Project Dissertation Report on

"A BIBLIOMETRIC RESEARCH ON CLOUD COMPUTING AND HRM & FACTORS INFLUENCING ADOPTION OF CLOUD BASED ON HRMS AT HCL TECHNOLOGIES LIMITED"

Submitted By

Aakriti Verma

2K20/DMBA/02

Under the Guidance of

Dr. Abhinav Chaudhary

(Professor, DSM)

DELHI SCHOOL OF MANAGEMENT

Delhi Technological University

Bawana Road, Delhi 110042

CERTIFICATE

This is to certify that the dissertation report titled **"A BIBLIOMETRIC RESEARCH ON CLOUD COMPUTING AND HRM & FACTORS INFLUENCING ADOPTION OF CLOUD BASED ON HRMS AT HCL TECHNOLOGIES LIMITED"** is a bonafide work carried out by **Ms. Aakriti Verma** of MBA 2020-22 and submitted to Delhi School of Management, Delhi Technological University, and Bawana Road, Delhi-42 in partial fulfillment of the requirement for the award of the degree of Master of Business Administration.

Signature of Guide
(DSM)

Signature of HOD

Place:

Seal of HOD

Date:

DECLARATION

I, Aakriti Verma, student of MBA 2020-22 of Delhi School of Management, Delhi Technological University, Bawana Road, Delhi – 42, hereby declare that the dissertation report "**A BIBLIOMETRIC RESEARCH ON CLOUD COMPUTING AND HRM & FACTORS INFLUENCING ADOPTION OF CLOUD BASED ON HRMS AT HCL TECHNOLOGIES LIMITED**" submitted in partial fulfillment of Degree of Master of Business Administration is the original work conducted by me.

The information and data given in the report is authentic to the best of my knowledge.

This report is not being submitted to any other University, for award of any other Degree, Diploma or Fellowship.

PLACE: **AAKRITI VERMA**

DATE:

ACKNOWLEDGEMENT

It is my pleasure to acknowledge many people who knowingly and unwittingly helped me to complete my project.

First of all, let me praise God for all the blessings, which carried me through all those years. First & foremost, I would like to express my regards to **Dr. Abhinav Chaudhary** for constant encouragement and support. I would also like to express my immense gratitude towards all the lecturers at our college for providing the invaluable knowledge, guidance, encouragement extended during the completion of this project.

I extend my sincere gratitude to all my teachers and guide who made unforgettable contribution. Due to their sincere efforts, I was able to excel in the work entrusted upon
me.

Aakriti verma

Abstract

Cloud Computing is one of the technologies that has ushered in a paradigm shift in the realm of elastic IT. Cloud Computing, according to industry analysts, is one of the most discussed subjects in companies throughout the world today. The present study aims to analyze the research contribution in cloud computing and Human Resource Management (HRM) from 2012 to 2021 and presents a systematic review of literature to identify the gaps in the present literature on this subject to discover the future agenda for research. The data was collected from Scopus database using “cloud Computing” and “HRM” keywords and limited to articles' final publications. The study analyses many bibliometric parameters like; year-wise distribution of publications; most productive authors, titles, sources and citation counts. Co-occurrence map of author keywords/terms from articles through VOS viewer and discusses the future agenda for research in this area. The purpose of this study is to identify not only a gap in the cloud computing literature, but also managerial trends and interest in the field. The outcomes of this study may aid management in their efforts to incorporate cloud computing into their firms' human resource departments in order to improve decision-making processes. As a result, the findings of this study may serve as a guideline for managers or the policy makers in the global context, particularly in terms of information management. As a result, this research can help managers in their attempts to improve their organizations' competitive advantages using cloud computing in Human resource management.

Key words: - Bibliometric**; Cloud** computing; HRM; Scopus Database; VOS Viewer; PRISMA

TABLE OF CONTENTS

Chapter	Title	Page No.
1	**Introduction**	
1.1	Problem Statement	
1.2	Objectives	
2	**Material And Methods**	
2.1	Selection Strategy	
2.2	Selection criteria	
2.3	Quality Assessment	
2.4	Extraction	
2.5	Sampling	
3	**Company Profile**	
3.1	Vision Statement	
3.2	Mission Statement	
4	**Discussion and Analysis**	
4.1	Bibliometric Analysis	
4..1.1	Status of published articles on HRM and Cloud Computing	
4.1.2	Prolific Authors	
4.1.3	Top Institutions Publishing Articles on Cloud Computing and HRM	
4.1.4	Document by Country/Territory	

4.1.5	Co-occurrence map of author keyword/terms	
4.2	Analysis Based on factors Influencing Adoption of Cloud Based HRMS at HCL Technologies limited.	
4.2.1	Adoption of Cloud-Based HRMS	
4.2.2	Organizational Factors	
4.2.3	Technological Factors	
4.2.4	External Factors	
5	**Conclusion**	
	References	
	Annexure	

CHAPTER 1
INTRODUCTION

1 Introduction

In the twenty-first century, information technology has ushered in a revolution. This is the era defined by the advancement of computer technology and other new and sophisticated technologies. These technologies assist humans in completing tasks in a more timely and effective manner. Cloud Computing is one of the technologies that has ushered in a paradigm shift in the realm of elastic IT. Cloud Computing, according to industry analysts, is one of the most discussed subjects in companies throughout the world today. The term "cloud computing" is not a new one. The technology has been around for over a decade. And since it has so much to give, no industry has been able to stay away from it. As the personnel management informatization progresses, there is an increasingly high demand for statistical analysis of data , therefore the optimization of data and processing has seen an upward trend of HRM design and development(Wang et al., 2016).

To deal with an increasingly complicated environment characterized by increased globalization, fast technical advancement, a knowledge-based economy, and performance restrictions (Teo et al., 2007; Bondarouk & Ruël, 2009; Waheed et al., 2020) , the human resources department's job has shifted significantly (Parry, 2011). In addition, information technology has pervaded all aspects of human resource management (Bondarouk & Rul, 2009). The fast expansion of the Internet (Strohmeier, 2007) and the relevance of technology in various fields of work (Saleh & Saleh, 2016) have further aided this transformation and opened the way for e-HRM deployment and acceptance inside enterprises (Strohmeier, 2007). Importantly, with the help of cloud computing technology, small businesses can achieve the same level of management as large enterprises. (Attaran and Woods,2019)

Cloud computing has had a significant impact on HR technology. More and more businesses are migrating to cloud-based HR solutions, utilizing their capabilities to better manage resources and save money. On a worldwide scale, the HR cloud is boosting organizational efficiency and productivity. HR executives are the driving force behind making HR operations more efficient and encouraging firms to embrace technology-based solutions (Indranil, 2011; Polen, 2009). The usage of cloud-based computing for HR procedures is still in its early stages (Willcocks, Venters & Whitely, 2013).Despite the ubiquity of social media and online recruitment, the majority of HR departments have yet to incorporate new technologies or standardize the use of Cloud-Based Computing for HR activities, including interviewing, screening, and performance monitoring (Bohnert & Ross, 2010; SHRM, 2011; Sprague, 2011; Weiss, 2011). Cloud computing allows users to access a wide range of information and communication technology services over a service provider's network (Athale, Barde, Kamble, Mirajkar, & Singh, 2012; Ross, 2011).

Cloud-based computing is replacing traditional software installs, transforming business processes and increasing company value (Athale et al., 2012). Despite the broad consensus that cloud solutions solve important challenges that may influence Human Resource Management (HRM)

and overall organizational performance, HR professionals are cautious about standardizing the usage of Cloud-Based Computing in traditional HR procedures (Deloitte, 2010; Starner, 2011).

This decade has seen a considerable amount of cloud computing and HRM research, with the objective of future advancement and development, and the results have been widely published. Despite the rapid expansion of cloud computing and HRM research, publishing, and popularity, there appears to be a gap in the mapping.

The current study aims to identify the research papers published in the area of cloud computing in Human Resource Management (HRM). First the aspect related to the literature on HRM and Cloud computing was searched that allowed us to gain an insight into the subject. The second stream of literature focused on gauging the gap areas and exploring the possibility of future research in the area. The literature was mapped with a view to understand the past literature and discuss the future possibilities/agenda for research**.**

1.1 Problem Statement

In the field of information technology, cloud computing is a relatively new approach. Cloud computing technology is already being used by small and medium-sized organizations because it offers them with easy access to IT resources at a low cost. Many large IT infrastructures and systems, however, have yet to adopt this technology owing to technological, cultural, and organizational constraints. Cloud computing use is still limited in the administration of HR duties.

For decision-making, businesses rely largely on cloud-based HRMS. It's critical to convince stakeholders of the benefits of a cloud-based HRMS. Companies must be convinced of the benefits of a Cloud-based HRMS before using one, according to Ngai and Wat (2014). As a result, evaluating the potential advantages of technology in HRM has become one of the key issues for both HR practitioners and scholars in this sector. The impact of technology on HRM may be classified into two areas, according to the literature: (1) impact on the efficiency with which HR operations are provided, and (2) impact on the role of the HR function itself.

HRMS reduces manual processing from 5.9% to 0.1 percent and provides access to online leave transactions and online info Slips, which give employees with a more interactive compensation than a traditional paper pays lip. Employees, managers, and users may access data from several locations in real time. Despite the fact that HRMS would solve a number of HR department problems in a company, resulting in lower money and other resource expenditures and, as a result, improved business performance, county governments have yet to embrace cloud-based HRMS (Kiai 2013). Furthermore, the challenges that cloud computing implementation encounters are under-emphasized.

1.2 Objectives

The goal of this investigation was to look at the elements that influence HCL Technologies' adoption of a cloud-based human resource management system.

- To identify the future possibilities of research in this area bibliographic research will be conducted.
- To demonstrate the impact of organizational variables on HCL Technologies' adoption of cloud-based human resource management solutions.
- To look at the impact of technical components on the implementation of cloud-based human resource management systems in the workplace.
- To assess the influence of the external environment on cloud-based human resource management system adoption.

CHAPTER 2
MATERIAL AND METHODS

2 Materials and Methods

Research Methodology

The research methodology section discusses bibliometric analysis and systematic literature review. This section has been divided into four subsections viz. Selection strategy; selection criteria; Quality assessment and data extraction. These subsections talk about the steps in bibliometric analysis. It was then followed by Systematic literature review wherein the already existing literature was mapped to identify the future possibilities of research in this area.

Quantitative research was also conducted to analyze the factors which are influencing adoption of cloud based human resource management systems at HCL Technologies with the help of the questionnaire.

2.1 Selection strategy

To conduct the bibliometric analysis of the published research papers on "Cloud computing and HRM", Scopus database was used. With the help of the following search strategy on Scopus database, the keywords used were "Cloud computing" and "HRM"; Cloud computing and Human resource management. A total of 29 articles were obtained on the Scopus database. This step was followed by the selection criteria determination.

2.2 Selection criteria

A total of 29 articles were published in this area within the time span of (9 years) 2011 - 2021.The standard PRISMA framework for the bibliometric analysis was used . PRISMA framework is a widely acclaimed reporting mechanism for Systematic literature review. The research endeavored to focus on a very particular set of research keywords. Information such as Author, Title, Year, Source, Affiliation, Abstract, Publication, citation, index keywords etc. were downloaded on MS-Excel for further Analysis. VOS viewer software was used for visualization presentations for constructing and visualizing the bibliometric networks.

2.3 Quality assessment

The analysis was limited to articles, conference papers and reviews. Applying the PRISMA framework, the number of articles published were 29, however after the quality assessment of the papers, 25 papers were considered for the study. For ensuring the quality of review, duplications were duly checked . Since the number of research papers was less, it was easier to go through each and every paper insightfully. The exclusion criteria was to limit the papers to English language only . There was no duplication recorded. Furthermore, after carefully assessing the articles, a total of 25 articles were considered. The questionnaire was floated among the employees of HCL technologies and responses were collected to take the research ahead.

2.4 Extraction

In this paper, the characteristics of data extraction were

a. Articles must be and articles, conference papers and reviews
b. The language should be English only

Based on the detailed analysis and review of the research papers included in the study, this paper presents testable propositions in the form of a future agenda for research and an overview of the factors which can influence the adoption of cloud based computing.

2.5 Sampling:-

- *Sampling frame:* the respondents are the employees of HCL Technologies limited.
- *Sampling Unit:* The sample unit is an individual employee from the HR Department.
- *Sample size:* sample size taken for this study is 25 employees covering the entire HR department of the organization.

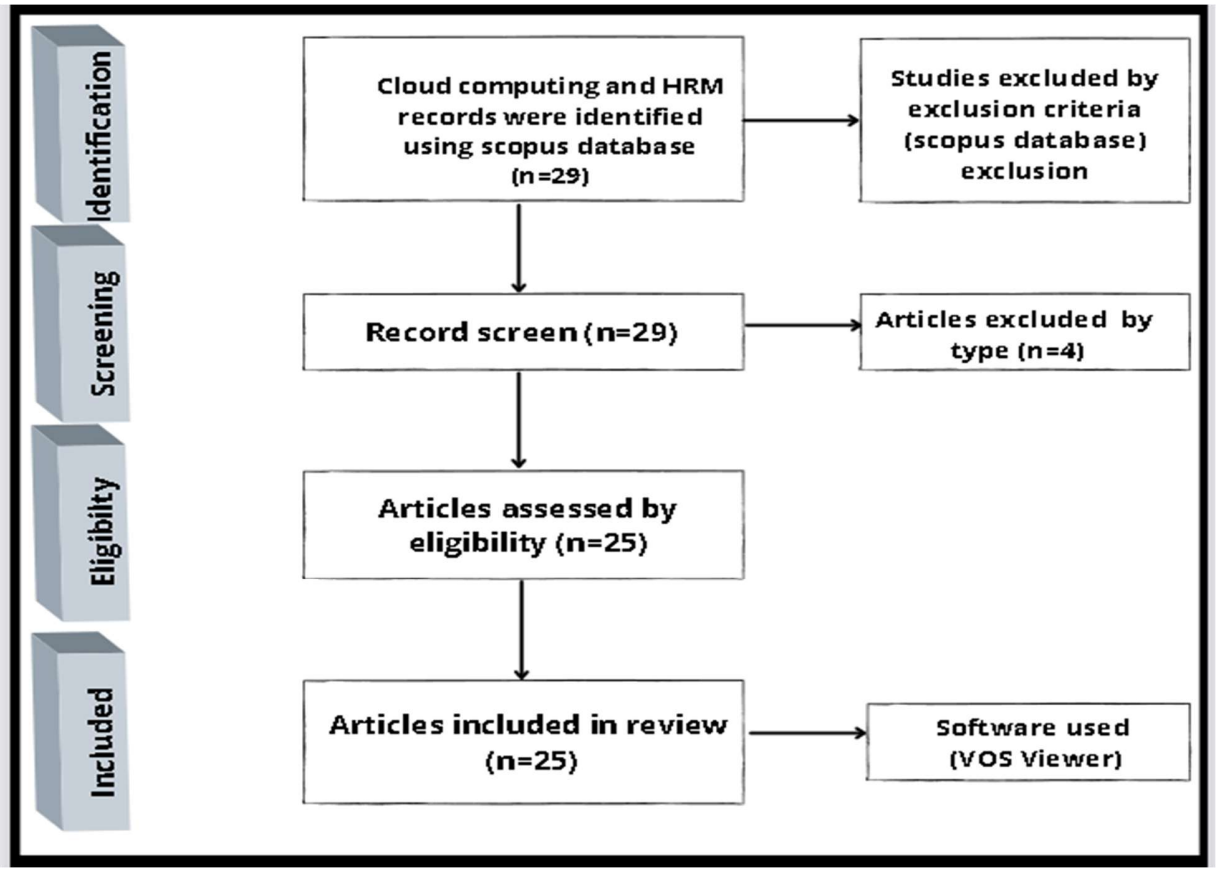


Fig1.Preferred reporting items for Bibliometric review framework-PRISMA framework (an overview of the selection process)

Fig1.shows Preferred reporting items for systematic review framework-PRISMA framework(Moher et al., 2019). This framework helps in reducing the bias risk. PRISMA framework is a widely used reporting mechanism for Systematic literature review. After carefully following the PRISMA framework for research, the literature was classified on the basis of context; focus; theory ; sample size; setting; segment and methodology and inferences were drawn thereon. PRISMA approach used in the study included 4 steps viz. Identification; screening; eligibility and Inclusion of the research paper for study. First , the research papers were identified using the SCOPUS database. Then they were screened followed by their eligibility check and finally inclusion in the review of literature.

CHAPTER 3
COMPANY PROFILE

3. Company Profile: -

HCL Technologies is an international next-generation technology company that helps companies transform their businesses into the digital age. Our technology products and services are underpinned by 40 years of innovation, including a world-renowned management philosophy, a strong culture of creativity and risk-taking, and an ongoing focus on customer dialogue. HCL is also proud of its various initiatives in the areas of diversity, social responsibility, the environment and education. HCL's global network of R & D facilities and joint innovation labs, global delivery capabilities, and more than 208,000 "entrepreneurs" in 52 countries make it a leader in all industries, including 250 Fortune 500 companies and 650 Global 2000 companies. We provide comprehensive services.

Businesses in a variety of industries are presently at a fork withinside the road. Analytics, cloud, IoT, and automation are on the reducing fringe of what it takes to flourish withinside the virtual age. HCL affords a complete set of services and products throughout 3 enterprise regions to assure that organizations get the maximum out of those technology a good way to gain their objectives. The 3 regions are IT and enterprise services (ITBS), engineering and studies and improvement services (ERS), and merchandise and platforms (P&P) (P&P).

ITBS helps global enterprises transform their businesses through digital foundations, modern infrastructure stacks built on hybrid clouds, software-defined networking, digital workspaces and more. A combination of digital business, our application services and consulting capabilities. A tripartite digital operation for modernized and efficient enterprise-level operations.

ERS provides engineering services and solutions for all aspects of product development and platform engineering. The

HCL's P & P segment provides global customers with updated software products to meet the needs of technology and industry.

The complete Mode 123 strategy, which helps organizations easily navigate the digital world, serves as the backbone of these three business categories. This is an important part of our Digital Enterprise 4.0 strategy, which aims to provide our customers with comprehensive services that meet their current technical needs while preparing for the future.

The company's core innovation DNA, embedded culture of innovation, and transcendental history to create customer value are clear in identifying it uniquely and delivering value to businesses in the digital and connected world. Brings benefits.

US$ 11.48 BN
REVENUE

OVER 157
NATIONALITIES

OPERATING IN 52
COUNTRIES

208,000+
IDEAPRENEURS

3.1 VISION STATEMENT

Their vision is to become a global leader in IT solutions and services. We strive to exceed our clients' expectations and create an atmosphere where all employees can thrive in a collaborative, high-performance environment.

3.2 MISSION STATEMENT

❖ Maintaining the highest level of integrity and integrity in our business. We provide a level of service and support that you can confidently consider us as the solution provider of your choice.

❖ Create a workplace that values the knowledge, contributions, and teamwork of important employees.

❖ Customers, employees, and employees receive creative, professional, and personalized service.

❖ We meet the needs of those who are the subject of our commitment.

CHAPTER 4
DISCUSSION AND ANALYSIS

4. Discussion and Analysis

4.1 Bibliometric analysis

The method of Bibliometric analysis uses" bibliographic data " from various sources of data available online. This analysis has its roots deeply embedded on the data that allows scientific enquiry and research. This method is a widely acclaimed one and has been used extensively in several pieces of research. Different tools such as "opens source software" such as bibliometrics can be used for augmenting such reviews. In this case, VOS Viewer is used for furthering the bibliometric analysis. This section presents the status of published articles on HRM and cloud computing; Status of published articles on HRM and cloud computing; Top Institutions publishing articles on cloud computing and HRM; document by country/ territory; Co-occurrence map of author keywords/terms.

4.1.1 Status of published articles on HRM and cloud computing

Information pertaining to 25 articles were culled from Scopus database. The analysis was done for the past 9 years from 2012-21, but the actual augmentation in the area of research was visible from 2019-2021.

Table 1 shows the results of the above-mentioned search technique, which yielded 25 articles. The table below shows the distribution of research articles by year. The highest of 6 (24%) articles were published in the years 2019 and 2020, followed by 3 (12%) articles in 2012, and the minimum of 1 (4%) articles were published in 2013,2014,2016, and 2018. Table 1 and fig. 1 illustrate the overall year-by-year distributions of publications.

Table 1: ***Status of published articles on HRM and cloud computing***

Year	Articles	%
2012	3	12
2013	1	4
2014	1	4
2015	0	0
2016	1	4
2017	2	8
2018	1	4
2019	6	24
2020	6	24
2021	4	16
Tot7al	**25**	**100**

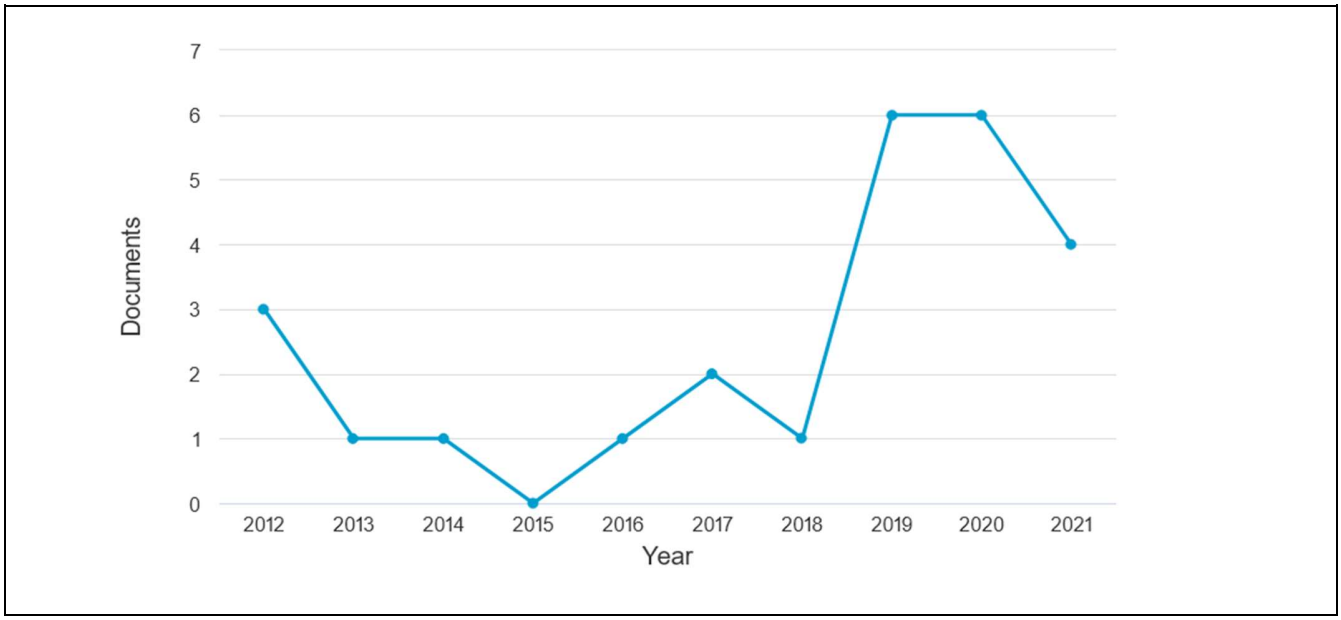


Fig 2. Published articles on cloud computing and HRM

4.1.2 Prolific Authors

The research contributions in the area of Cloud computing and HRM during the period were made by a total of15 authors . The most prolific writers in cloud computing and HRM research from 2012 to 2021 were Burhanuddin, M.A., Doheir, M., Elzamly, A., Ghani, M.K., and Hamad, Y. , contributing 2 papers each , with Albors-Garrigos, J., Alghamdi, S.A., Alghamdi, S.A., Azhdari, G., Bagga, T., Bi, Z., Biswas, S., Blumenstein, M., Chatterjee, S., Damasevičius, R. contributing one research paper in the area.

Table 2*: Prolific authors in the area of Cloud computing in Human Resource Management*

S.No.	**Authors**	**Articles**
1	Burhanuddin, M.A.	2
2	Doheir, M.	2
3	Elzamly, A.	2
4	Ghani, M.K.	2
5	Hamad, Y.	2
6	Albors-Garrigos, J.	1
7	Alghamdi, S.A.	1
8	Azhdari, G.	1
9	Bagga, T.	1
10	Bi, Z.	1
11	Biswas, S.	1
12	Blumenstein, M.	1
13	Bulama, Y.	1
14	Chatterjee, S.	1
15	Damasevičius, R.	1

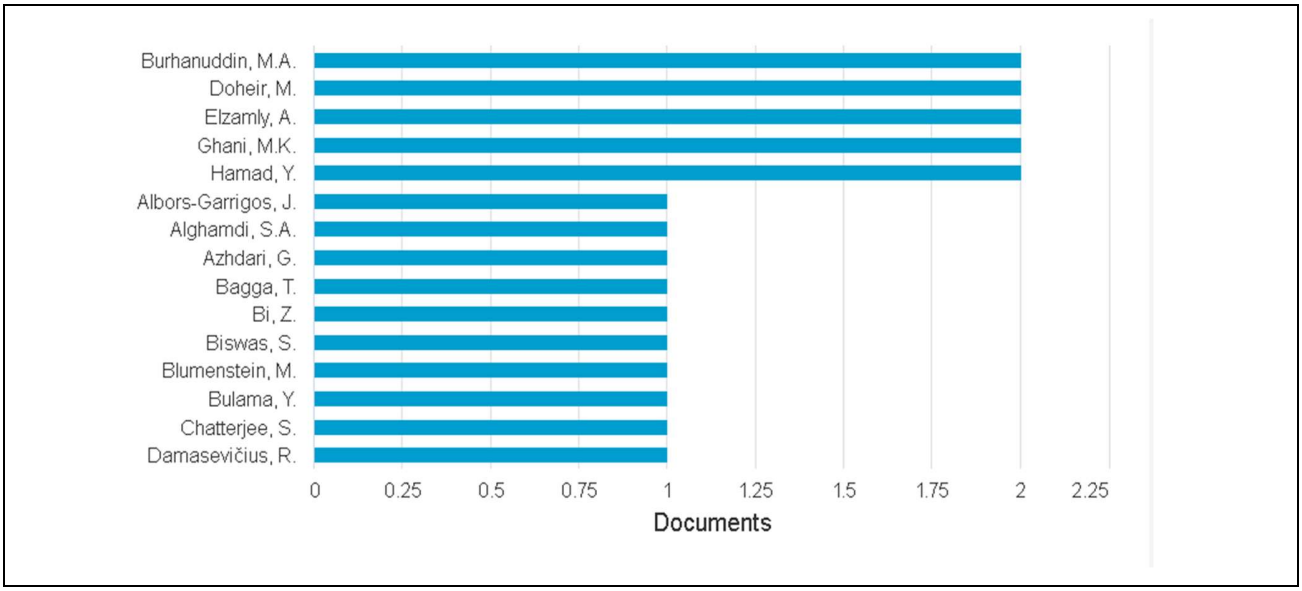


Fig3. Prolific Authors

4.1.3 Top Institutions publishing articles on cloud computing and HRM

The ranking of associated institutes' published papers on Cloud Computing and HRM is shown in Table 4. According to the analysis, it is found that Ferdowsi University of Mashhad, Al-Aqsa University, Amity University have published 2 articles each followed by National Institute for Strategic Studies, National Economic University, National Economic University of Ternopil, Key Laboratory of Urban Run Emergency Security Simulation Technology, Faculty of Information and Communication Technology, M.E.R.I, Nanchang Institute of Science and Technology Published 1 article each.

Table 3: ***Top Institutions publishing articles on cloud computing and HRM***

S.no.	**Institutions**	**Articles**
1	Ferdowsi University of Mashhad	2
2	Al-Aqsa University	2
3	Amity University	2
4	National Institute for Strategic Studies	1
5	National Economic University	1
6	National Economic University of Ternopil	1
7	Key Laboratory of Urban Run Emergency Security Simulation Technology	1

8	Faculty of Information and Communication Technology	1
9	M.E.R.I	1
10	Nanchang Institute of Science and Technology	1

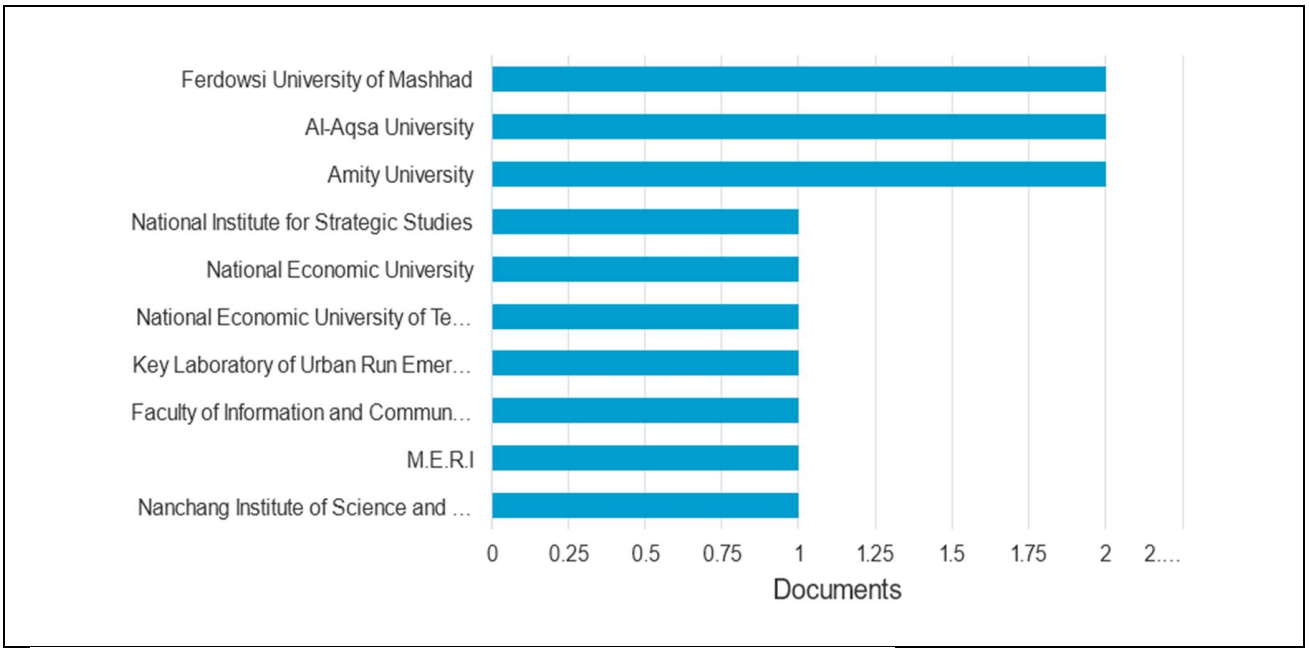


Fig4. Institutes publishing articles on cloud computing and HRM

4.1.4 Document by Country/Territory

Table 4 shows the number of articles published on Cloud computing and HRM by the different countries within the time span of (9 years) 2012 - 2021. According to the analysis, India published 5 articles followed by China where 4 articles were published while in Iran ,Malaysia & Palestine 2 articles were published by each whereas Australia, Azerbaijan, Germany, Japan, Bosnia and Herzegovina Published 1 article each.

Table 4: *Document by Country/Territory*

S.no.	**Country/Territory**	**Articles**
1	India	5
2	China	4
3	Iran	2
4	Malaysia	2

5	Palestine	2
6	Australia	1
7	Azerbaijan	1
8	Bosnia and Herzegovina	1
9	Germany	1
10	Japan	1

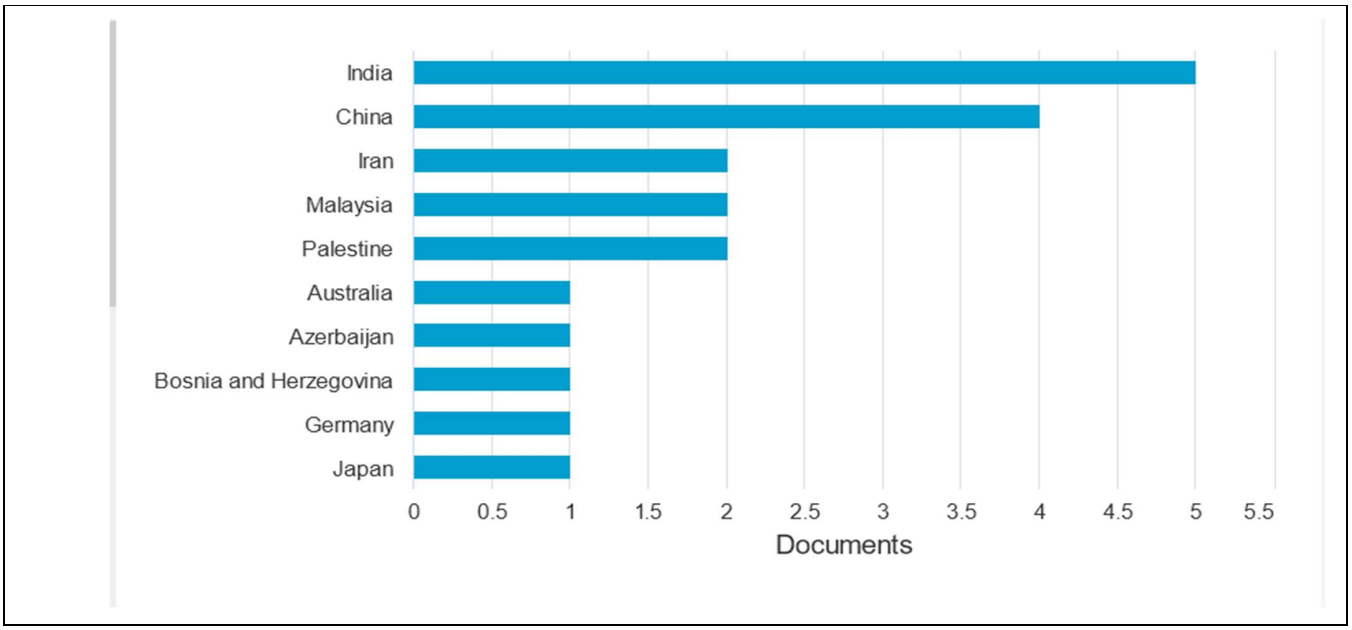


Fig5. Document by country

4.1.5 Co-occurrence map of author keywords/terms

The keyword which occurs many times in the keywords framed by the authors cluster is shown in Fig.6. We can find the keywords Cloud computing, Human resource management system, Information technology, e-HRM, HRIS, Internet of things, Human resource Management and so on. One can also assess that the researchers are more concentrating on doing research on these topics.

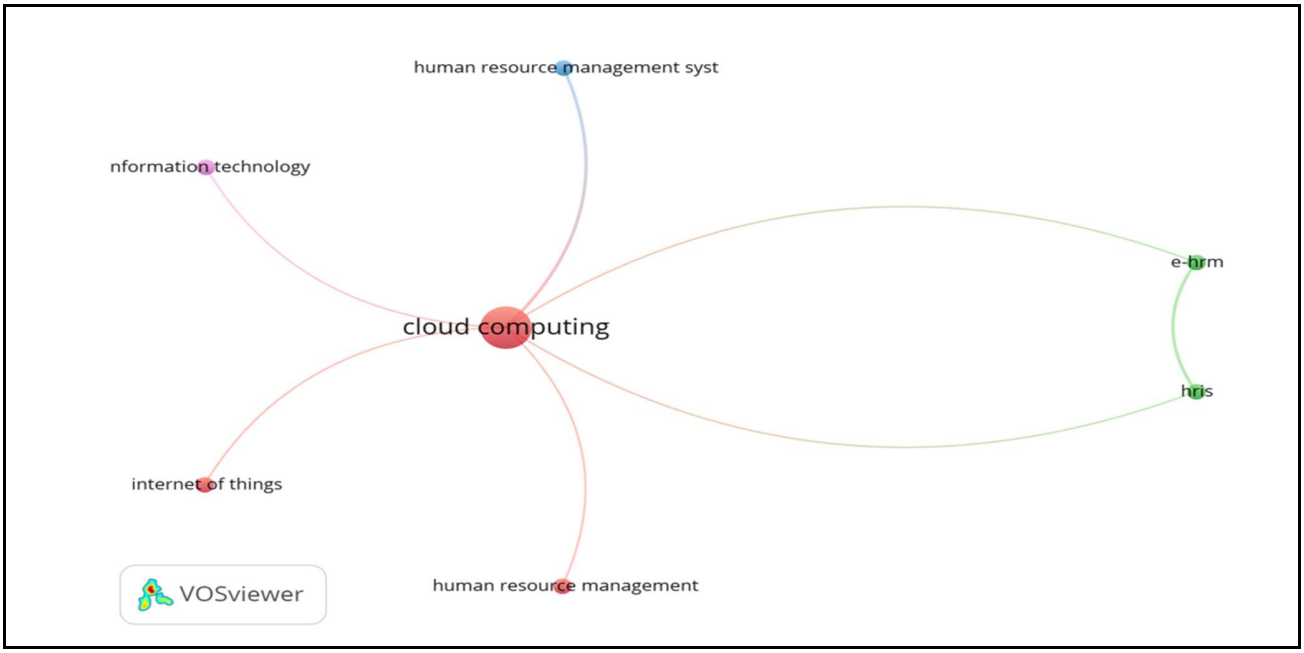
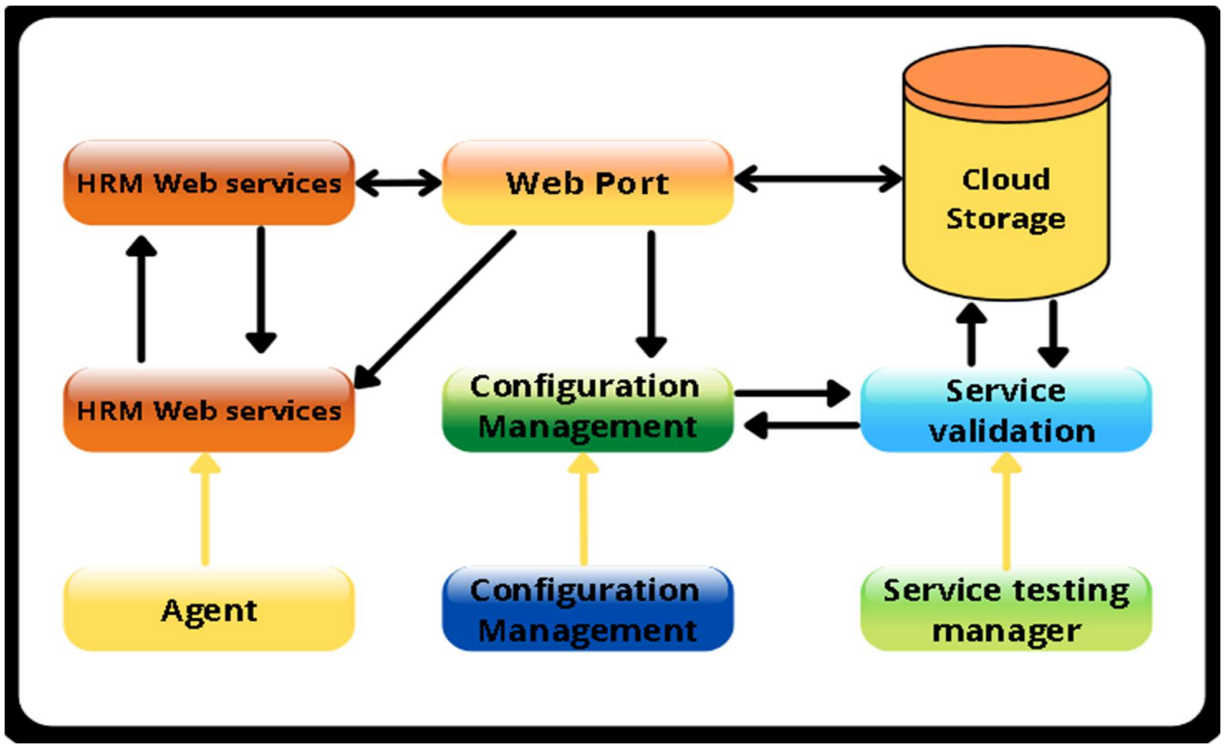


Fig 6: co-occurrence map of author keyword terms



Source: Kumar, S. N., & Kumar, S. S. (2014)

Fig. 7 Model of HRM based on cloud technology

Fig. 7 talks about a new approach towards HRM based on cloud technology propounded by Nandan and Sunder(2014) . The proposed model comprised 4 main services , as given in the figure. According to the model, if some service of HRM is requested through HRM web service, then

HRM web service responds to it after collecting the data. Through the port, the data goes to the database where the required information is stored. After that the data is extracted from cloud storage through the port and at the same time, HRM web service works towards generating the report . The configuration manager and validation manager is responsible for cloud storage monitoring and data validation respectively.

Benefits of using cloud based HRM

There are a whole host of benefits that organizations can enjoy by using cloud based HRM. The benefits have been explained below

- Ensures fast and intelligent decision making: Using HR analytics, decision making can become more focused and data driven. The creation of dashboards facilitates real time data on various parameters and can aid smart and intelligent decision making.
- Ease of access to innovation by using software as a service: Besides the other models, Cloud based HRM operates in, Software as a service is one of the widely used. It is a very cost effective and efficient one.
- Facilitates smoother recruitment process: For every vacancy advertised, multiple applications are received. Through the use of A.I, the applications can be screened effortlessly, thereby reducing the burden to do it manually.
- Payroll management: The compensation of employees can be managed more effectively using the cloud than ever .
- Employee feedback management and suggestion systems : Industrial democracy can be ensured by effective feedback management of employees. This reduces the time and energy.Moreover, the biases can be reduced and accuracy can be increased with cloud based systems.
- Elimination of paper work: The systems and processes can be made more agile using cloud based solutions. A lot of paperwork can be reduced and efficiency in the systems can be increased .
- Automation of repetitive tasks can be done by using A.I driven systems. Duplications and redundancies can be reduced when systems are automated. Simple applications like Scheduling of tasks; marking the calendars; setting the reminders for processes can really help.
- Facilitation of Learning and development: Not only does it help in facilitation of L&D , but also tracking the trajectories of employees' growth and development; their pace of learning; their assessment can be easily tracked , which reduces the number of manhours needed to train the employees. The self-paced learning can be easily facilitated.

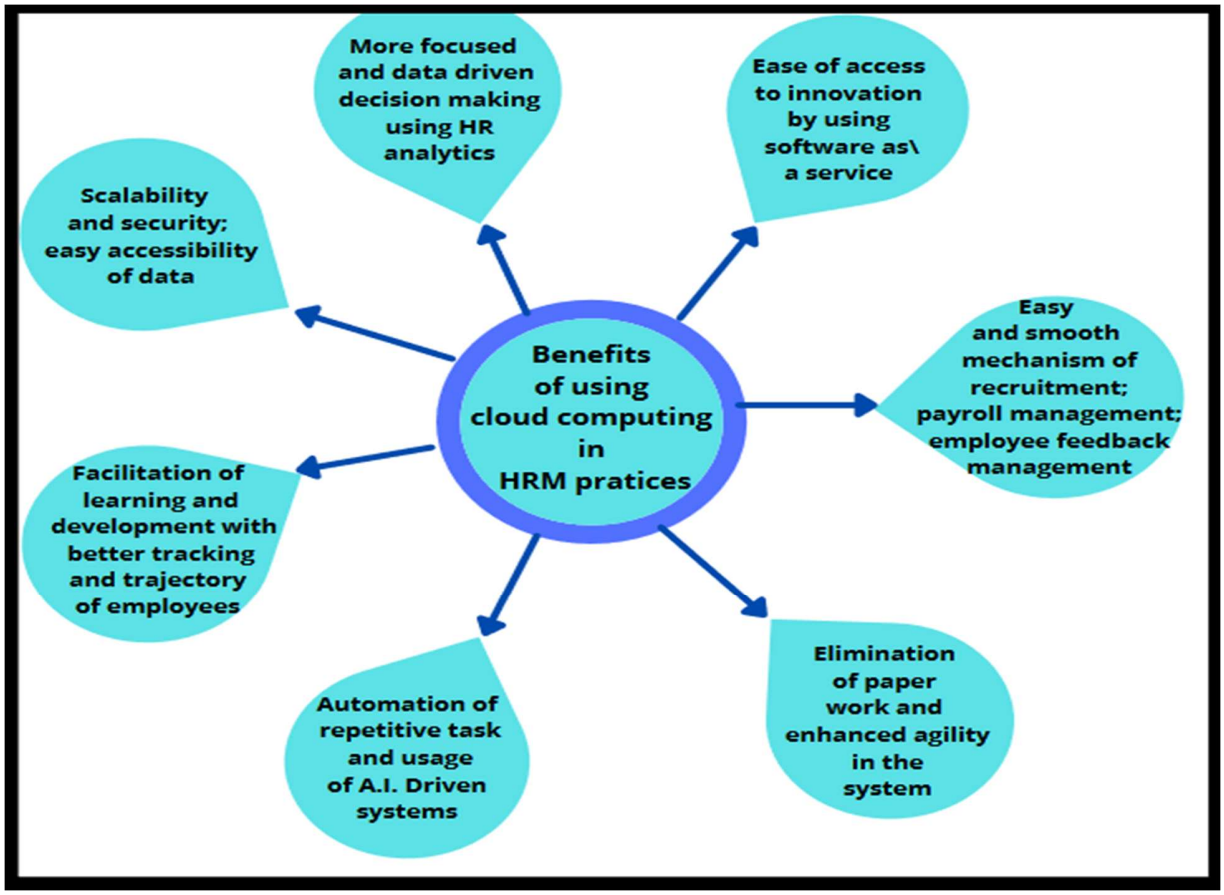
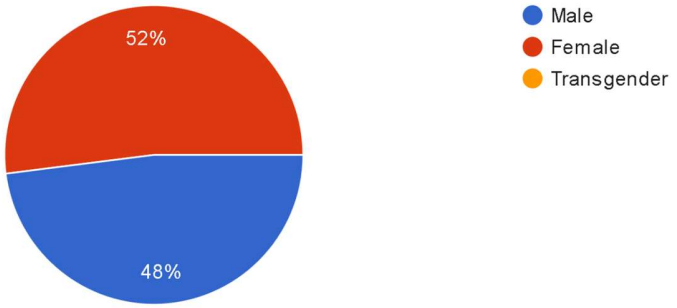


Figure 7: : Array of benefits bestowed by using cloud computing in HRM

4.2 Analysis based on the Factors Influencing Adoption Of Cloud Based Human Resource Management System at HCL Technologies.

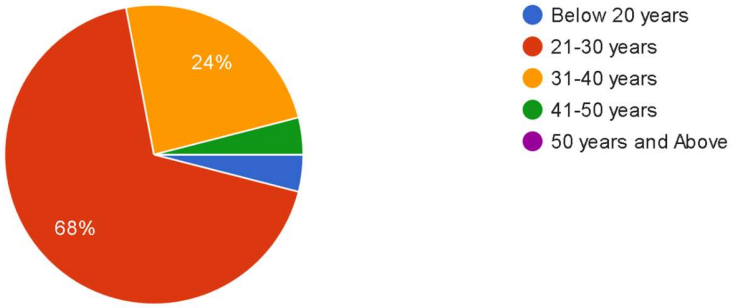
Please indicate your gender

25 responses



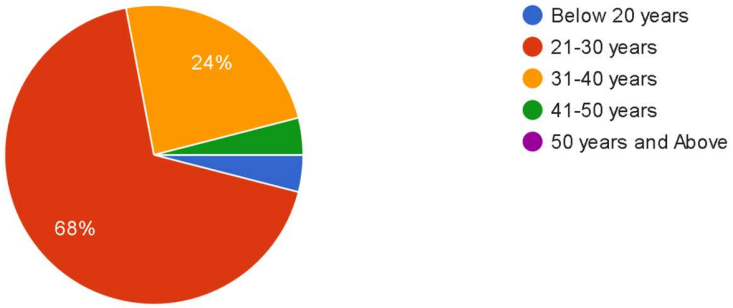
Please indicate your age bracket

25 responses

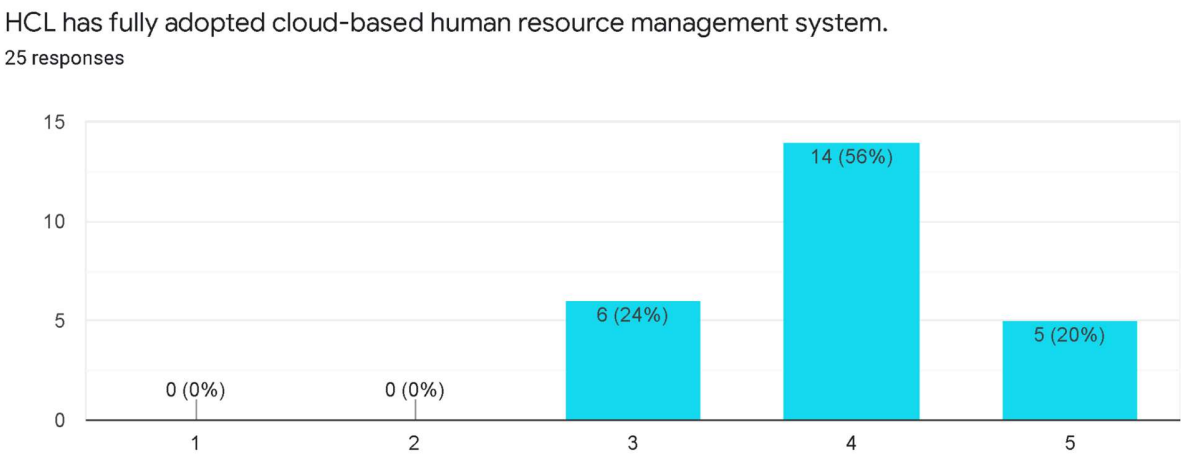


Please indicate your age bracket

25 responses

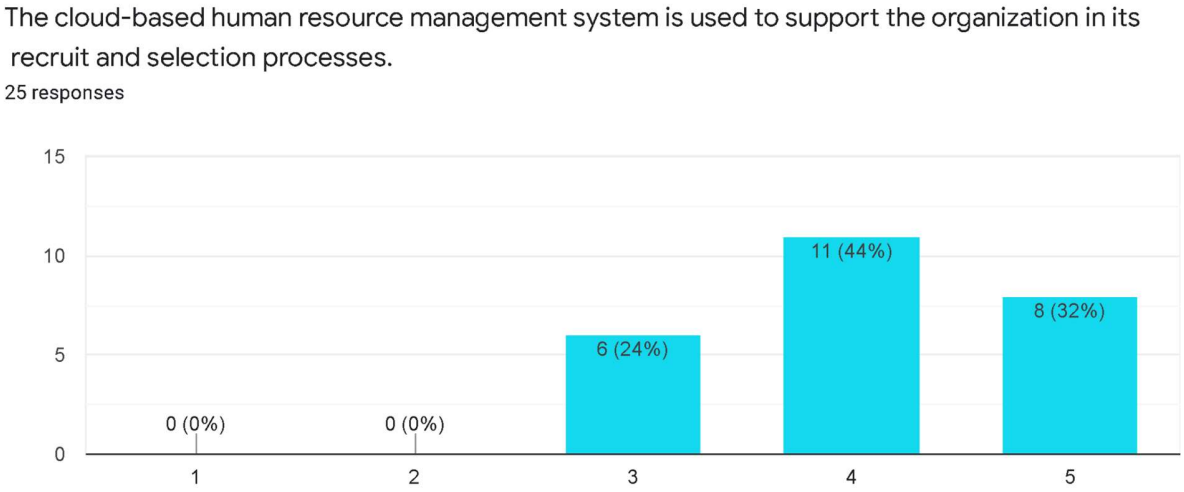


4.2.1 Adoption of Cloud Based HRM:-



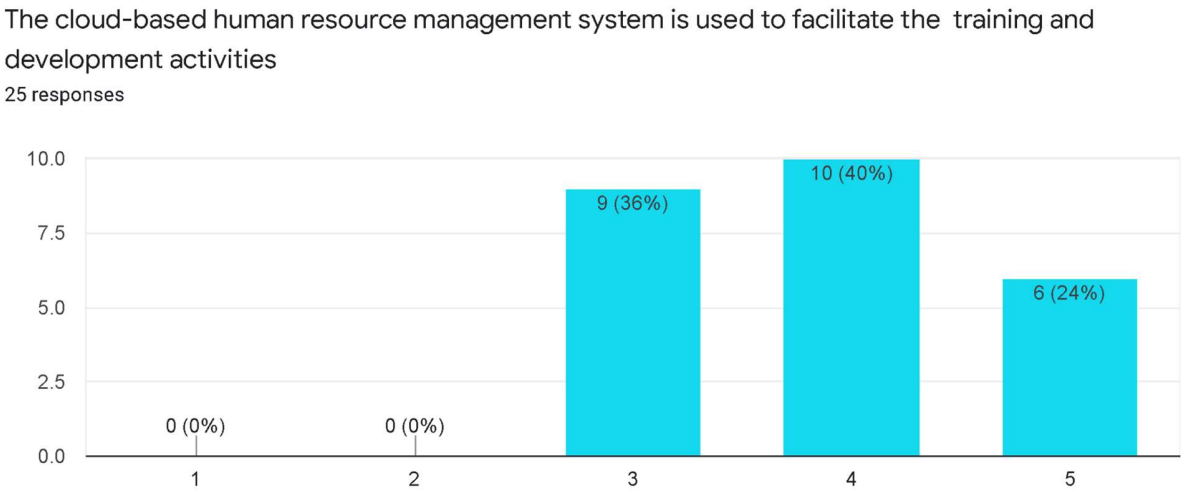
Interpretation: -

According to the above graph 56% of the employees at HCL Technologies agrees that the organization has successfully adopted the Human resource Management System and 20% strongly agrees with the above statement.



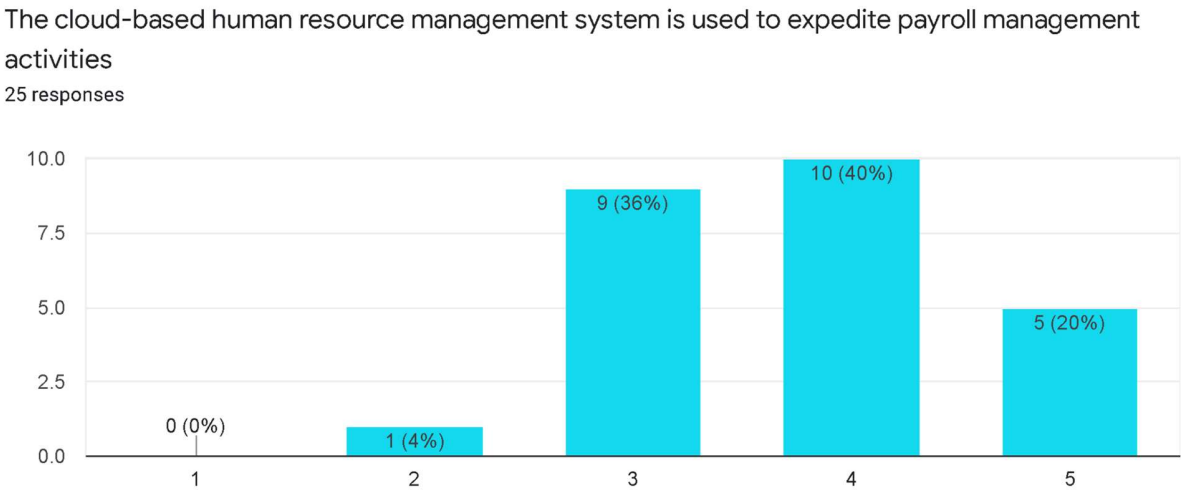
Interpretation: -

According to the graph above, 44% of HR professionals agree that cloud-based HR systems support the company's recruitment and selection process, and 32% strongly agree with the above statement. According to HR experts, a better onboarding experience encourages employee involvement. Thanks to cloud-based recruitment tools, the entire recruitment process is optimized. A centralized recruitment platform with cloud capabilities can do everything from prospecting and application screening to final recruitment and onboarding..



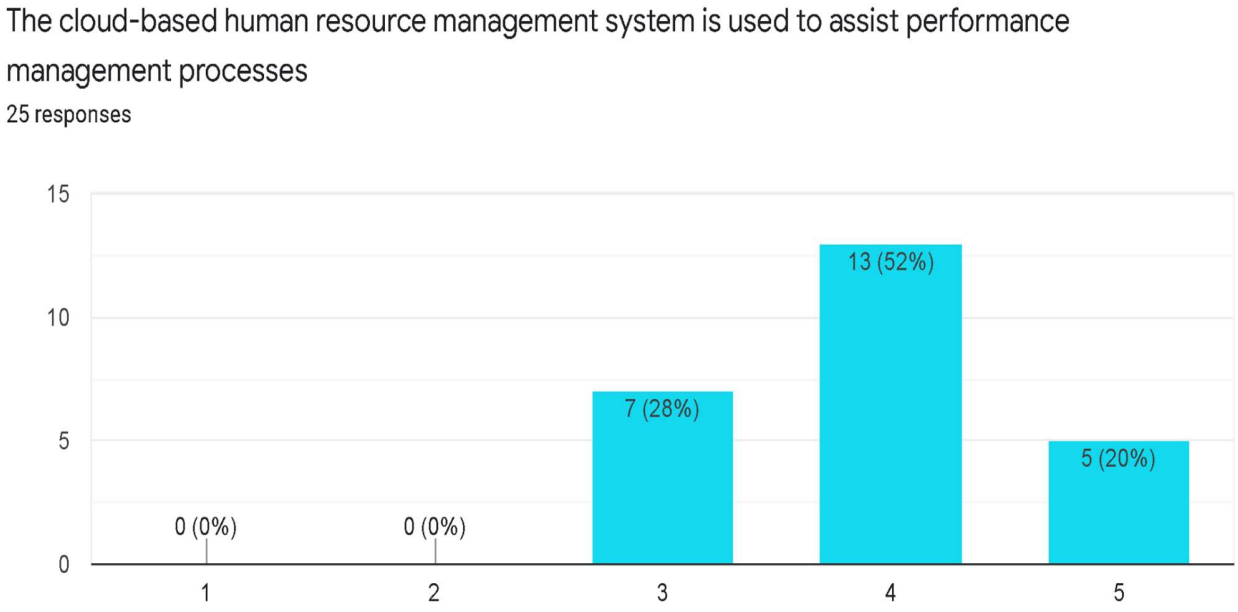
Interpretation: -

According to the survey, 40% of HR departments agree that using a cloud-based HR management system facilitates training and development, and 24% strongly agree. The latest cloud-based HR software facilitates the training and learning process by providing a common library of training resources such as online lessons / courses, videos, presentations and audio files. Virtual reality video is currently dominating the learning business. These are very helpful in teaching and training staff efficiently.



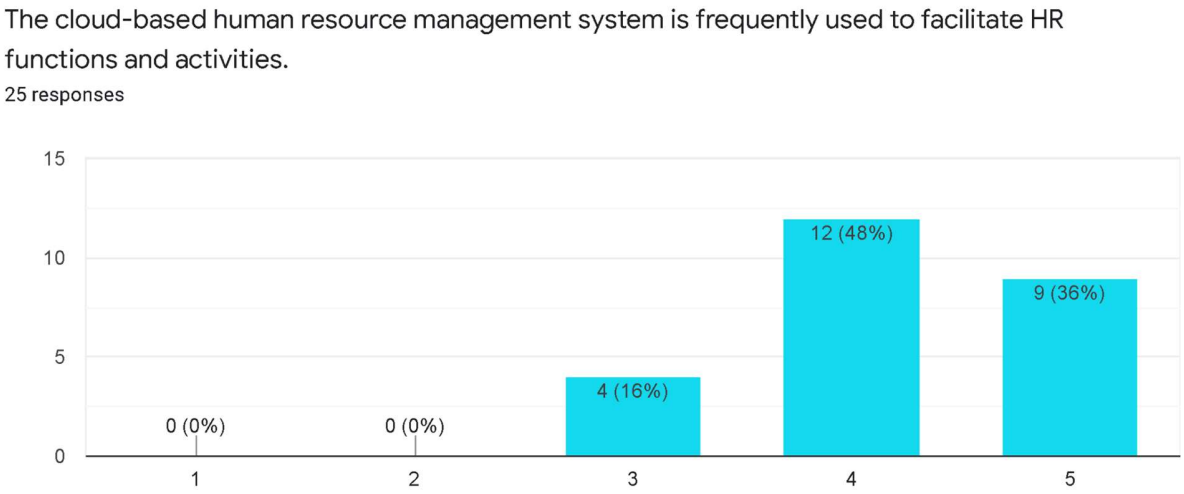
Interpretation: -

As interpreted above, 40% of HR departments agree that a cloud-based HR management system supports HR management tasks in payroll. A cloud-based payroll system can handle this pre-payroll concern. Most of them provide a friendly and simple user interface with easy navigation. More importantly, many activities are automated, reducing the need for time-consuming calculations and reducing the number of errors, discrepancies, and redirects that plague companies that still rely on on-premises payroll software.



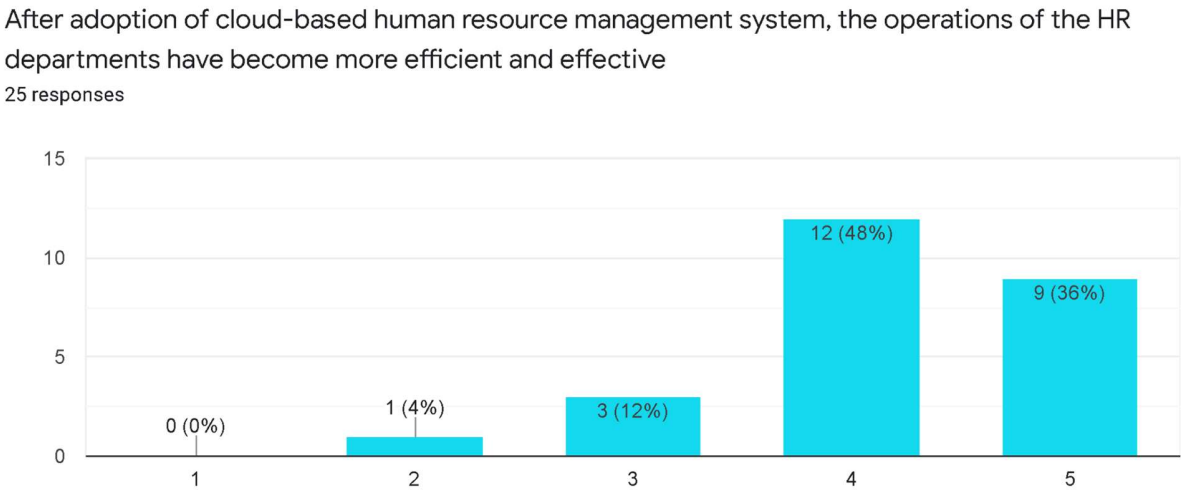
Interpretation: -

According to the survey, 52% of HR professionals agree and 20% strongly agree that cloud-based HR management systems are used to support performance management systems. Employee performance is automatically tracked in real time using cloud HR software. Machine learning and built-in dashboards and reports are used to analyze the data. In just a few hours, HR cloud solutions can help HR employees implement new processes and improve their skills. Employee performance management software is a subset of cloud HR software that helps HR professionals track and analyze performance data.



Interpretation: -

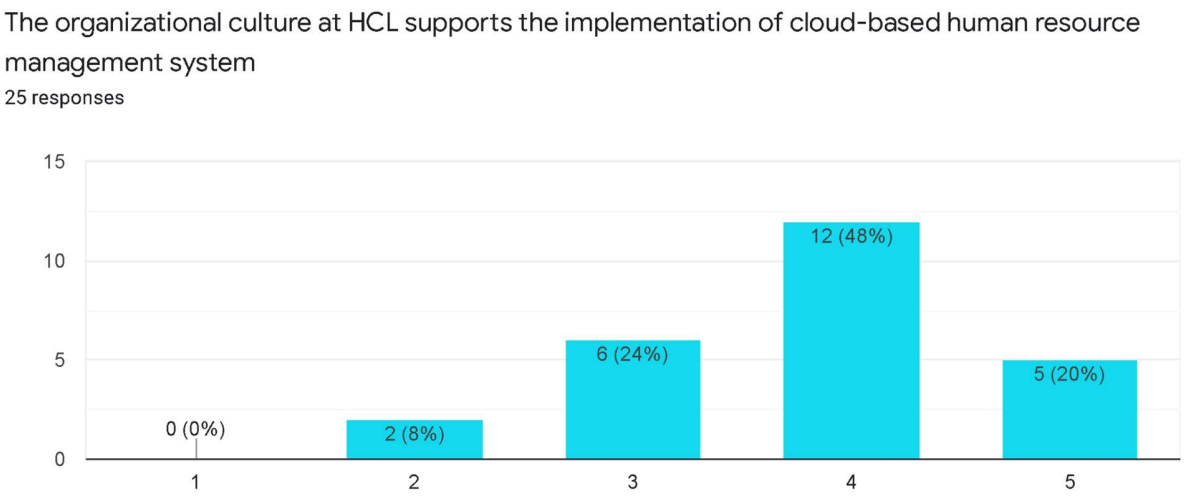
As highlighted, 48% of employees feel that cloud-based human resource management systems are regularly utilized to streamline HR processes and activities. The capacity of cloud-based HR technologies to bridge the gap between the HR staff and the rest of the company. HR has traditionally been a back-office function, plagued by a lack of timely information and a huge communication gap.



Interpretation: -

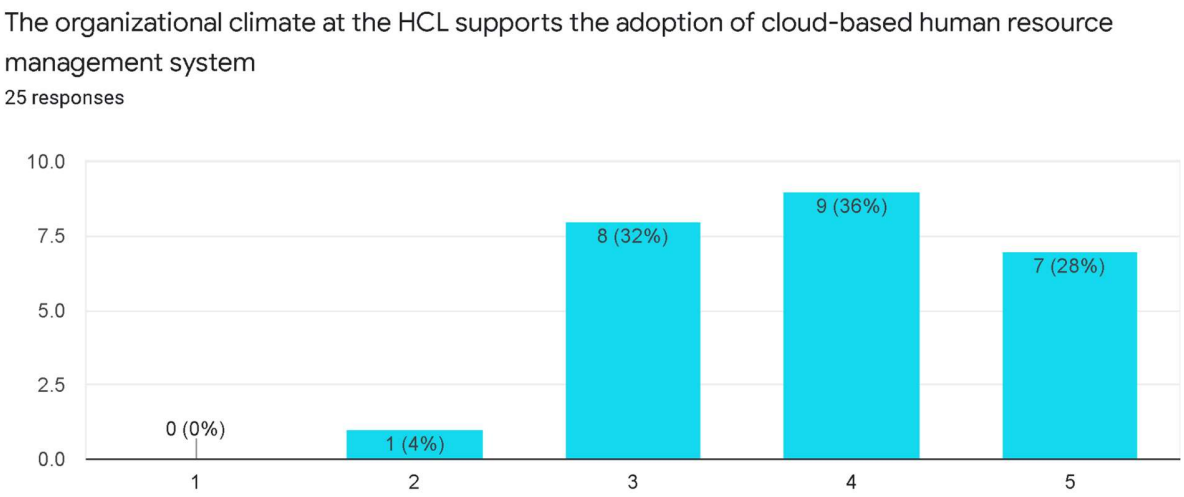
In the graph above, 46% of employees agree and 36% strongly agree that HR operations have been more efficient and successful since they implemented a cloud-based HR management system. On the other hand, 12% of employees are uncertain. Recruitment, training, evaluation, and all other important HR processes can be easily managed using cloud HR software. It provides the HR department with computing power and enables companies to thrive in a data-driven era.

4.2.2 Organizational Factors: -



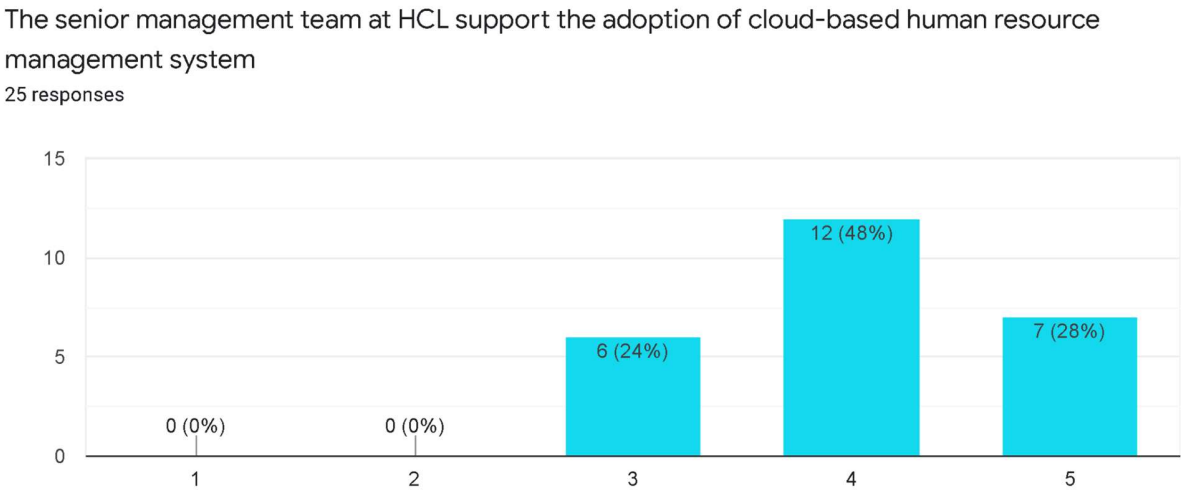
Interpretation: -

According to the graph, 48 percent of HCL workers agree, 20 percent strongly agree, 24 percent are unsure, and 8% disagree with the assertion that the organization's organizational culture supports the installation of a cloud-based human resource management system. Employees from companies with a strong organizational culture are said to have a feeling of belonging, engagement, and devotion to their company, which is crucial for success.



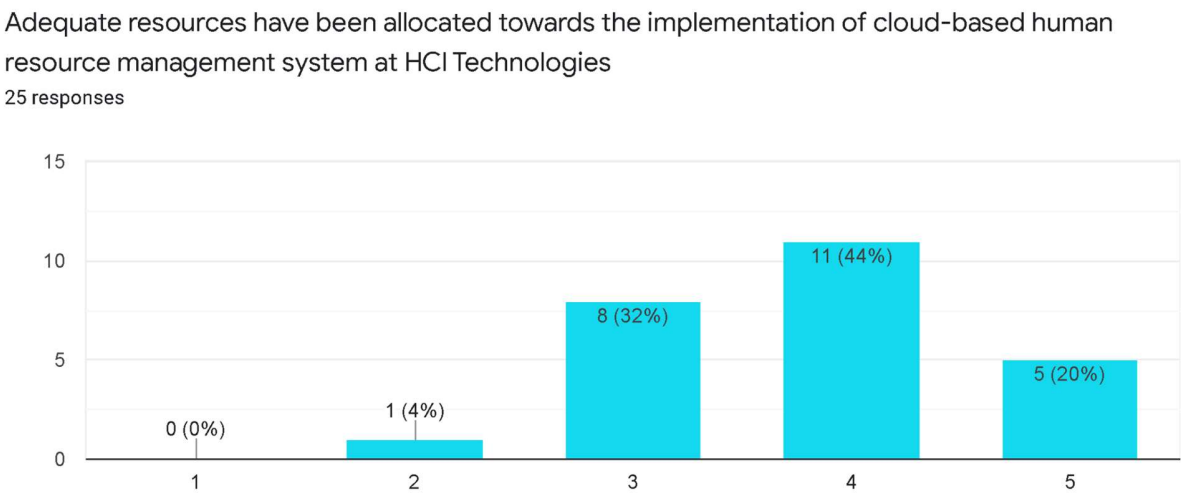
Interpretation: -

The above graph states that 28% of the employees at HCL Strongly agree, 36% agrees and 32% of the employees are not sure about the statement that organizational climate at HCLsupports the adoption of cloud-based human resource management system.



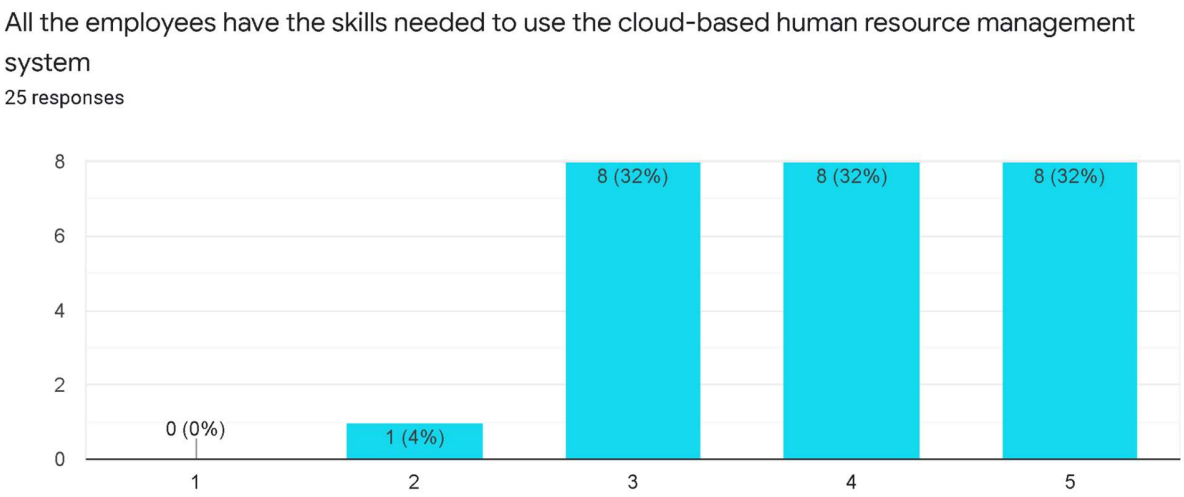
Interpretation: -

According to the graphs above, 28% of HCL workers strongly agree, 48% agree, and 24% disagree with the assertion that HCL Technologies' senior management team supports the deployment of a cloud-based human resource management system.



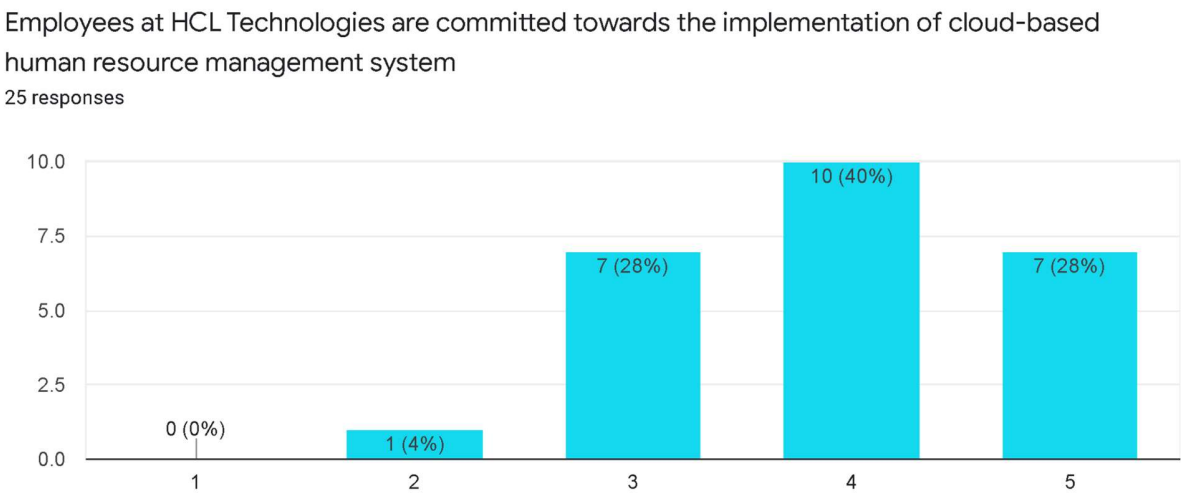
Interpretation: -

According to the survey, 20% of workers strongly agree, 44% agree, 32% are unsure, and 4% disagree with the assertion that appropriate resources have been given to the installation of a cloud-based human resource management system at HCL Technologies.



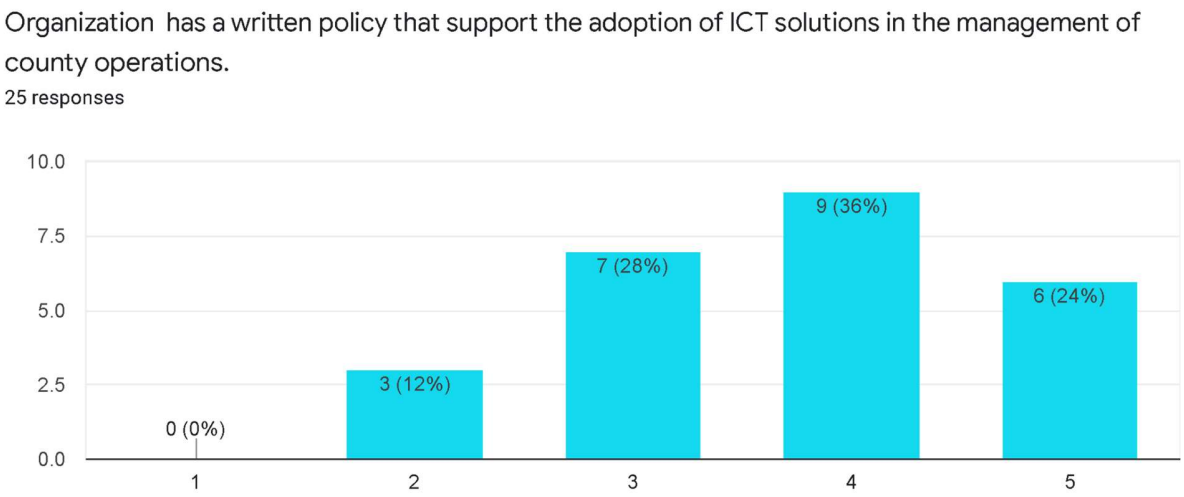
Interpretation: -

According to HCL's HR department, 32% of workers strongly agree, 32% agree, and 32% disagree that all employees have the abilities required to operate the cloud-based human resource management system.



Interpretation: -

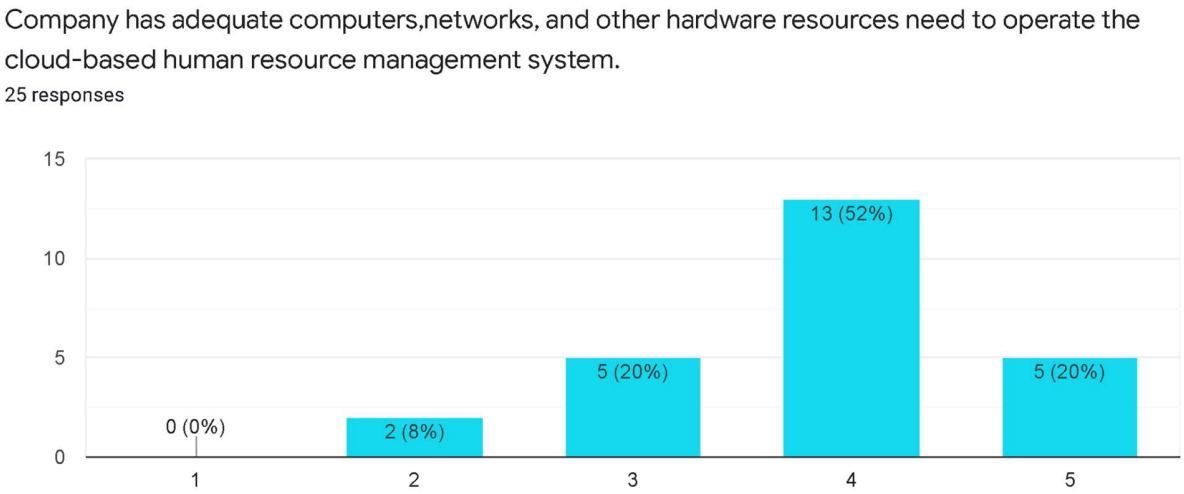
According to the findings, 40 percent of workers agree, 32 percent strongly agree, and 28 percent are doubtful about the assertion that HCL Technologies staff are dedicated to implementing a cloud-based human resource management system.



Interpretation: -

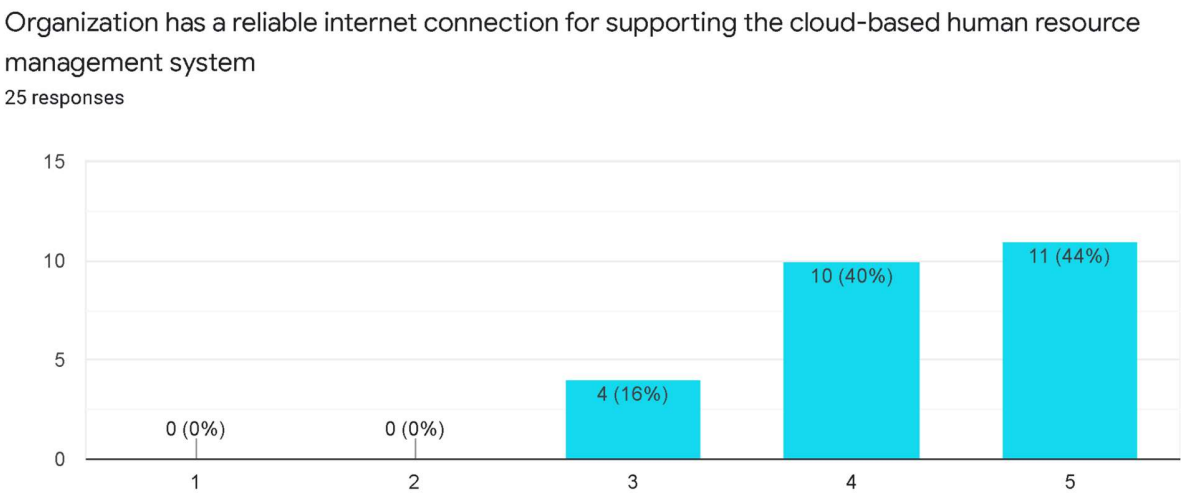
The above graph states that 36% of the employees agree, 24% of them Strongly agree, 28% of them are not sure and 12% of them do not agree with the statement that the organization has a written policy that supports the adoption of ICT solutions in the management of county operations.

4.2.3 Technological Factors: -



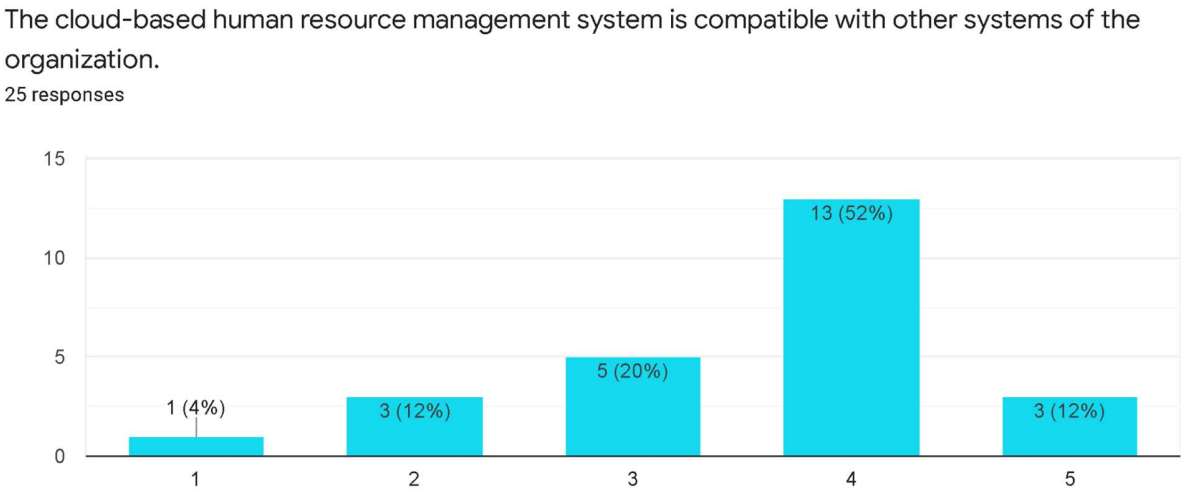
Interpretation: -

The research states that 52% of the employees agreed, 20% strongly agrees, 20% of them were unsure and 2% of them digress that the company is having adequate computers, networks, and other hardware resources needed to operate the cloud-based human resource management system.



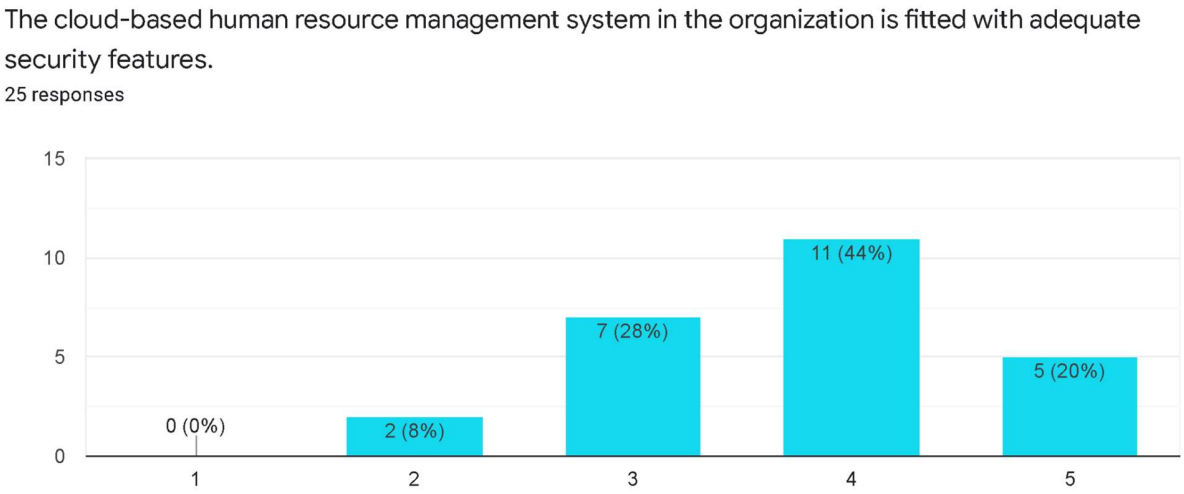
Interpretation: -

Analysis states that 44% of the HR Department Strongly agreed, 40%of them agreed and 16% of them are not sure whether the organization's internet connection is reliable for supporting the cloud-based human resource management system.



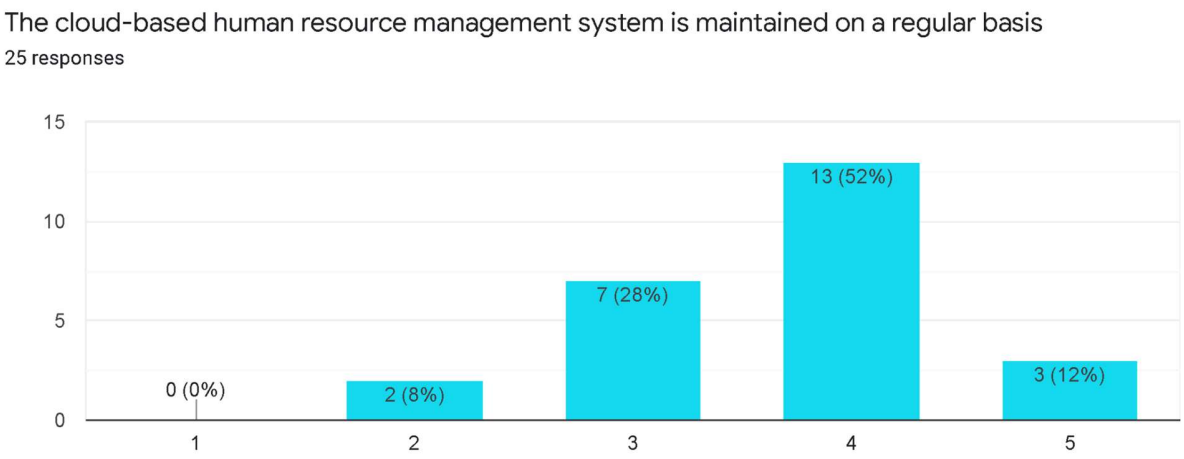
Interpretation: -

The above graph states that 52% of the employees agreed, 20% of them are unsure, 12% of them Strongly agreed, 12% of them Disagreed and 4% of them strongly disagreed that the cloud-based human resource management system is compatible with other systems of the organization.



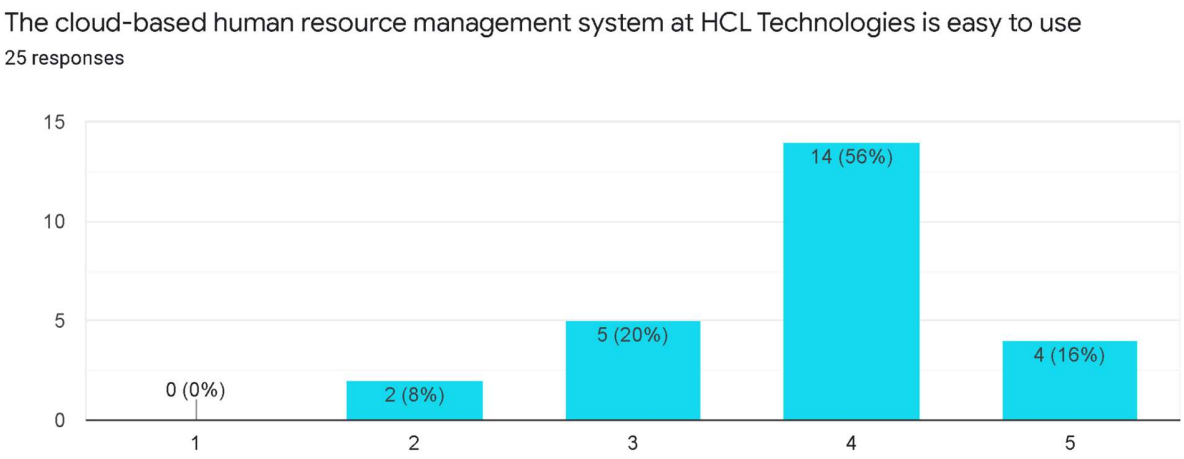
Interpretation: -

The graph states that 44% of the employee agrees that the cloud-based human resource management system in the organization is fitted with adequate security features.



Interpretation: -

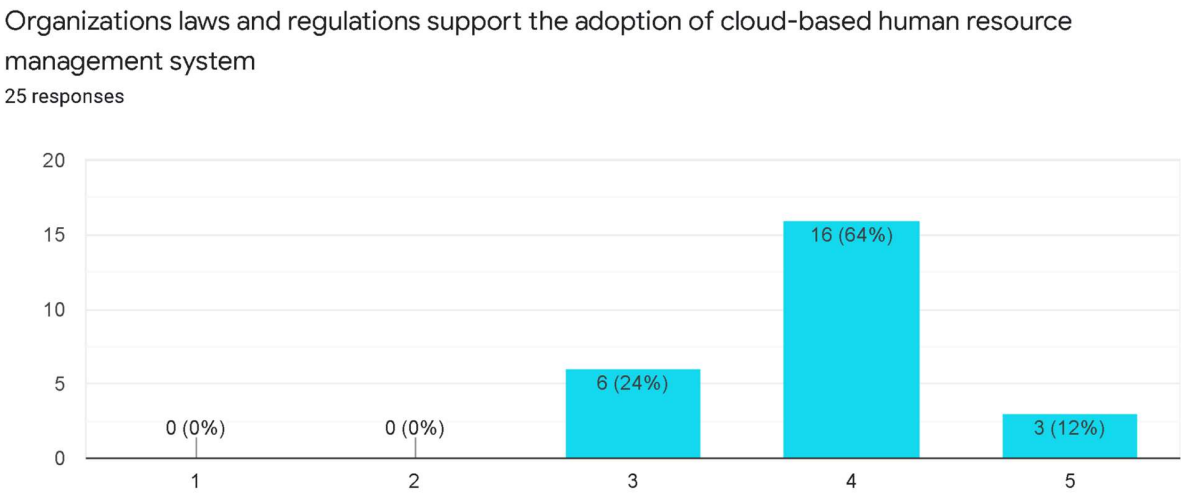
According to the graph, approximately 52% of the employees of the HR Department at HCL Technologies agrees that the cloud-based human resource management system is maintained on a regular basis.



Interpretation: -

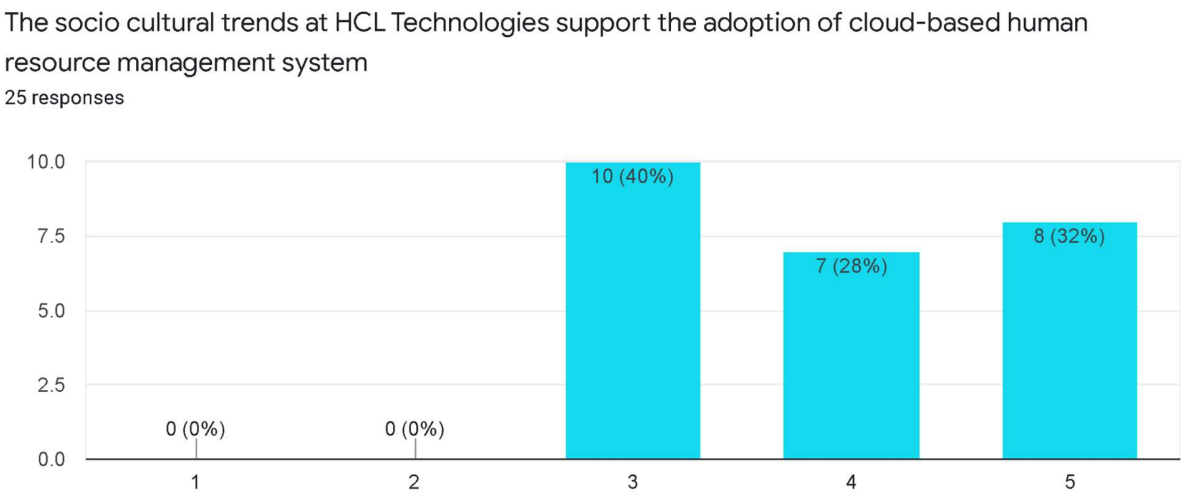
According to the research conducted, 56% of the employees agreed, 16% of them Strongly agreed , 20% of them were unsure and 8% of them disagreed with the fact that cloud-based human resource management system atHCL Technologies is easy to use.

4.2.4 External factors: -



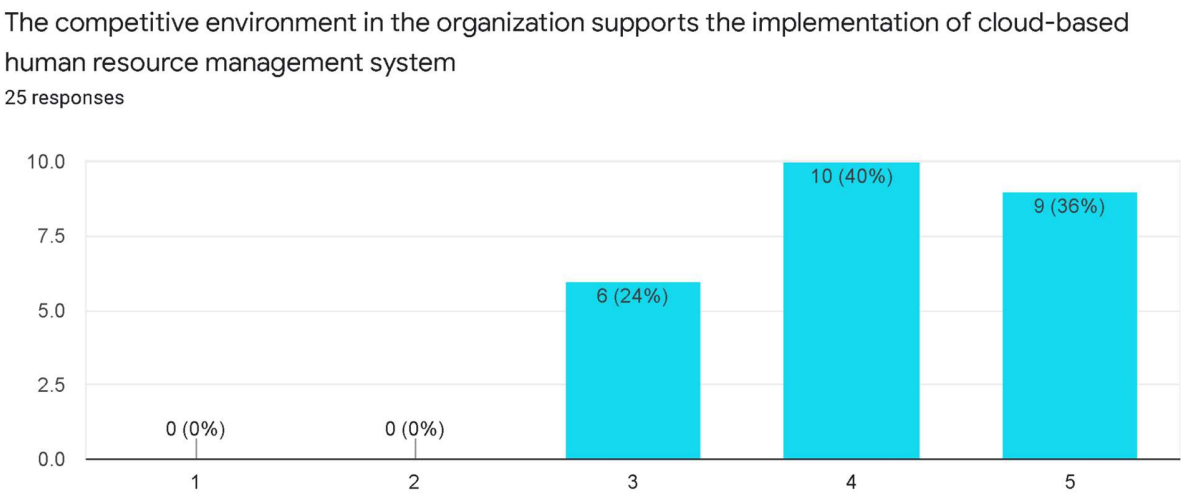
Interpretation: -

The above graph states that 64% of the employees agreed, 12% strongly agreed and 24% of them were unsure about the fact that the organizational laws and regulations support the adoption of a cloud-based human resource management system.



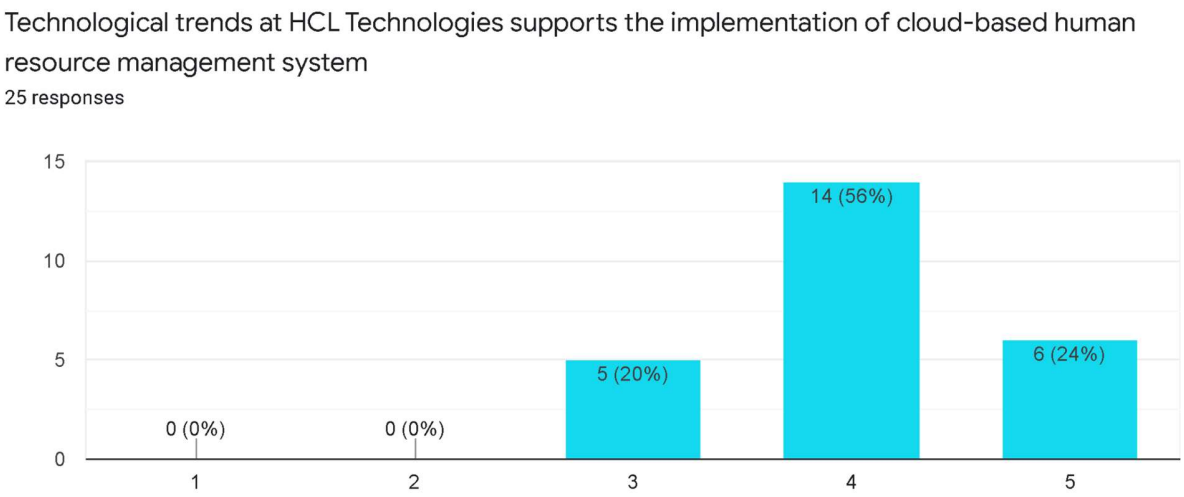
Interpretation: -

Above graph explains that 40% of employees are unsure, 32% of them Strongly agrees, 28% of them agrees that the socio cultural trends at HCL Technologies supports the adoption of cloud-based hu7man resource management system.



Interpretation: -

The analysis states that 40% of the employees agreed, 36% of them strongly agreed, and 24% of them were unsure about the given statement that the competitive environment in the organization supports the implementation of the cloud-based human resource management system.



Interpretation: -

The Above graph states that 56% of the employees agreed, 24% of them strongly agreed and 20% of them are unsure about the technological trends at HCL Technologies supporting the implementation of a cloud-based human resource management system.

CHALPTER-5
CONCLUSION

Conclusion

Cloud computing has had a significant impact on HR technology. More and more businesses are migrating to cloud-based HR solutions, utilizing their capabilities to better manage resources and save money. On a worldwide scale, the HR cloud is boosting organizational efficiency and productivity. HR executives are the driving force behind making HR operations more efficient and encouraging firms to embrace technology-based solutions (Indranil, 2011; Polen, 2009). To deal with an increasingly complicated environment characterized by increased globalization, fast technical advancement, a knowledge-based economy, and performance restrictions (Teo et al., 2007; Bondarouk & Ruël, 2009; Waheed et al., 2020), the human resources department's job has shifted significantly (Parry, 2011). The digital transformation has brought in nearly all the spheres of Human resource management from recruitment, assessment, compensation to training and development of employees. Introduction of cloud computing in HRM would not only enable the organizations to increase the efficiency of employees without exerting them but also enhance the productivity of the organizations.

In the wake of increasingly used technology across the globe, this research was necessitated . The purpose was to identify the gaps in the area and to gauge the future possibilities of research.

A total of 25 articles were considered for systematic literature review after carefully selecting the documents using the PRISMA framework on Cloud computing and HRM from 2012 to 2021 on the Scopus database. There has been no research done prior to 2012 in the area of Cloud computing in HRM. After thoroughly reviewing the research papers, it was found that the research in this area is still in its infancy stage and requires due attention. India is still ahead in terms of the research conducted globally in this area as India published 5 research papers in this area from a total of 25 articles published worldwide. The time graph of the number of published articles shows that there has been an increase in the cognizance of Cloud Computing and HRM around 2019 and 2020 which constitutes 24% of the total research and definitely needs to be researched upon more. The most prolific writers in cloud computing and HRM research from 2012 to 2021 were Burhanuddin, M.A., Doheir, M., Elzamly, A., Ghani, M.K., and Hamad, Y. it is found that Ferdowsi University of Mashhad, Al-Aqsa University, Amity University have published 2 articles each followed by National Institute for Strategic Studies, National Economic University, National Economic University of Ternopil, Key Laboratory of Urban Run Emergency Security Simulation Technology, Faculty of Information and Communication Technology, M.E.R.I, Nanchang Institute of Science and Technology , publishing one. India published 5 articles followed by China where 4 articles were published while in Iran, Malaysia & Palestine 2 articles were published by each whereas Australia, Azerbaijan, Germany, Japan, Bosnia and Herzegovina Published 1 article each. We can find the keywords Cloud computing, Human resource management system, Information technology, e-HRM, HRIS, Internet of things, Human resource Management and so on. One can also assess that the researchers are more concentrating on doing research on these topics.

Taking the cognizance of the research published so far, it can be drawn that more empirical research needs to be done in this area since most of the research so far is conceptual in nature. Second, the more attention this area needs for manufacturing enterprises, which can surely increase their efficiency and cost effectiveness using cloud computing. So far, the research is centered on service organizations and SMEs.

The research on the behavioral aspects of the beneficiaries seems to be ignored as more focus is placed on either technical aspects of the subject or the security aspects. There is an immense scope for longitudinal study in the subject.

The research has several pragmatic and policy implications. It may aid management in their efforts to incorporate cloud computing into their firms' human resource departments in order to improve decision-making processes. The organizations can ensure fast and intelligent decision making using HR analytics . The managers will become more focused and data driven due to easy availability of real time metrics on their dashboard. They can avail easy accessibility of innovation by using software as a service. This will facilitate a smoother recruitment process for, through the use of A.I, the applications can be screened effortlessly, thereby reducing the burden to do it manually. The organizations can use it for managing payroll systems effectively. Employee feedback management and suggestion systems can be obtained in a more comprehensive manner , the biases in performance management can be reduced and accuracy can be increased with cloud based systems. The systems and processes can be made more agile using cloud based solutions. A lot of paperwork can be reduced and efficiency in the systems b can be increased .Automation of repetitive tasks can be done by using A.I driven systems. Duplications and redundancies can be reduced when systems are automated. Simple applications like Scheduling of tasks; marking the calendars; setting the reminders for processes can help managers tremendously .Not only does it help in facilitation of L&D , but also tracking the trajectories of employees' growth and development; their pace of learning; their assessment can be easily tracked , which reduces the number of manhours needed to train the employees. The self-paced learning can be easily facilitated. As a result, the findings of this study may serve as a guideline for managers or the policy makers in the global context, particularly in terms of information management. As a result, this research can help managers in their attempts to improve their organizations' competitive advantages using cloud computing in Human resource management in terms of productivity and efficiency.

References: -

1. **Athale R, Barde M, Kamble H. Mirajkar N, & Singh K., Implementation of private cloud using eucalyptus and an open-source operating system,** *International Journal of Computer Science,* **(2012) 360-364.**
2. **Attaran M. & Woods J., Cloud computing technology: improving small business performance using the Internet,** *Journal of Small Business & Entrepreneurship*, **(2018).**
3. **Bohnert D'& Ross W H., The influence of social networking web sites on the evaluation of job candidates,** *Cyberpsychology, Behavior, and Social Networking,* **(2010) 341-347.**
4. **Bondarouk T, Ruël H, & Van der Heijden B, e-HRM effectiveness in a public sector organization: a multi-stakeholder perspective,** *The International Journal of Human Resource Management*, **(2009) 578–590.**
5. **Deloitte, HR in the Cloud: It's inevitable, (2011)**
6. **Indranil B, Cloud computing and its impact on corporate HR Practices,** *Advances in Management,* **(2011) 57-58.**
7. **Management System**, *Advances in Digital Technologies*, **(2017).**
8. **Nachit M & Okar C, Digital transformation of Human Resources Management: A Roadmap**, *International Conference on Technology Management, Operations and Decisions (ICTMOD),* **(2020).**
9. **Odun-Ayo, Isaac & Misra, Sanjay & Omoregbe, Nicholas & Onibere, Emmanuel & Bulama, Yusuf & Damasevicius, Robertas, "Cloud-Based Security Driven Human Resource**
10. **Parry E & Tyson S, Desired goals and actual outcomes of e-HRM**. *Human Resource Management Journal,* **(2010) 335–354.**
11. **Paul P, Giri A, Chatterjee S & Biswas S, Determining the Effectiveness of 'Cloud Computing' on Human Resource Management by Structural Equation Modeling (SEM) in Manufacturing Sector of West Bengal, India,** *International Journal of Innovative Technology and Exploring Engineering (IJITEE),* **(2019) 2278-3075.**
12. **Poonam Arora, Redesigning Human Resource Management System through Cloud Computing: A Strategic Approach,** *Journal of Technology Management for Growing Economies*, **(2019).**
13. **Singh S N & Seshadri V,** *Indian J Eng Mater Sci,* **(2006) 477-483.**
14. **Strohmeier S, Research in e-HRM: Review and implications,** *Human Resource Management Review,* **(2007) 19–37.**
15. **Teo T S H, Lim G S & Fedric, S A, The adoption and diffusion of human resources information systems in Singapore,** *Asia Pacific Journal of Human Resources,* **(2007) 44–62.**
16. **Wang X L, Wang L, Bi Z, Li YY & Xu Y, Cloud computing in human resource management (HRM) systems for small and medium enterprises (SMEs),** *The International Journal of Advanced Manufacturing Technology,* **(2016) 485-496.**

17. **Willcocks L P, Venters W & Whitley E A, Cloud sourcing and innovation: slow train coming? A composite research study,** *Strategic Outsourcing: An International Journal,* **(2013) 184-202.**
18. **Kumar S N & Kumar S S, Advancement of human resource management with cloud computing,** *Int. J. Res. Eng. Technology Management,* **(2014)1-6**
19. **Moher D, Liberati A, Tetzlaff J, Altman, DG & PRISMA G, Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement**. *Phys. Ther*, **(2009) 873–880.**

ANNEXURE

CLOUD COMPUTING AND HUMAN RESOURCE MANAGEMENT

The questionnaire is aimed at collecting information about the adoption of cloud based Human resources management system at HCL Technologies. The information you will give will be of benefit to the researcher in accomplishing academic goals. Kindly do not omit any feature and respond to items honestly. Your response will be held in total confidence and only used for the purpose of this study.

* Required

Please indicate your gender *

- Male
- Female
- Transgender

Please indicate your age bracket

- Below 20 years
- 21-30 years
- 31-40 years
- 41-50 years
- 50 years and Above

Please indicate your highest education level.

- ◯ High school or equivalent
- ◯ Bachelor's degree
- ◯ Master's Degree
- ◯ Doctorate
- ◯ Proffesional

Adoption of Cloud-Based HRMS

The following statements relate to adoption of cloud-based HRMS at your work station. Indicate the extent to which you agree with the statements using the following scale: 5. Strongly Agree 4. Agree 3. Not sure 2. Disagree 1. Strongly Disagree

HCL has fully adopted cloud-based human resource management system.

	1	2	3	4	5	
Strongly Disagree	◯	◯	◯	◯	◯	Strongly Agree

The cloud-based human resource management system is used to support the organization in its recruit and selection processes.

	1	2	3	4	5	
Strongly Disagree	◯	◯	◯	◯	◯	Strongly Agree

The cloud-based human resource management system is used to facilitate the training and development activities

	1	2	3	4	5	
Strongly Disagree	○	○	○	○	○	Strongly Agree

The cloud-based human resource management system is used to expedite payroll management activities

	1	2	3	4	5	
Strongly Disagree	○	○	○	○	○	Strongly Agree

The cloud-based human resource management system is used to assist performance management processes

	1	2	3	4	5	
Strongly Disagree	○	○	○	○	○	Strongly Agree

The cloud-based human resource management system is frequently used to facilitate HR functions and activities.

	1	2	3	4	5	
Strongly Disagree	○	○	○	○	○	Strongly Agree

After adoption of cloud-based human resource management system, the operations of the HR departments have become more efficient and effective

	1	2	3	4	5	
Strongly Disagree	○	○	○	○	○	Strongly Agree

Organizational Factors

The following statements relate to organizational factors that are likely to affect the adoption of cloud-based human resource management system. Indicate the extent to which you agree with the statements using the following scale: 5. Strongly Agree 4. Agree 3. Not sure 2. Disagree 1. Strongly Disagree

The organizational culture at HCL supports the implementation of cloud-based human resource management system

	1	2	3	4	5	
Strongly Disagree	○	○	○	○	○	Strongly Agree

The organizational climate at the HCL supports the adoption of cloud-based human resource management system

	1	2	3	4	5	
Strongly Disagree	○	○	○	○	○	Strongly Agree

The senior management team at HCL support the adoption of cloud-based human resources management system

	1	2	3	4	5	
Strongly Disagree	○	○	○	○	○	Strongly Agree

Adequate resources have been allocated towards the implementation of cloud-based human resources management system at HCL Technologies

	1	2	3	4	5	
Strongly Disagree	○	○	○	○	○	STrongly Agree

All the employees have the skills needed to use the cloud-based human resources management system

	1	2	3	4	5	
Strongly Disagree	○	○	○	○	○	Strongly Agree

Employees at HCL Technologies are committed towards the implementation of cloud-based human resources management system

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly Agree

Organization has a written policy that support the adoption of ICT solutions in the management of county operations.

	1	2	3	4	5	
Strongly Disagree	○	○	○	○	○	Strongly Agree

Technological Factors

The following statements relate technological factors that are likely to affect the adoption of cloud-based human resource management system at HCL Technologies. Indicate the extent to which you agree with the statements using the following scale: 5. Strongly Agree 4. Agree 3. Not sure 2. Disagree 1.Strongly Disagree

Company has adequate computers,networks, and other hardware resources need to operate the cloud-based human resource management system.

	1	2	3	4	5	
Strongly Disagree	○	○	○	○	○	Strongly Agree

Organization has a reliable internet connection for supporting the cloud-based human resource management system

	1	2	3	4	5	
Strongly Disagree	○	○	○	○	○	Strongly Agree

The cloud-based human resource management system is compatible with other systems of the organization.

	1	2	3	4	5	
Strongly Disagree	○	○	○	○	○	Strongly Agree

The cloud-based human resource management system is useful in supporting the majority of HR functions and activities.

	1	2	3	4	5	
Strongly Disagree	○	○	○	○	○	Strongly Agree

The cloud-based human resource management system at HCL Technologies is easy to use

	1	2	3	4	5	
Strongly Disagree	○	○	○	○	○	Strongly Agree

The cloud-based human resource management system is maintained on a regular basis

	1	2	3	4	5	
Strongly Disagree	○	○	○	○	○	Strongly Agree

The cloud-based human resource management system in the organization is fitted with adequate security features.

	1	2	3	4	5	
Strongly Disagree	○	○	○	○	○	Strongly Agree

External Factors

The following statements relate to external factors that have the potential of affecting the adoption of cloud-based human resource management system at HCL Technologies. Please indicate the extent to which you agree with the statements using the following scale: 5. Strongly Agree 4. Agree 3. Not sure 2. Disagree 1. Strongly Disagree

Organizations laws and regulations support the adoption of cloud-based human resource management system

	1	2	3	4	5	
Strongly Disagree	○	○	○	○	○	Strongly Agree

The socio cultural trends at HCL Technologies support the adoption of cloud-based human resource management system

	1	2	3	4	5	
Strongly Disagree	○	○	○	○	○	Strongly Agree

The competitive environment in the organization supports the implementation of cloud-based human resource management system

	1	2	3	4	5	
Strongly Disagree	○	○	○	○	○	Strongly Agree

Technological trends at HCL Technologies supports the implementation of cloud-based human resource management system

	1	2	3	4	5	
Strongly Disagree	○	○	○	○	○	Strongly Agree