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SCHOOL OF ECONOMICS AND MANAGEMENT

The transition from on-premises to cloud-based Human Resource Information System (HRIS)

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Introduction:

The way business is performed has altered as a result of digital transformations. Organizations are now prepared to respond in real time to the dynamic business environment. According to an IDC estimate, the cost of building out the world's information technology (IT) infrastructure was $1.3 trillion in 2017 and is expected to reach $2.1 trillion by 2021. Additionally, according to Gartner, 62% of firms took the effort to transform their operations (IDC forecasts,2017). Organizations get a competitive edge by implementing innovative technologies. By offering multiple advantages like lower costs for IT infrastructure, scalability, collaboration, and flexibility through on-demand service, cloud-based apps have significantly changed business. According to a Logic Monitor report, by 2020, 83% of enterprises' workload will be mapped on the cloud. Companies such as Amazon, IBM, and Google are forerunners in this industry, providing cloud-based systems (Columbus, n.d.)

During the last decade or so, technology has exploded in the Human Resources field. Human resources technology has grown into its own market since the 1990s. In the beginning, it was HR software designed to make HR employees' lives easier that led to the development.

The first HR software, the HRIS system, appeared in the early low-tech age, around the 1980s and 1990s (Rietsema, n.d.). It enabled HR department staff to use the program to execute all core HR operations as well as ancillary services such as absence management, training, compensation, workflow management, and reporting. A lot of paperwork may be eliminated this way, making the entire department and the corporation as a whole considerably more efficient. Employees could be dealt with a lot more quickly, and their questions could be answered more easily.

Then came the Human Capital Management system. In addition to the HRIS system, this system provided additional benefits. A HCM system could be used to perform analytical functions, succession planning, salary planning, position control, and even performance appraisals.

During the development of the HRMS software, a new version was released. HCM software is one step behind this software. Aside from allowing users to perform all the functions of HCM software, it also provides a simple means of managing payroll issues. It allows the user to organize time and labor efficiently. It enables the user to effectively arrange time and work. In 2027, the Human Resource Management Software Market was worth USD 51.90 billion. Over the forecast period, its market size is expected to expand at a CAGR of 10.10%. (MAXIMIZE MARKET RESEARCH, n.d.).

The market is buzzing about cloud technology. A cloud computing model, defined by the National Institute of Standards and Technology (NIST), is a model that enables a shared pool of computing resources such as servers, networks, storage, applications, and services to be accessible via a network on-demand with minimal management effort and interaction with service providers (Rajendran, 2013). Today's business is being transformed by cloud technology, and the change has already begun. Almost all job postings have been eliminated by online shoe retailer Zappos, for instance. In addition to social media websites like Twitter and Facebook, they now recruit through an online community called InsideZappos. Consequently, the number of candidates has tripled. (Kajiwara, 2015).

1. Human Resource Information Systems (HRIS)

The human resources information system helps support HR activities and managerial decisions by collecting, storing, manipulating, retrieving, analyzing, and distributing information about the organization's human resources. (Hendrickson, 2003; Kavanagh and Johnson, 2017). Pyburn (1983) observes that the importance of HRIS to corporate strategy is increasing. Tanriverdi (2006) considers it a

strategic resource for the organization. Williams (1997) states that information system strategies can be generated at random, through inspiration, or through carefully planned and analyzed strategies.

Human Resource Information Systems is a process that uses technology to better manage human resource functions and applications. A database or inter-related database is usually used to track employees and their employment specific information. (Gill and Johnson, 2010). Kovach and Cathcart (1999) enunciated The most important aspects of an HRIS are the information and not the computers. The focus should be on reliability and utility first and on automation of the process later on in the HRIS.

In the pre-World War II era, when "scientific management" was the method to increase production, HR related record keeping for personnel departments had already begun on paper. Payroll computations were the first HR function to be mechanized after World War II until the 1960s. The defining moves in the field during this time period were job description-based remuneration systems and unionization. During the 1970s, IT expenses fell, as did the computerization of corporate operations and the development of the first management information systems (MIS), including those for human departments, which were now referred to as HR.With the background of globalization, internet-enabled services, and outsourcing from the late 1990s to the present, technology improvements changed many HR activities into online operations (Kavanagh and Johnson, 2017)

Figure 1 shows different HR management activities, whose interdependent nature is indicated with the arrows that show the interactions. .

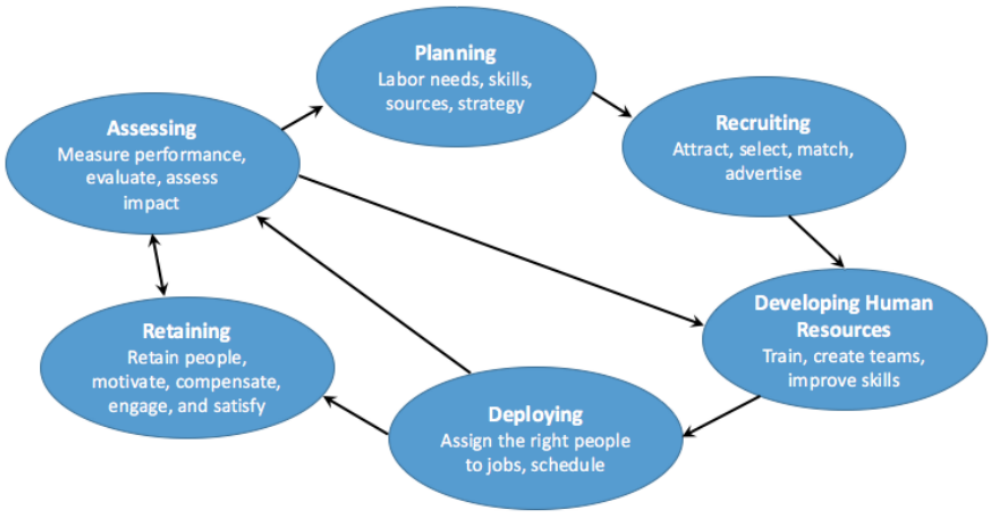

Figure 1. HR management activities (Source: Turban and Volonino, 2012)

The key HR activities that are executed with the help of IT can be grouped as below (Turban and Volonino, 2012; Rainer, Prince, Watson, 2013):

Recruitment: Employee recruitment involves locating candidates, screening them using a variety of approaches, and hiring the best candidates. Candidates with the right qualifications can be attracted using online recruiting tools. The ATS can be integrated with external social networks to search for and select candidates and track their application processes.(Bradley, 2015).

Human Resources Development: After hiring, an employee's performance is often tracked through periodic performance evaluations, and firms grow their workforce by delivering training to their

employees based on these assessments. IT is highly involved in two areas of HR: performance evaluation and training. Employees and supervisors may participate in a performance review cycle much more easily using automated performance management solutions. The information gathered throughout the assessment process can be utilized for systematic performance analysis, decisions on promotions, transfers, or layoffs, awards, pay reviews, and training needs (Rainer, Prince, Watson, 2013).

Human Resources Planning, Control and Management: Employee records and payroll, benefits administration and employee relationship management are some ways in which IT may be able to help a firm manage its employees.

HRIS is a field with many stakeholders in an organization: To begin with, HR professionals rely on the system to execute their tasks. These may involve record keeping, payroll, legal reporting to authorities, and staff skill management. The second group is managers, who need information from HR systems on their team, performance-related goals and appraisal data, and time management data such as shift plans and leaves. Finally, employees use tools to manage their benefit options, update their personal information, and engage in training and automated performance review procedures. As a result, HRIS is simply regarded as the "backbone" of modern HR (Hendrickson, 2003).

2. Electronic Human Resource Management (e-HRM):

According to Parry and Tyson (2011), e-HRM is "a method of implementing HR strategies, policies, and practices in businesses through deliberate and direct support and/or with the full utilization of web-technology-based channels". As a result of web technologies, employees can perform a wide variety of activities from the moment they are hired until the employee retires or is terminated. Among the activities are recruitment, performance management, succession planning, training and learning, benefits administration, employee data management, time collection, employee surveys, and termination.

Strohmeier (2007) alludes to technology's role in linking geographically distant members of a process, as well as assisting and even substituting them in their roles in these processes, in his evaluation of the current e-HRM literature. In comparison to other terms for the concept, such as "virtual HRM," "business to employee (B2E)," and "Web-based HRM," e-HRM can encompass more aspects of these systems, such as non-computer components, involvement of actors other than business owners and employees, and integration with ERP-systems.

3. Enterprise Resource Planning (ERP) Systems and HRIS:

Enterprise resource planning (ERP) is a platform that organizations utilize to manage and connect the critical components of their operations. Many ERP software systems are crucial to businesses because they aid in resource planning by unifying all of the operations required to operate their businesses into a single system.

A software system for enterprise resource planning (ERP) can also combine planning, purchasing inventories, sales, marketing, finance, human resources, and other functions (Anderson, 2021).

ERP systems combine many business processes and hence contain several "modules" that correlate to various business functions like Manufacturing, Sales and Distribution, Finance and Controlling, Human Resources, Supply Chain, and Customer Relationship Management.(Figure 2).

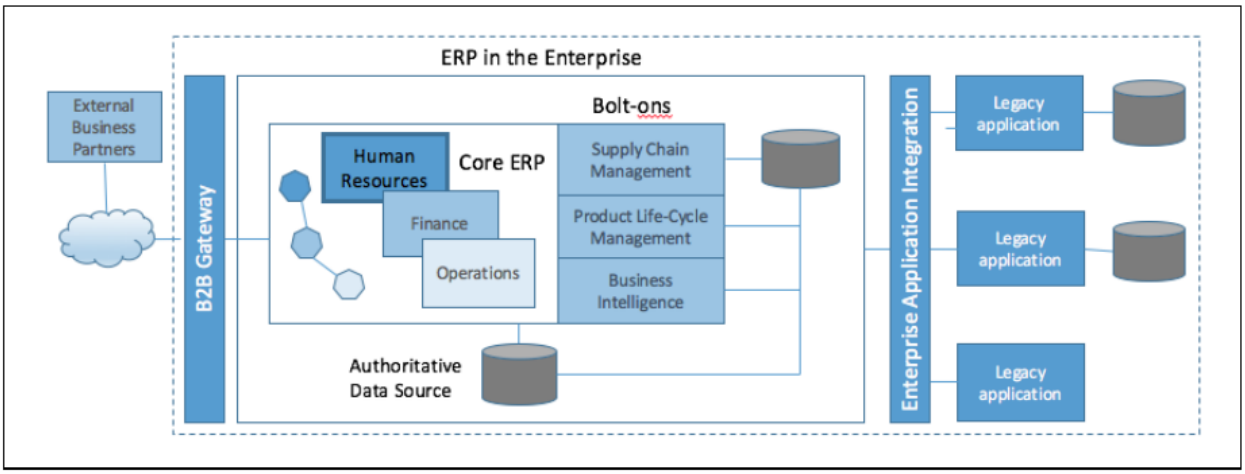

Figure 2. How ERP interfaces with other enterprise systems (Turban and Volonino, 2012)

Some of the most distinguishing features of ERP systems are: (1) modularity: they are made up of different modules that correspond to different departments of a business organization; (2) customization: The configuration process typically begins before the system is used in order to fit the business processes of the organization.; and (3) industry-specificity: they can be purchased preconfigured for different industries such as banking, retail, and healthcare (Chandrakumar and Parthasarathy, 2014).

As internet applications grew in popularity, these HRIS providers created web-enabled solutions in some functional areas, as system usage became less and less dependent on the user being on the real corporate premises or using a computer that can access the company network and therefore the HR system. By using SAP's employee self service (ESS) and manager self service (MSS) portals, for instance, employees can manage and approve leaves, maintain data, complete timesheets, administer benefits, travel expenses, and execute talent management processes using web interfaces, including SAP Talent Visualization, such as training, e-recruitment, performance evaluation, and career planning. (SAP, n.d.).

Some ERP post-installation difficulties include: The system may no longer meet the demands of the organization after implementation. Users will need to be trained on how to use the system, which means allocating time and resources for vendor representatives or implementation partner staff to adequately train employees. Some internal processes within your organization may need to be adapted to suit the software, which should be planned well in advance of the go-live date (Technology Evaluation Centers Inc, 2016).

4. Technological advances, Cloud technology and SaaS

The National Institute of Standards and Technology considers cloud computing to be a model for enabling simple, convenient, on-demand network access to a pool of computing resources (e.g., networks, servers, storage, applications, and services) that can be quickly provisioned and released. (Mell and Grance, 2011). The cloud model's key characteristics include on-demand self-service, broad network access, resource pooling, quick flexibility, and measurable service (Mell and Grance, 2011). Asynchronous JavaScript and XML (AJAX) technology, multi-tenancy, and virtualization are examples of technological advancements that have enabled the provision of cloud services (Chandrakumar and Parthasarathy, 2014).

There are the following 4 types of cloud that can deploy according to the needs-

Parameter	Public Cloud	Private Cloud	Hybrid Cloud	Community Cloud
Host	Service provider	Enterprise (Third party)	Enterprise (Third party)	Community (Third party)
Users	General public	Selected users	Selected users	Community members
Access	Internet	Internet, VPN	Internet, VPN	Internet, VPN
Owner	Service provider	Enterprise	Enterprise	Community

Figure 3*: Cloud types (Source: *www.javatpoint.com, n.d.)

There are 3 different types of cloud technologies (Michael Specht, 2013). Starting from the least complicated, these are First Infrastructure as a Service (IaaS), Platform as a Service (PaaS) and the most commonly used Software as a Service (SaaS).

The most fundamental sort of cloud technology is Infrastructure as a Service (IaaS). A vendor supplies the user with a virtual server (often in the form of a website) to provide certain apps in this system. This service might be either public or private. Most IT businesses today have resorted to implementing private IaaS in their enterprises, which has had a significant influence on the HR department's operation. The majority of information is now saved on cloud services. There is no need to worry about not having enough RAM or space on the hard drive, and the danger of losing data is reduced even more. However, because the provider has only partial control over the technology, IaaS is not as sophisticated.

The platform as a service(PaaS) allows businesses to create software solutions without having to worry about hardware, operating systems, and databases. This platform enables several HR operations, including recruiting, screening, and learning management, to be performed online. Even resumes are now uploaded online, and the full hiring process may be completed online.

Software as a service(SaaS) is the most recent version of this technology for the sector of human resources. The majority of people are able to interact with this kind of technology. A server usually provides the user with the full program via an application via the cloud, which does not require the user to install or upgrade anything. The user must upload and manage only the information stored in the cloud. The user is not required to perform any upgrades or updates (Kumar, M. R., 2016).

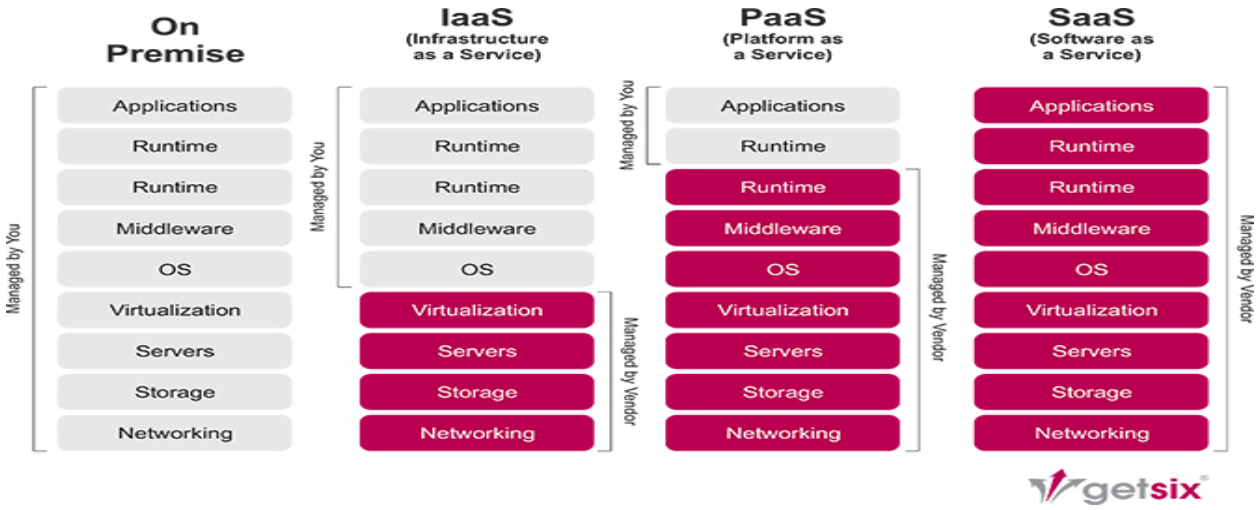

Figure 4: Comparison of cloud service models with on-premise software(getsix, n.d.)

Benefits of Cloud Technology

Whichever form of cloud technology is used by the organization, the manner in which HR functions and procedures take place has definitely witnessed drastic change. Benefits of this technology to the field of human resources are numerous.

Automation - Many of the data-intensive HR activities, such submitting timesheets, performance reviews, and leave requests, can be automated with the aid of cloud-based HR technologies. HR managers can concentrate on the big picture and stop worrying about the minute, daily duties thanks to cloud computing(IceHrm, 2021).

Data security - The growth of cloud computing technologies requires a strong focus on security. Cloud HR solutions guarantee that your data is safe even in the case of a natural disaster like a fire. To access the data, all you need is a computer or mobile device with internet connectivity(IceHrm, 2021).

Recruitment - The hiring process can be greatly expedited with cloud computing. Everyone has immediate access to information about each phase of the process because it is stored in the cloud. Decisions can be taken at any time, from any location in the world, and feedback can be supplied in real time(IceHrm, 2021).

Efficiency and creativity - As more employees move to the cloud and successfully use it, employees are more honest and open with both the firm and each other. Every level of the workforce, from entry-level workers to CEOs to senior staff members, is affected by this(IceHrm, 2021).

Cloud HR solutions create a competitive advantage - Using data and analytics can help identify trends in finding candidates that best fit the organization. HR managers can increase engagement and identify better ways to track career paths. In addition, the cloud enables greater opportunities for innovation, such as AI and mobile apps, which are likely to attract candidates(IceHrm, 2021).

The following are a few challenges of cloud technology :

Dependence on third parties - Using the cloud might result in a significant degree of dependence on third parties, which puts an organization at risk of being exploited. If the vendor has a difficulty, the user

could not even be able to access their information because of scenarios like vendor lock-ins(Kumar, M. R.,2016).

Reliant on the internet - A reliable internet connection is necessary for a SaaS solution. A more sensible option would be an on-premise solution if your business is located in an area with low internet connectivity (People Conscience, 2016).

Platforms are not always all-encompassing - some cloud-based platforms for benefits management can be missing key features. Having numerous platforms can result in a fragmented benefits and rewards experience for employees if not effectively handled. Make sure the vendor you choose can offer best-of-breed solutions to all of your business's needs (direnpramodacumar, 2015).

Issues with confidentiality and security - Because public clouds are less expensive than private ones, most businesses use them. The risk of data theft and misuse is very high. Even with private cloud solutions, the business must implement particular security measures to make sure that data is invisible to third parties(Froehlich et al., 2021).

Conclusion

A new craze in technology is sweeping the HR industry, and the Cloud is the latest example. In addition to talent management, decision-making, succession planning, full payroll systems, and compensation administration, the HR industry has greatly benefited from this innovation. Major multinational corporations like Microsoft and Amazon control significant portions of the cloud solutions market in HR, which has risen significantly in the past few years. The advantages of this innovative technology are numerous and have a bright future. Despite its advantages, this new technology has some disadvantages as well. A great deal of technical work needs to be done in order to resolve a number of issues. There are plenty of flaws in this novel concept, but it's still burning up the market. In a few years, businesses will move away from paper-based files in favor of cloud solutions, paving the way for a fully digitalized future.

References

1. Anderson, S. (2021). *Enterprise Resource Planning - ERP*. [online] Investopedia. Available at: https://www.investopedia.com/terms/e/erp.asp.

2.Bradley, Shaun, "Recruiting via LinkedIn - How ATS systems have Integrated with LinkedIn" OrangeHRM Blog. 25 February 2015 | *OrangeHRM*. [online] Available at: https://www.orangehrm.com/blog/recruiting-via-linkedin-how-ats-systems-have-integrated-with-linkedin/ [Accessed 28 Oct. 2022].

3. Chandrakumar, T. and Parthasarathy, S. (2014). A Framework for Evaluating Cloud Enterprise Resource Planning (ERP) Systems. *Computer Communications and Networks*, pp.161–175. doi:10.1007/978-1-4471-6452-4_7.

4. Columbus, L. (n.d.). *83% Of Enterprise Workloads Will Be In The Cloud By 2020*. [online] Forbes. Available at: https://www.forbes.com/sites/louiscolumbus/2018/01/07/83-of-enterprise-workloads-will-be-in-the-cloud-by-2020/?sh=659ddbf36261 [Accessed 28 Oct. 2022].

5.direnpramodacumar (2015). *The Opportunities and Challenges of Cloud-Based HR Benefits Management*. [online] CPA Practice Advisor. Available at: https://www.cpapracticeadvisor.com/2015/08/18/the-opportunities-and-challenges-of-cloud-based-hr-benefits-management/19502/ [Accessed 28 Oct. 2022].

6.getsix. (n.d.). The Types of Cloud Computing. [online] Available at: https://getsix.eu/resources/glossary/the-types-of-cloud-computing/.

7. Hendrickson, A.R. (2003). Human resource information systems: Backbone technology of contemporary human resources. *Journal of Labor Research*, [online] 24(3), pp.381–394. doi:10.1007/s12122-003-1002-5.

8. IceHrm. (2021). *The Advantages of Cloud Computing in HR*. [online] Available at: https://icehrm.com/blog/the-advantages-of-cloud-computing-in-hr/ [Accessed 28 Oct. 2022].

9. *IDC forecasts worldwide spending on digital transformation technologies in 2018 to reach $1.3 trillion in 2018* (2017) *IDC Forecasts Worldwide Spending on Digital Transformation Technologies in 2018 to Reach $1.3 Trillion in 2018 | Business Wire*. Available at: https://www.businesswire.com/news/home/20171215005055/en/IDC-Forecasts-Worldwide-Spending-on-Digital-Transformation-Technologies-in-2018-to-Reach-1.3-Trillion-in-2018#:~:text=FRAMINGHAM%2C%20Mass.,%241.1%20trillion%20spent%20in%202017. (Accessed: October 28, 2022).

10.Johnson, P. (2010). Research Methods for Managers. *Research Methods for Managers*, [online] pp.1–288. Available at: https://www.torrossa.com/en/resources/an/4913082.

11. Kajiwara, M. (2015, August 28th). Retrieved from How Companies Are Using HR Cloud to Improve Hiring, Retention: http://data-informed.com/how-companies-are-using-hr-cloud-toimprove-hiring-retention/

12.Kavanagh, M.J. and Johnson, R.D. (2017). *Human Resource Information Systems: Basics, Applications, and Future Directions*. [online] *Google Books*. SAGE Publications. Available at: https://books.google.se/books?hl=en&lr=&id=3TxbDgAAQBAJ&oi=fnd&pg=PP1&dq=Human+Resource+Information+Systems:+Basics.

13.Kovach, K.A. and Cathcart, C.E. (1999). Human Resource Information Systems (HRIS): Providing Business with Rapid Data Access, Information Exchange and Strategic Advantage. *Public Personnel Management*, 28(2), pp.275–282. doi:10.1177/009102609902800208.

14.Kumar, M. R. (2016). Cloud technology and human resource management. *Annual Research Journal of SCMS, Pune Volume 5, March 2017*, 82. Available at: https://d1wqtxts1xzle7.cloudfront.net/53710344/Annual_Research_Journal_of_SCMS__51-with-cover-page-v2.pdf?Expires=1666952537&Signature=bvUBTKRSQlboVGkidMUmBlby0FH6kqahXkMJxVoF1lBQlcRtcFExWoXeGw6lOcltO7BZSbbjq3lqrQ1dBAXrlkxxfSxe5en0MYnH6G03vYyX~sYCtccqL2vbnVPNjBRhl8

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4ZA#page=92

15.MAXIMIZE MARKET RESEARCH. (n.d.). *Human Resource Management Software Market (2022 to 2029)*. [online] Available at: https://www.maximizemarketresearch.com/market-report/global-human-resource-management-software-market/63765/ [Accessed 28 Oct. 2022].

16.Mell, P. and Grance, T. (2011). *The NIST Definition of Cloud Computing Recommendations of the National Institute of Standards and Technology Special Publication 800-145*. [online] Available at: http://faculty.winthrop.edu/domanm/csci411/Handouts/NIST.pdf.

17.Michael Specht. (2013). *Cloud Computing and HR*. [online] Available at: https://specht.com.au/2013/01/23/cloud-computing-and-hr/ [Accessed 28 Oct. 2022].

18.Parry, E. and Tyson, S. (2010). Desired goals and actual outcomes of e-HRM. *Human Resource Management Journal*, 21(3), pp.335–354. doi:10.1111/j.1748-8583.2010.00149.x.

19. People Conscience. (2016). *Pros and Cons of a Cloud-Hosted HR System vs an On-Premise Solution*. [online] Available at: https://peopleconscience.com/2016/10/31/pros-and-cons-of-a-cloud-hosted-hr-system-vs-an-on-premise-solution/.

20. Pyburn, P.J. (1983). Linking the MIS Plan with Corporate Strategy: An Exploratory Study. *MIS Quarterly*, 7(2), p.1. doi:10.2307/248909.

21.Rainer, R. Kelly Jr., Brad Prince and Hugh Watson, Management Information Systems: Moving Business Forward. 2nd ed. Wiley. 2013.

22.Rajendran, S. (2013). *Organizational challenges in cloud adoption and enablers of cloud transition program*. [online] oastats.mit.edu. Available at: http://oastats.mit.edu/handle/1721.1/80690 [Accessed 28 Oct. 2022].

23.Rietsema, D. (n.d.). Retrieved from HR Payroll Systems: http://www.hrpayrollsystems.net/hrissystem-question-premise-cloud/

24.SAP. (n.d.). *Enterprise Resource Planning (ERP)*. [online] Available at: https://www.sap.com/products/erp.html?url_id=ctabutton-glo-icon-products-erp-052022 [Accessed 28 Oct. 2022].

25.SearchSecurity. (n.d.). *What is Cloud Security?* [online] Available at: https://www.techtarget.com/searchsecurity/definition/cloud-security.

26.Strohmeier, S. (2007). Research in e-HRM: Review and implications. *Human Resource Management Review*, 17(1), pp.19–37. doi:10.1016/j.hrmr.2006.11.002.

27.Tanriverdi (2006). Performance Effects of Information Technology Synergies in Multibusiness Firms. *MIS Quarterly*, 30(1), p.57. doi:10.2307/25148717.

28.Technology Evaluation Centers Inc (2016). *ERP Implementation: The 5 Biggest Challenges*. [online] Technologyevaluation.com. Available at: https://www3.technologyevaluation.com/research/article/The-5-Biggest-Challenges-When-Implementing-ERP-for-the-First-Time.html.

29. Turban, E., Volonino, L. and Wood, G.R. (2015) *Information Technology for Management: Advancing Sustainable, profitable business growth*. Hoboken, NJ: John Wiley & Sons.

30.Williams, L.T. (1997) *Planning and managing the information system - a manager's guide*, *Industrial Management & Data Systems*. MCB UP Ltd. Available at: https://www.emerald.com/insight/content/doi/10.1108/02635579710169577/full/html (Accessed: October 26, 2022).

31.www.javatpoint.com. (n.d.). *Types of Cloud - javatpoint*. [online] Available at: https://www.javatpoint.com/types-of-cloud.