal role of addressing accessibility challenges for a holistic and effective implementation. Tailoring strategies to the unique context of government insurance companies is essential to unlock the full potential of HRIS and ensure its seamless integration into daily workflows.

1.27 Suggestion to the financial institutions/organizations

Based on the comprehensive findings and analyses, several suggestions can be made to enhance the adoption and utilization of Human Resource Information Systems (HRIS) within the banking and insurance sectors. These suggestions aim to address challenges and promote a more seamless integration of HRIS into organizational structures. These suggestions are tailored to the specific nuances uncovered in the study and are designed to guide organizations and decision-makers in optimizing the adoption and utilization of HRIS within the dynamic landscape of human resource management in the banking and insurance sectors.

I. **Training and Development Programs:** Develop and implement training and development programs for employees at all levels. The positive trend in the use of HRIS mobile applications suggests a willingness to engage with technology. Enhancing the effectiveness of training programs can further boost user confidence and proficiency in HRIS usage.

II. **Documentation Enhancement:** While the majority of respondents reported that their HRIS features and functions are well-documented, continuous efforts should be made to enhance the clarity and comprehensiveness of documentation. This can contribute to a more positive user experience and potentially improve user satisfaction.

III. **User Support Mechanisms:** Recognize the importance of user support mechanisms, especially in the context of HRIS mobile applications. Since there is a weak correlation between HRIS mobile application usage and user satisfaction, organizations may need to explore and address potential issues related to mobile application functionalities.

IV. **Organizational Culture and Structure:** Given the variations in the presence of a separate HR department and organizational structures, organizations should assess their specific contexts and consider aligning

HRIS implementation with their unique cultures. Understanding how organizational culture influences HRIS dynamics can aid in tailoring strategies for successful adoption.

V. **Strategic HRIS Implementation:** Organizations should strategically align HRIS implementation with organizational goals and objectives. The correlations between various dimensions of HRIS and user satisfaction highlight the need for a holistic and strategic approach. This may involve customizing HRIS solutions to meet specific organizational needs.

VI. **Continuous Monitoring and Adaptation:** Establish mechanisms for continuous monitoring and adaptation based on user feedback and evolving technology trends. The weak correlations observed in certain areas suggest the need for ongoing assessments and adjustments to ensure that HRIS remains aligned with user expectations and organizational requirements.

VII. **In-Depth Qualitative Analysis:** Consider conducting in-depth qualitative analysis to uncover nuanced reasons behind observed correlations and patterns. This can involve gathering insights directly from employees through interviews or focus group discussions, providing a deeper understanding of the factors influencing HRIS adoption.

VIII. **Promotion of Collaboration and Communication:** Encourage collaboration and communication between different levels of employees, especially considering the variations in work experience and employment levels. This can contribute to a more inclusive and collaborative HRIS implementation process, taking into account diverse perspectives and needs.

IX. **Benchmarking and Best Practices:** Explore industry benchmarking and best practices in HRIS implementation. Understanding how other organizations in the banking and insurance sectors have successfully addressed similar challenges can provide valuable insights and inform strategies for improvement.

X. **Flexibility and Adaptability:** Foster a culture of flexibility and adaptability to accommodate the dynamic nature of HRIS technology. This includes staying informed about emerging trends, regularly updating

systems, and remaining open to innovative solutions that can enhance HRIS functionality and user satisfaction.

1.28 Limitations of the study

The study was conducted acknowledging the following limitations:

- **Scope limitation:** This study solely focuses on the adoption and usage of Human Resource Information Systems within the banking and insurance companies in India. Other aspects of HRIS implementation or different industries are not considered, limiting the breadth of the study.
- **Generalizability**: The findings of this study may not be applicable to organizations outside the banking and insurance sectors in India. The limited focus on these specific industries restricts the generalizability of the research findings to other sectors.
- **External validity:** The findings of this study may not be applicable to organizations operating in different cultural, regulatory, or economic contexts outside of India. The specific conditions prevalent in the Indian banking and insurance sectors might limit the external validity of the research findings.
- **Time constraint:** The researchers faced time constraints during the study, which could have impacted the depth and thoroughness of data collection and analysis. This limitation may have restricted the comprehensiveness of the findings and potential insights that could have been gained with more time.
- **Data collection methods:** The study relied on specific data collection methods, such as surveys or interviews, which may have inherent limitations, such as response bias or subjectivity. The reliance on these methods may impact the reliability and validity of the findings.

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