*Int Journal of Social Sciences Management and Entrepreneurship 6(2): 273-281, 2022*

**ISSN 2411-7323** www.sagepublishers.com


# HUMAN RESOURCE CLOUD SYSTEMS AND PERFORMANCE OF MULTINATIONAL COMPANIES IN KENYA; A CASE OF EAST AFRICA BREWERIES LIMITED (EABL)

**[*]Dr. Kamara Mary, PhD**

[*]Senior Lecturer, Jomo Kenyatta University of Agriculture and Technology

Email; marykamara@jkuat.ac.ke

## ABSTRACT

Human Resource functions have always been considered as the backbone powerhouse of organizations but have traditionally been relatively slower in technology adoption. However, after the COVID-19 pandemic, HR seems to have taken the centre stage since companies realized that cloud computing can help manage their Human Resource. This study therefore sought to assess the influence of human resource cloud systems on performance of East Africa Breweries Companies (EABL). In order to fulfil this research, a case study was conducted on East African Breweries Ltd (EABL) a leading branded beverage business in the East Africa region. This study adopted descriptive research design. The study targeted Human Resource management level employees of EABL located in their headquarters in Nairobi. The target population was therefore 15 employees. The study used primary data collected using semi-structured questionnaires. The questionnaires were administered using Google forms. The study collected quantitative data which analysed using descriptive and inferential statistics computed using Statistical Package for Social Sciences (SPSS). The findings were presented in tables. The study found that improvement in human resource cloud systems in would lead to an increase in Performance of East Africa Breweries Limited. The study recommends the need for EABL to adopt a unified plan and procedures for the use of cloud computing technologies, especially with regard to human resource management and to the development of work in general, and to include disclosure reports in companies to the extent of their application and use of cloud computing technologies

**Key Words:** Human Resource, human resource cloud systems, East Africa Breweries Companies

## Introduction

One of the significant dimensions in organizations is the human resource discussion (Gainey & Klass, 2018). Human beings have a special place and particular importance in modern management. The human resource is the most important resource in any organisation, hence the focus on organizational behaviour is key (Alotaibi et al., 2021). Globalisation, technological advances, and a changing workforce affect all areas of human activity, among others human resources management (Szczepaniuk et al., 2018). Digitalisation and new technologies have started to be used in human resources management (Pamuk & Soysal, 2018).

Developments in cloud computing have seen companies resort to the cloud to gain competitive advantages and benefit from the advantages they achieve (Adjei, 2017). According to Adiyasa et al., (2018) cloud computing contributes to increasing work efficiency and reducing operating expenses for companies, as it does not require much support for information technology. In the recent past the cloud-based human resource (CBHR) has been converted into human capital leading to impressive contributions to organizational performance. Organizations tend towards cloud-based HR systems because HR data is massive and must be easily stored and accessed (Abdullah et al., 2020).

Transferring human resources functions to digital environment saves time and reduces costs. According to Shukur et al., (2021), cloud-based HR systems enhance decision-making, reduce administrator efforts, speed up response time, improve user services, and increase productivity. Therefore, human resources management needs to change and be perceived by companies as a competitive advantage (Alotaibi et al., 2021). Human Resource functions have always been considered as the backbone powerhouse of organizations but have traditionally been relatively slower in technology adoption (Dong & Salwana, 2021).

Like many multinational organisations across the world, East Africa Breweries Limited (EABL) is trying to adapt to the emerging trends. In order to keep up with the times, against odds such as periodical economically unfavourable conditions, companies have made changes in human resources management by developing modern practices. This study therefore sought to assess the influence of human resource cloud systems on performance of East Africa Breweries Companies (EABL).

## Statement of the Problem

East African Breweries Limited is one of the major businesses of the region. With greater success in its performance, comes more greater positive impact on the economies of East Africa such as creation of employment (EABL, 2022). However, despite this vital role, it was identified that East African Breweries Limited did not fully apply cloud based HR systems in their HR operations as opposed to other organizations in the brewery industry across the world (Torrington, 2018). However, after the COVID-19 pandemic, HR seemed to have taken the centre stage since companies realized that cloud computing can help manage their Human Resource. Areas with low penetration of technology like technical training, talent acquisition, hiring, employee on-boarding and engagement have gained momentum now (Dong & Salwana, 2021). This study therefore sought to assess the influence of adoption of human resource cloud systems on performance of East Africa Breweries Companies (EABL).

## Research Objective

To assess the influence of adoption of human resource cloud systems on performance of East Africa Breweries Companies (EABL).

## Theoretical Review

The study uses Rogers' (2003) theory of Diffusion of Innovations (DOI). Diffusion of Innovations theory attempts to explain "how, why, and at what rate new ideas of technology spread through cultures operating at the individual and firm level" (Oliveria & Martins, 2011). Innovation is communicated through certain channels over time among members of a social system (Rogers, 1995).

The diffusion of innovation consists of five characteristics that influence innovation adoption: Relative advantage – the degree to which innovation can bring benefits to an organization; Compatibility – the degree to which an innovation is consistent with existing business; Complexity – the degree to which innovation is difficult to use; Observability – the degree to which the results of an innovation are visible to others and; Trialability – the degree to which an innovation may be experimented (Rogers, 2013).

The DOI theory aligns with principles of change management theory and strategies for implementing change in HR (Ruta, 2005) and for HR technology (Benvenuti, 2011; Ruta, 2005). Oliveria and Martins (2011) conducted a thorough review of research studies using DOI from an empirical perspective (Kraemer et al., 2006; Wang, Wang, & Yang, 2010). Chen, Low, and Wu (2011) conducted study on Cloud technology adoption using the DOI theory. The theory explains how human resource management practices align with organizational performance (Huselid, 2011). The study used the theory to explain how adoption of technology (human resource cloud systems) affects performance of East Africa Breweries.

## Conceptual Framework

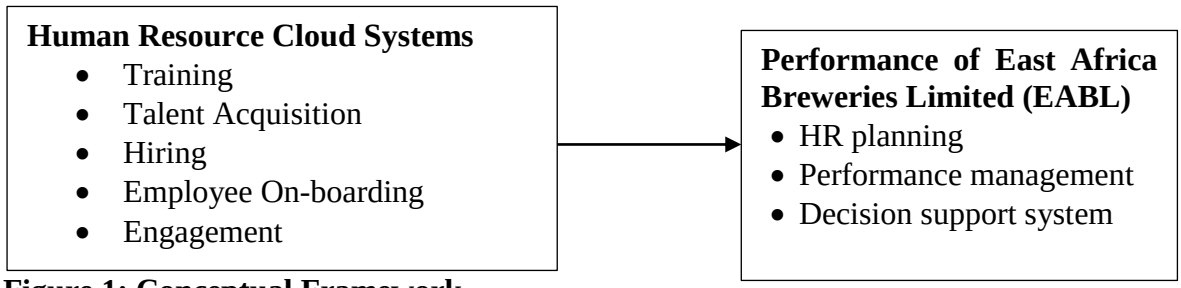


**Figure 1: Conceptual Framework**

## Empirical Literature Review

Celaya (2017) conducted a study on cloud-based computing and human resource management performance: a Delphi study. The purpose of this qualitative study with a modified Delphi research design was to understand the reasons human resource (HR) leaders are slow to implement Cloud-based technologies and potentially identify how Cloud-Based Computing influences human resource management (HRM) and HR effectiveness, and possibly the overall performance of the organization. Business executives and HR leaders acknowledge the effect of technology on business processes and strategies, and the leader's influence on technology implementation and adoption. Study findings revealed characteristics demonstrated by HR leaders successfully implementing cloud technology, best practices for successful implementation, factors championing and challenging Cloud-Based Computing adoption, and perceived effects on HRM and organizational performance as a result of using Cloud-Based Computing.

Dong and Salwana (2021) studied the impact of cloud-based human resource and supply chain management systems on the performance of multinational organizations. The study target is to check out whether CBHR and CBSCM enhance the performance of multinational organizations. This study utilized the SEM to estimate the measurement model's validity and

reliability and assess the causal model. The offered model and the questionnaires were analyzed using SPSS and LISREL. The research results showed that CBSCM influences the companies' performance. Additionally, the outcomes showed that CBHRM affects the performance of companies. The results support the proposition that CBSCM and CBHRM are both necessary and good for financial performance, marketing performance and collaborative performance.

Chen, Low, and Wu (2017) conducted a study in several Taiwanese high-tech organizations identifying relative advantage, firm size, top management support, competitive pressure, and trading partner pressure as determinants with significant effect on the adoption of Cloud-Based Computing. HR must transform and reinvent itself by leveraging cloud technology (Deloitte, 2018). The study by Cai and Chen (2021) found that lack of leadership support may limit the adoption of cloud computing in human resources, but cloud-based computing services can be used to reduce time and capacity constraints, reduce costs and provide anytime, anywhere connectivity, and scalability without responsibility for Maintenance or updates.

Mohammed and Shahizan (2021) aimed to identify the impact of the adoption of a cloud-based human resource management on the innovative behavior of the presence of leadership support as a mediating variable in SMEs in Jordan. This study included companies in the information and communications sector with fewer than 100 full-time employees. The sample size for this study was 354. Descriptive measures indicated a high level of innovative behavior and leadership support in small and medium-sized companies in Jordan. The study also found that the effect of the intent to adopt cloud computing for human resource management on leadership support was significant. And that the effect of leadership support on innovation behavior was significant. Moreover, the effect of intent to adopt cloud computing for human resource management was on innovation behavior, indicating that there was a significant effect of the independent variable on the dependent without a mediation effect. The results showed that leadership support partially mediated the relationship between intent to adopt cloud-based human resource management and innovation behavior.

**Research Methodology**

This study used descriptive research design to collect both qualitative and quantitative data (Creswell, 2014). The study targeted Human Resource Management level employees of EABL located in their headquarters in Nairobi. The target population was therefore 15 employees. Management level employees from HR department were targeted because they had the needed information on the effect of human resource cloud systems on performance of the company. This study adopted the census sampling technique to select the sample population. Since, in census investigation, every item of the population is taken into account; the study sample size was 15 respondents.

The study used structured questionnaires for data collection. The questionnaires were administered using Google forms where the researcher obtained work email of all management employees in HR department and sent them questionnaires for filling. The study collected quantitative data. Inferential and descriptive statistics were employed for analysis of the quantitative data with the assistance of Statistical Package for Social Sciences (SPSS version 25). Inferential data analysis was conducted by use of regression analysis. Using a 95% confidence level and a 0.05 significance level, the independent variable had a significant effect on the dependent variable if the p value was lower than 0.05.

## Research Findings and Discussion

Out of the 15 questionnaires distributed, 13 were received back having been dully filled. This forms a response rate of 86.7%. According to Mugenda and Mugenda (2013), a response rate of 50% and above is adequate for analysis and reporting, a response rate of 60% and above is good while that of 70% and above is excellent. Based on this assertion, our response rate was considered excellent and therefore, the 13 questionnaires were used for further analysis and reporting.

## Descriptive Analysis

### Human Resource Cloud Systems

Respondents were asked to rate their level of agreement or disagreement with the following statements on human resource cloud systems. They used the scale 5-point Likert scale where 1-strongly disagree, 2-disagree, 3-moderate, 4-agree, 5-strongly agree. Means and standard deviations presented in Table 1 were used to summarize the findings.

**Table 1: Descriptive Analysis for Human Resource Cloud Systems**

| Statement | Mean | Std. Deviation |
|---|---|---|
| HR technologies in our company incorporates automated interviewing, computer-based training, | 3.925 | 0.608 |
| Significant cost reduction is possible with Cloud-Based Computing | 3.915 | 0.907 |
| Knowledge management is more effective when using Cloud-Based Computing | 3.87 | 0.929 |
| Technology allows me to streamline functional responsibilities and delivery of services to focus on more strategic, consultative, and management roles | 3.819 | 0.563 |
| HR technologies in our company incorporates automated interviewing | 3.794 | 1.087 |
| Cloud-Based Computing services can be used to reduce time and capacity constraints | 3.724 | 0.935 |
| Cost of technology hinders the adoption of Cloud-Based Computing | 3.701 | 0.682 |
| We look for new technology and corresponding information to drive decision-making for organizational success | 3.675 | 0.954 |
| Electronic human resource management integrates the administrative responsibilities of HR and related outcomes to the technology required for creating value across the organization | 3.56 | 0.779 |
| **Aggregate Score** | **3.776** | **0.827** |

The findings showed that the respondents agreed on average with the statements on human resource cloud systems as shown by an aggregate mean of 3.776. The findings specifically showed that the respondents agreed that HR technologies in their company incorporates automated interviewing, computer-based training (M= 3.925, SD= 0.608); that significant cost reduction is possible with Cloud-Based Computing (M= 3.915, SD= 0.907); and that knowledge management is more effective when using Cloud-Based Computing (M= 3.870, SD= 0.929). In addition, they agreed that technology allows them to streamline functional responsibilities and delivery of services to focus on more strategic, consultative, and management roles (M= 3.819, SD= 0.563); and that HR technologies in their company incorporates automated interviewing (M= 3.794, SD= 1.087).

Respondent further agreed that cloud-Based Computing services can be used to reduce time and capacity constraints (M= 3.724, SD= 0.935); that cost of technology hinders the adoption of Cloud-Based Computing (M= 3.701, SD= 0.682); that they look for new technology and corresponding information to drive decision-making for organizational success (M= 3.675, SD= 0.954); and that electronic human resource management integrates the administrative responsibilities of HR and related outcomes to the technology required for creating value across the organization (M= 3.56, SD= 0.779).

This agrees with the findings of William Gibson (2018) that adoption of Cloud-Based Computing in the HR space is a competitive advantage for efficient performance, streamlined processes, enhanced recruiting, advanced analytics, and excellent training. It also aligns with SHRM (2018) that Human Resource Management Systems combines HR duties including payroll, benefits, performance management, recruiting, screening, and training to improve organizational performance. Also, Gainey and Klass (2018) reported that e-HR is often connected to improved delivery of HR services resulting in reduced costs, improved employee engagement, and greater strategic contribution by the HR function.

**Performance of East Africa Breweries Limited (EABL)**

Respondents were asked to rate their level of agreement or disagreement with the following statements on performance of their company. They used the scale 5-point Likert scale where 1-strongly disagree, 2-disagree, 3-moderate, 4-agree, 5-strongly agree. Means and standard deviations presented in Table 2 were used to summarize the findings.

**Table 2: Descriptive Analysis on Performance of East Africa Breweries Limited**

| Statement | Mean | Std. Deviation |
|---|---|---|
| There is a computerized system that holds employee career history, skills and qualifications. | 3.899 | 0.719 |
| EABL advertises posts and receives applications on-line | 3.894 | 0.585 |
| There is a system that holds staff grade, pay benefits and job description | 3.745 | 0.778 |
| Employees' data on leaves records and absenteeism are monitored electronically and reports generated. | 3.663 | 0.855 |
| EABL managers and employees have direct access to HR and other work place services through intranet. | 3.654 | 0.514 |
| There is a system used in preparing the payroll for staff. | 3.566 | 0.95 |
| Managers have access to electronic staff records | 3.565 | 0.915 |
| Changes in personnel policies and procedures are communicated to employees on- line | 3.537 | 0.956 |
| **Aggregate Score** | **3.690** | **0.784** |

On average, the respondents agreed with the statements on performance of EABL as shown by an aggregate mean of 3.690. The findings also show that the respondents agreed that there is a computerized system that holds employee career history, skills and qualifications (M= 3.899, SD= 0.719); that EABL advertises posts and receives applications online (M= 3.894, SD= 0.585); and that there is a system that holds staff grade, pay benefits and job description (M= 3.745, SD= 0.778). They also agreed that employees' data on leaves records and absenteeism are monitored electronically and reports generated (M= 3.663, SD= 0.855); that EABL managers and employees have direct access to HR and other work place services

through intranet (M= 3.654, SD= 0.514). In addition, respondents were in agreement that there is a system used in preparing the payroll for staff (M= 3.566, SD= 0.95); that managers have access to electronic staff records (M= 3.565, SD= 0.915); and that changes in personnel policies and procedures are communicated to employees online (M= 3.537, SD= 0.956).

This agrees with Gainey and Klass (2018) that the use of Cloud-Based Computing as a platform for knowledge management and organizational learning may enhance and contribute to the efficiency of HRM and overall organizational performance. Also, e-HR is often connected to improved delivery of HR services resulting in reduced costs, improved employee engagement, and greater strategic contribution by the HR function. It also agrees with Polen's (2019) that the use, knowledge, and communication of e-technologies by HR professionals may contribute to success in HR. Gangwa, Hema, and Ramaswamy (2018) posit managers must train employees for Cloud-Based Computing for effective implementation and improved performance to accomplish organizational objectives which agrees with the findings of present study.

**Regression Analysis**

Regression analysis was conducted to establish the relationship between Human Resource Cloud Systems and Performance of East Africa Breweries Limited (EABL).

Model Summary was used to show the amount of variant in Performance of East Africa Breweries Limited that could be explained by changes in Human Resource Cloud Systems. The greater the value of R-squared the greater the effect of independent variable; Table 3 presents the findings.

**Table 3: Model Summary for the Autonomy on Competitiveness**

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | .748[a] | 0.560 | 0.556 | 0.26077 |

a. Predictors: (Constant), Human Resource Cloud Systems

From the findings in the above Table 3, the value of R square was 0.560 which suggests that 56% variation in performance of East Africa Breweries Limited can be explained by changes in Human Resource Cloud Systems. The remaining 44% suggests that there are other factors that can be attributed to variation in performance of East Africa Breweries Limited that were not discussed in this study. Correlation coefficient (R) shows the relationship strength between the study variables. From the findings the variables were strongly and positively related as indicated r= 0.748.

Analysis of variance was used to determine whether the model is significant; whether the model was a good fit for the data. The significance of the model was tested at 5% level of significance.

**Table 4: Analysis of Variance**

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | 1.637 | 1 | 1.637 | 24.074 | .000[b] |
| | Residual | 0.748 | 11 | 0.068 | | |
| | **Total** | 2.385 | 12 | | | |

a. Dependent Variable: Performance of EABL

b. Predictors: (Constant), Human Resource Cloud Systems

From the analysis of variance (ANOVA) findings in Table 4, the regression model was significant at 0.000 which is less than the selected level of significance (0.05). Therefore, the data was ideal for making a conclusion on the population parameters. The F calculated value

was greater than the F critical value (24.074>4.844), an indication that Human Resource Cloud Systems significantly influences performance of East Africa Breweries Limited.

The coefficients or beta weights for study variables allows the researcher to compare the relative importance of independent variable. In this study the unstandardized coefficients and standardized coefficients are given for the univariate regression equations as shown in Table 5. However, discussions are based on the unstandardized coefficients.

**Table 5: Beta Coefficients**

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | 1.988 | .219 | | 9.078 | .000 |
| | Human Resource Cloud Systems | .486 | .058 | .451 | 8.379 | .000 |
| a. Dependent Variable: Performance of EABL | | | | | | |

From the results the regression model was;

$Y = 1.988 + 0.486\ X_1$

The above regression equation revealed that holding Human Resource Cloud Systems to a constant zero, Performance of East Africa Breweries Limited will be at a constant value of 1.988. The findings also show that Human Resource Cloud Systems is statistically significant in explaining Performance of East Africa Breweries Limited ($\beta = 0.486$, $P = 0.000$). This indicates that Human Resource Cloud Systems positively and significantly relates with Performance of East Africa Breweries Limited. Therefore, a unit improvement in Human Resource Cloud Systems in would lead to an increase in Performance of East Africa Breweries Limited by 0.486 units.

The findings agree with Gibson (2016) that adoption of Cloud-Based Computing is a competitive advantage for HR performance for organizations of all sizes and revenue. The ability to attract and attain top talent is a competitive advantage to which Cloud-Based Computing can be the means by which to achieve potentially improving HRM performance and of the overall organizational workforce. It also concurs with Saleem (2016) that the advantages to Cloud-Based Computing include reduction in expenses via minimal initial investment, monthly service plans, and decreased maintenance, and via increased operational agility through easy of accessibility, scalability and deployment. Also, cloud-Based Computing may offer a unique opportunity to build competitive advantage in the HR function by providing accessibility to, and use of, big data for increased efficiency in HR performance.

**Discussion**

EABL have embraced technology in their HR practices. This has seen them achieve many benefits such as cost reduction, Knowledge management and in streamlining functional responsibilities and delivery of services to focus on more strategic, consultative, and management roles. It has also reduced time and capacity constraints by integrating the administrative responsibilities of HR and related outcomes to the technology required for creating value across the organization.

However, cost of technology hinders the adoption of Cloud-Based Computing. Other challenges to adopting new technologies in the HR field are outdated processes, fear, and close-mindedness. The rate of adoption in the field diverges leaving the HR field with arbitrary practices, responsibilities, and limited strategic influence. As organizations continue

to access global talent pools and expand customer reach, technology may alleviate these challenges increasing outcomes of organizational and strategic importance including performance, engagement, productivity, effectiveness, efficiency, and sustainability of the organization. Academicians and HR leaders may benefit from, and use the findings of, this study to extend future research and provide a more targeted perspective to HRM and organizational performance.

## Conclusions

The study found that human resource cloud systems are statistically significant in explaining Performance of East Africa Breweries Limited. Also, human resource cloud systems had positive influence on performance of East Africa Breweries Limited. Therefore, a unit improvement in human resource cloud systems in would lead to an increase in Performance of East Africa Breweries Limited. Based on the findings, the study concluded that human resource cloud positively and significantly influences Performance of East Africa Breweries Limited.

## Recommendations

The study recommends the need for EABL to adopt a unified plan and procedures for the use of cloud computing technologies, especially with regard to human resource management and to the development of work in general, and to include disclosure reports in companies to the extent of their application and use of cloud computing technologies. The study also recommends legislators in the industry to enact legislation for the use of cloud computing technologies, or to amend legislation related to cybersecurity or electronic transactions by adding legal texts related to regulating the use of cloud computing technologies.

## Suggestions for further studies

This study was limited to EABL; the study recommends replication of this research in other industries and sectors. Also, the study focused on HR cloud system in general, the study recommends a study to be conducted on individual measures of these systems. The study also found that HR cloud system are still new and therefore recommends a study to be done on identifying factors contributing to the slow adoption of Cloud-Based Computing, and the potential effect on HRM processes. Additional research study on HR leadership and technology adoption, and contributing factors of Cloud-Computing on HRM and organizational performance is necessary.

## Reference

Adiyasa, H., Hidayanto, A. N., Pinem, A. A., Solikin, Negara, E. S., & Putri, P. B. M. (2018). Exploring the factors for cloud computing adoption in Indonesia. 2018 *International Conference on Computing, Engineering, and Design*, 72, 137–142. https://doi.org/10.1109/ICCED.2018.00035

Adjei, J. K. (2015). Explaining the role of trust in cloud computing services. *Info*, 17(1), 54-67. doi:10.1108/info-09-2014-0042

Alotaibi, M. Z., Alotibi, M. F., & Zraqat, O. M. (2021). The Impact of Information Technology Governance in Reducing Cloud Accounting Information Systems Risks in Telecommunications Companies in the State of Kuwait. *Modern Applied Science*, 15(1), 143-151 https://doi.org/10.5539/mas.v15n1p143

Alotaibi, M. Z., Alotibi, M. F., & Zraqat, O. M. (2021). The Impact of Information Technology Governance in Reducing Cloud Accounting Information Systems Risks in Telecommunications Companies in the State of Kuwait. *Modern Applied Science*, 15(1), 143-151 https://doi.org/10.5539/mas.v15n1p143

Cai, C., & Chen, C. (2021). Optimization of Human Resource File Information Decision Support System Based on Cloud Computing. *Complexity, Article ID* 8919625. https://doi.org/10.1155/2021/8919625

Celaya, Tracy A. (2017). *Cloud-Based Computing and human resource management performance: A Delphi study*. University of Phoenix ProQuest Dissertations Publishing, 2017. 10004286.

Chen, Y., Low, C., & Wu, M. (2017). Understanding the determinants of Cloud computing adoption. *Journal of Industrial Management & Data Systems*. 111(7), p. 1006-1023.

Deloitte, (2018). *HR in the Cloud: It's inevitable*. Retrieved from http://www.deloitte.com/assets/DcomUnitedStates/Local%20Assets/Documents/us_consulting_HCTrends_HRintheClo uds_060611.pdf.

Dong, X. & Salwana, E.. (2021). The impact of cloud-based human resource and supply chain management systems on the performance of multinational organizations. *Kybernetes. ahead-of-print.* 10.1108/K-05-2021-0363.

Gainey, T. W., & Klaas, B. S. (2018). The use and impact of e-HR: A survey of HR professionals. *People and Strategy*, 31(3), 50-55. Retrieved from http://www.hrps.org/?page=peoplestrategy

Gangwar, H., Hema, D., & Ramaswamy, R., (2018). Understanding determinants of cloud computing adoption using an integrated TAM-TOE model. *Journal of Enterprise Information Management*, 28(1), 107-130. doi: 10.1108/JEIM-08- 2013-0065

Gibson, W., (2016). *HR Cloud: Enabling a path for growth in the technology industry.* Retrieved from http://www.deloitte.com/view/en_US/us/Services/consulting/technologyconsulting/technology-strategy-architecture/Cloudcomputing/9363f93faf0a6310VgnVCM3000001c56f00aRCRD.htm.

Mohammed, B. N. & Shahizan H. (2021). Impact Of_Intention_To_Adopt_Cloud-Based Human Resource Management on Innovation Behaviour: The Mediating Role Of Leadership Support In Smes In Jordan-- *Palarch's Journal Of Archaeology Of Egypt/Egyptology* 18(9), 1380-1395. ISSN 1567-214x

Pamuk, N. S., Soysal, M. (2018) 'Yeni sanayi devrimi endüstri 4.0 üzerine bir inceleme [A review of the new industrial revolution industry 4.0]', *Verimlilik Dergisi*, (1), pp. 41–66

Polen, L. L. (2019). *Perceptions of electronic technology impacts upon Human Resource professionals (Doctoral dissertation).* Retrieved from ProQuest Dissertations and Theses. (Document ID 305123782)

Saleem, I. (2016). Impact of adopting HRIS on three tiers of HRM: Evidence from Developing Economy. *Business Review*, 7(2), 96-105.

Shukur, H. M., Zeebaree, S. R., Zebari, R. R., Hussan, B. K., Jader, O. H., & Haji, L. M. (2021, February). Design and implementation of electronic enterprise university human resource management system. *In Journal of Physics: Conference Series* (Vol. 1804, No. 1, p. 012058). IOP Publishing. doi:10.1088/1742-6596/1804/1/012058

Szczepaniuk, E., Gawlik-Kobylińska, M., Krzemiński, W. (2018) Technologie informacyjne w zarządzaniu [Information technologies in management]. *Warsaw: Akademia Sztuki Wojennej*. doi: 10.29119/1641-3466.2018.128.7.