

Analysis of Digital Technology and Effects on Human Resource Management Machine learning and its Diversity Equality Inclusion

Vishaal. K¹, Gundala Venkata Rama Lakshmi², Mahalaksmi Arumugam³, Dr.K.Selvi⁴,
Rakesh Haridas Nair⁵, Dr.M.Indrapriya⁶, Revathi V⁷, Dr. Rajendra Subhash Jarad⁸,
S.Saravana Kumar⁹

¹Senior Research Fellow, Department of Economics, Central University of Tamil Nadu.

²Assistant Professor, Department of CSE, CVR College of Engineering, Hyderabad.

³Associate Professor, Department of Management Studies, M S Ramaiah Institute of Technology, Bangalore 560 054.

⁴Professor, Department of Management Studies, S.A.Engineering College (Autonomous), Chennai -77.

⁵Assistant professor, Symbiosis Law School, Nagpur, symbiosis international (Deemed)University.

⁶Assistant Professor, Department of Banking & Insurance, KPR College of Arts Science and Research, Coimbatore.

⁷Professor & Dean R&D, New Horizon College of Engineering, Bangalore.

⁸Professor, MBA, Dr. D. Y. Patil Institute of Technology, Sant Tukaram Nagar, Pimpri, Pune 411018.

⁹Assistant Professor, Mathematics, Vinayaka Mission's Kirupananda Variyar Engineering College, Vinayaka Mission's Research Foundation Deemed to be University, Salem, India.
srichandrang@gmail.com

KEYWORDS

Digital technology
,Human resource
management, Talent
structure, Labor ,
Diversity, Machine
Learning.

ABSTRACT:

The digital technology significantly affects company management practices, necessitating adaptable changes. This study looks at how company HRM should change to keep up with the rapid advancement of digital technologies. The study's findings demonstrate how technology has impacted the labor market, the setting for businesses, and the number of jobs available. Human resource management is the foundation for digital empowerment and management transformation. Determine the particular biases in HR procedures that you want to target, such as age, gender, or ethnicity bias. Specify the goals you want to achieve, such as raising employee satisfaction, decreasing recruiting prejudice, and boosting diversity and inclusion metrics .Perform a comprehensive analysis of the body of research on bias in HR procedures, diversity and inclusion, and the use of machine learning to reduce bias.

1. Introduction

It takes a methodical approach to design a study technique for machine learning for diversity and inclusion that addresses biases in HR practices. Here is a recommended framework that you can modify according to the particular goals, available resources. The use of digital technology in business has increased in depth and breadth during the past several years. Under the influence of digital technology, businesses that organize work are changing. Within this framework, the company's HRM practices must also be modified accordingly to meet the evolving demands of digital technology. This work methodology essay concentrates on how technology affects work environments, talent structures, and demand in India. It also suggests ways to optimize corporate human resource management in light of digital technology. Digital technology influences the work process and the corporate layout, which in turn affects how positions are set. Operation technology content and methodology of Meital Technology Operations Efficiency of technology management Digital Enhancement of Jabber responsibility and technology Digital The need for technology responsibility growth in employment. Digital technology's later trajectory in human resource management Effect on the Need for Labor The two ways that digital technology affects labor demand are through the substitution effect, which lowers labor demand, and the compensating effect, which raises labor demand [1]. Regarding the replacement effect, digital technology lowers the labor demand for some jobs because it replaces labor-intensive technologies like labor and improves labor efficiency. With the use of digital technology, labor productivity has increased and the number of workers needed to accomplish the same amount of work has decreased [2]. When a labor task is finished, the extent to which digital technology influences demand relies on how well the employees perform and meet the task's skill requirements. According to earlier research, jobs involving operational and programmed duties have the highest likelihood of being replaced by digital technology. The lowest replacement rate roughly 10% is seen in cognitive and non-routine tasks [3] Model Based on Tasks Assignment routinely occurring again and Nanroutine-me, a mechanical tea both medicinal and non-medical treatments. The effect of lateness Capacity Cognitive-less labor which calls

for elevated reasoning and cognitive. On the one hand, the time it takes for digital technology to be used is directly impacted by economic viability. The widespread use of digital technology is being held back by the expense of its application. Digital technology's economic viability The effects of digital technology application time on economic possibility[4]. The Price of Digital technology Momentum However, while assessing how digital technology is affecting employment, it is important to take into account the time lag in its deployment, particularly for developing nations. The real implementation of digital technology in poor nations is delayed due to economic feasibility, which also delays the effect on employment.

2. Digital technology

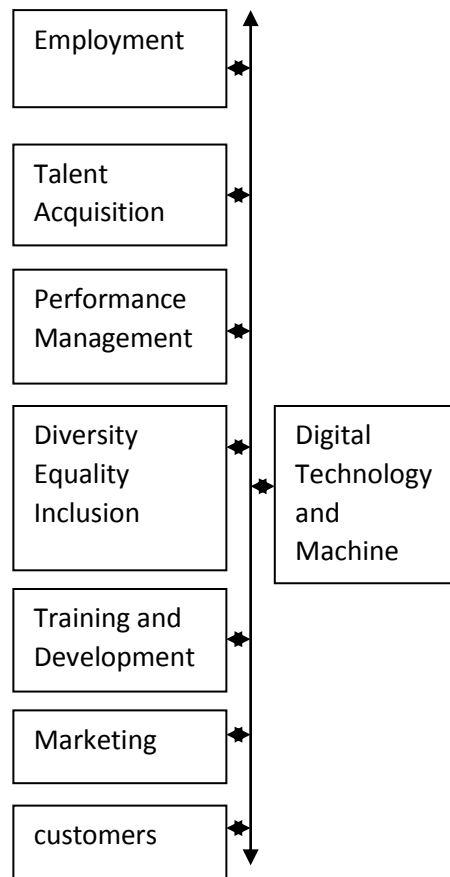
The advantages of technology investment in terms of efficiency and return on investment will increasingly outweigh those of human capital. Enterprises will progressively assign talent to core positions and core talents with high efficiency in producing human capital and excellent talent value creation capacity. [5] There will be a growing need for key skills with significant value generating potential. Digital technology will replace the front-end programming and operational positions in the current employment structure. Talents will progressively replace labor in demand. Professional technical capabilities as well as highly skilled individuals that are unable to be replaced by technology. Promising leaders, top technicians and technical talent, and compound technical talent are among these positions. abilities in professional management, innovative talents, compound high-skilled talents, and so forth 2/4 declines, digital technology will replace the workers that produced inefficient human capital[6]. The fig 1 demand for employment will eventually decline as workers with low human capital production efficiency are being replaced by digital technology in the workforce.

A. Human resource management's optimization direction under the influence of digital technology

Overall, the company's approach to managing its human resources will shift from "management and control to "empowerment". Establishing a comprehensive approach to human resources, emphasizing the development of workers' capacity for value creation, arranging labor according to consumers organizations must prioritize the creation of forward-thinking talent reserves and enhance their strategic human resource planning. Organize people in a methodical manner and optimize the overall effectiveness of the company's workforce. Companies must enhance strategic considerations and forward-looking talent distribution reserves

B. Talent human resources

Businesses must consider if their employment's size, composition, and quality can fulfill the strategic demands of the digital transformation as well as their ability to adjust to new ventures and changes in the technology landscape. Businesses must get the highest possible total talent allocation and optimum efficiency when considering talent from an all-encompassing perspective[7]. It is essential to fully utilize the internal human resources. Businesses are able to forecast the requirements of the digital business and technological transformation, as well as plan ahead for talent training and reserve[8]. Professionals in digital technology who are dispersed throughout the organization's many divisions and units must be integrated. Along with developing digital technical skill, all departments and units must be actively encouraged to share their talents with one another. With every day that goes by, digital technology development is evolving. The updated business form is still being refined. The level of uniformity in the work content completed by employees has declined. Employees' significance and personal worth are emphasized. It is essential to foster the internal vigor and innovation of the personnel and to fully utilize their talents and potential. Regarding focusing on employee equity, how can enhance worker skills, ignite worker potential, The goal of employment management is now to foster employee growth, sense of worth, and contentment.



3. Management systems .

Positions are no longer the primary basis for evaluation and incentives. It is imperative that the compensation structure place a greater emphasis on performance and individual aptitude, support workers in enhancing their capacity to adjust to digital technology, and mentor them as they mature into compound talents with a variety of skills and responsibilities.

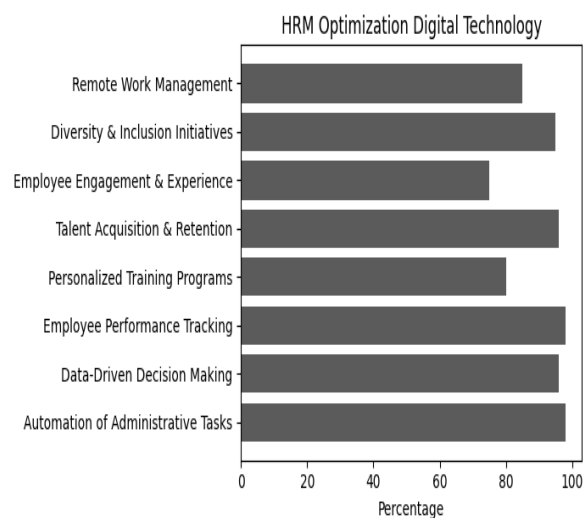


Fig. 1. HRM optimization digital technology

Fig 2 Businesses must routinely host technology competitions and offer their staff access to an online platform for enterprise-wide virtual technology exchange communities. The enterprise should reallocate its internal resources to the front of the market, thereby enhancing the self-organization and adaptability of front-line employees at the grassroots level. In terms of customer-centricity, businesses must move away from internal management and toward the needs of the market and its customers. Higher-level departments and department executives are no longer primarily motivated by internal management. As the foundation and basis of labor management, every company, profession, and class level must consider. Companies should enhance the market's capacity for self-organization and self-adaptation in order to shift resources to the market. More autonomy in making decisions and allocating resources should be granted to front-line staff members and teams

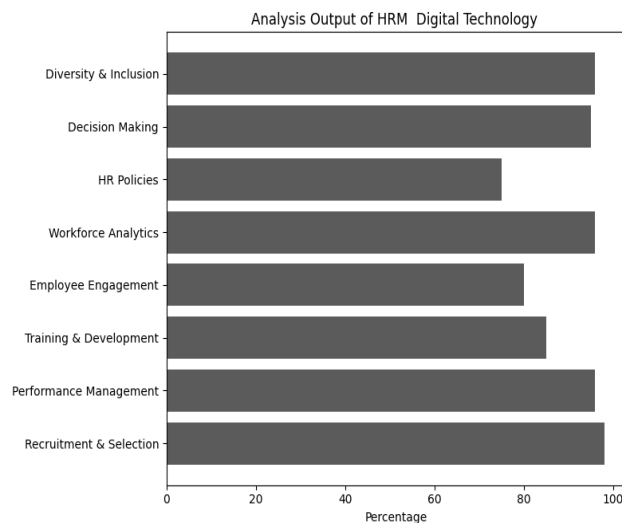


Fig. 2. Analysis Output of HRM Digital Technology

They fig 3 increase the accuracy of managers' hiring decisions and offer an objective assessment for training and development, salary distribution, performance appraisal, and training

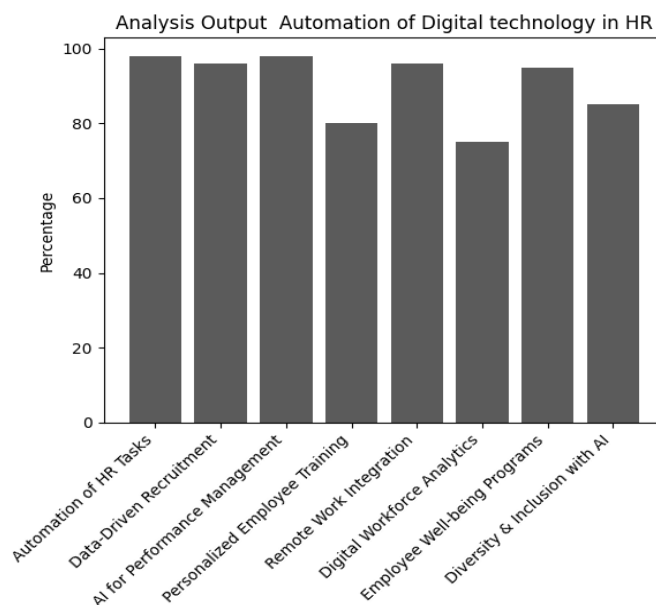


Fig. 3. Analysis Output Automation of Digital technology in HR

Big data models for human resources can be developed using data resources as the foundation in order to realize forward-looking predictive analytical functions. High-quality data analysis techniques applied scientifically can provide insightful and comprehensible analytical outcomes for challenging management issues[9]. Fig 4 Businesses must increase the operational level of staff size and job setting for human resources with a greater degree of scientific precision. The operation terminal's data gathering feature allows for the objective recording of employee workload and efficiency, the improvement of the scale of employment data model, and the effective and rigorous regulation of the scale of employment[10]. An impartial assessment of the efficacy of human capital is necessary. Employment management online is more dynamic and agile. An enterprise's organizational and business boundaries are no longer clearly defined. Establishing agile employment practices that align with organizational models and development needs is crucial.

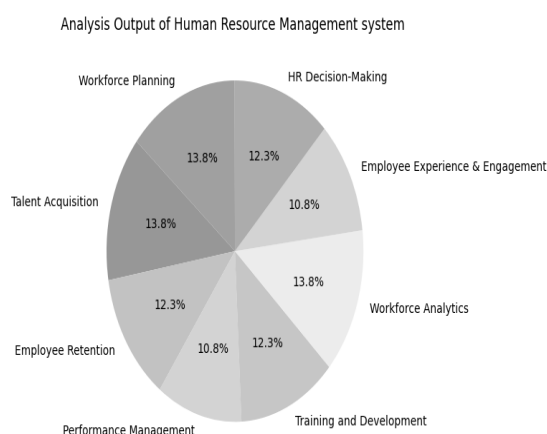


Fig. 4. Analysis Output of Human Resource Management system

Techniques for managing employment. more adaptable and lively. Teams and organizations vary in their approaches. cultivate composite talent, which combines a variety of skills and duties. Companies must routinely host technology competitions and offer their staff access to an online platform for enterprise-wide virtual technology exchange communities[11].

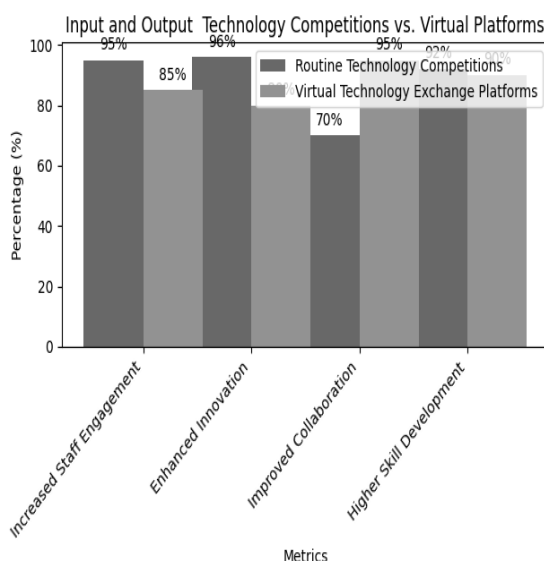


Fig. 5. Input and Output Technology Competitions vs. Virtual Platforms

The fig 5 company should reallocate its internal resources to the front of the market, enabling front-line workers at the grassroots level to be more adaptable and self-organizing[12]. Companies need to become more customer-centric by concentrating on client needs and market needs rather than internal management[13]. Fig 6 higher-level departments are no longer primarily driven by internal management[14]. as well as department heads of evaluating and inspiring staff members[15]. Various job roles have varying demands regarding the caliber and competencies of personnel[16]. Businesses must have a more adaptable and agile approach to employment management in order to deal with the shift in work practices brought about by the use of digital technology[17]. At the operational level, a unique zone system for managing employment must be established, and some market-oriented financial institutions[18]. Emerging businesses, and market-oriented industries must have complete autonomy over employment decision-making. Businesses should promote inventive team building and create adaptable, remote teams for technological innovation.

4. Conclusion

The establish measures to assess how well your machine learning models are decreasing biases and enhancing diversity and inclusion. Accuracy, justice, precision, memory, and general employee happiness are a few examples of metrics. Mechanism of feedback provide a way for workers and HR professionals to provide ongoing input so that any biases or unforeseen repercussions of the machine learning models may be found. Corporate HRM practices also need to be updated in light of the impact of digital technologies. However, digital technology will also create a greater need for non-routine and cognitive professions, replacing manual and routine tasks in the process. As a result, businesses will need to modify their employment structure and scale.

References

- [1] Z. Elgammal, A. Barmu, H. Hassan, K. Elgammal, T. Özyer and R. Alhaji, "Matching Applicants with Positions for Better Allocation of Employees in the Job Market," 2021 22nd International Arab Conference on Information Technology (ACIT), Muscat, Oman, 2021, pp. 1-5, doi: 10.1109/ACIT53391.2021.9677374.
- [2] Sahoo, S. C. Nayak, N. Ranjan Paul, S. Saha, P. R. Patra and P. Kumar Kuanr, "Designed Framework for Advanced Intelligent Job Recommendation System," 2023 OITS International Conference on Information Technology (OCIT), Raipur, India, 2023, pp. 880-885, doi: 10.1109/OCIT59427.2023.10430867.
- [3] R. Khurana et al., "From Tweets to Talent: Tracing the Trajectory of Social Media in Recruitment," 2024 4th International Conference on Innovative Practices in Technology and Management (ICIPTM), Noida, India, 2024, pp. 1-4, doi: 10.1109/ICIPTM59628.2024.10563304.
- [4] Putri, S. Suakanto, J. Siswanto, F. F. Arifin, I. Darmawan and D. Angela, "Human Resource Application Development using Person-Job Matching for Placement of Prospective Employees," 2023 International Conference on Advancement in Data Science, E-learning and Information System (ICADEIS), Bali, Indonesia, 2023, pp. 1-7, doi: 10.1109/ICADEIS58666.2023.10270866.
- [5] R. S. Pundir, A. Dhasmana, U. Karakoti, A. Sikder, S. Sharma and M. Manchanda, "Enhancing Resume Recommendation System through Skill-based Similarity using Deep Learning Models," 2024 International Conference on Inventive Computation Technologies (ICICT), Lalitpur, Nepal, 2024, pp. 557-562, doi: 10.1109/ICICT60155.2024.10544875.
- [6] R. Ziv, I. Gronau and M. Fire, "CompanyName2Vec: Company Entity Matching based on Job Ads," 2022 IEEE 9th International Conference on Data Science and Advanced Analytics (DSAA), Shenzhen, China, 2022, pp. 1-10, doi: 10.1109/DSAA54385.2022.10032350.
- [7] V. Pendyala, N. Atrey, T. Aggarwal and S. Goyal, "Artificial Intelligence Enabled, Social Media Leveraging Job Matching System for Employers and Applicants," 2022 International Conference on Recent Trends in Microelectronics, Automation, Computing and Communications Systems (ICMACC), Hyderabad, India, 2022, pp. 422-429, doi: 10.1109/ICMACC54824.2022.10093323.
- [8] Z. Zheng et al., "Bilateral Multi-Behavior Modeling for Reciprocal Recommendation in Online Recruitment," in IEEE Transactions on Knowledge and Data Engineering, doi: 10.1109/TKDE.2024.3397705.
- [9] C. Huang, L. Cheng and F. Yao, "Time-aware and Semantic Resume Analysis for Talent Similarity Calculation," 2023 IEEE 3rd International Conference on Digital Twins and Parallel Intelligence (DTPI), Orlando, FL, USA, 2023, pp. 1-7, doi: 10.1109/DTPI59677.2023.10365442.
- [10] N. Saito, P. Zhang, H. Hayashi, S. Sugano and K. Mori, "Innovation by Connecting People, Skill, and Value: A Community Platform for Collaborative Job Hunting," 2023 IEEE 15th International Symposium on Autonomous Decentralized System (ISADS), Mexico City, Mexico, 2023, pp. 1-6, doi: 10.1109/ISADS56919.2023.10092110.
- [11] M. E. Erdem, "Automatic Resume Screening with Content Matching," 2023 8th International Conference on Computer Science and Engineering (UBMK), Burdur, Türkiye, 2023, pp. 554-558, doi: 10.1109/UBMK59864.2023.10286578.
- [12] Bakliwal, S. M. Gandhi and Y. Haribhakta, "Leveraging Knowledge Graphs for Orphan Entity Allocation in Resume Processing," 2023 IEEE International Conference on Artificial Intelligence in Engineering and Technology (IICAET), Kota Kinabalu, Malaysia, 2023, pp. 123-128, doi: 10.1109/IICAET59451.2023.10291293.
- [13] J. Zhu and X. Chen, "Research on the Impact and Mechanism of Artificial Intelligence on Consumption Upgrading," 2024 IEEE International Conference on Information Technology, Electronics and Intelligent Communication Systems (ICITEICS), Bangalore, India, 2024, pp. 1-5, doi: 10.1109/ICITEICS61368.2024.10625343.

- [14] S. Venkatachalam, "Analysis of Machine Learning Based Credit Card Transaction and its Applications," 2024 Fourth International Conference on Advances in Electrical, Computing, Communication and Sustainable Technologies (ICAECT), Bhilai, India, 2024, pp. 1-4, doi: 10.1109/ICAECT60202.2024.10469399.
- [15] Kanade A, "Analysis of wireless network security in internet of things and its applications" Indian Journal of Engineering, 2024, 21, eIje1675 doi: <https://doi.org/10.54905/diss.v21i55.eIje1675>,
- [16] M. Durga et al., "Analysis of IoT and Artificial Intelligence Smart Transportation System Application Technology," 2024 International Conference on Advances in Modern Age Technologies for Health and Engineering Science (AMATHE), Shivamogga, India, 2024, pp. 1-7, doi: 10.1109/AMATHE61652.2024.10582176.
- [17] S. R. R S and V. P. H, "Role of Artificial Intelligence in Request Management: A Comprehensive Review," 2023 IEEE 11th Region 10 Humanitarian Technology Conference (R10-HTC), Rajkot, India, 2023, pp. 915-921, doi: 10.1109/R10-HTC57504.2023.10461869.
- [18] G. Madhumita, P. Dolly Diana, N. PC, P. B. Narendra Kiran, S. Aggarwal and A. Satish Nargunde, "AI-powered Performance Management: Driving Employee Success and Organizational Growth," 2024 5th International Conference on Recent Trends in Computer Science and Technology (ICRTCST), Jamshedpur, India, 2024, pp. 204-209, doi: 10.1109/ICRTCST61793.2024.10578371.