

Impact of Artificial Intelligence, Bio-Medical and Advanced Technologies On Human Resource Management

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Abstract- The architecture of this study prioritises biomedicine and artificial intelligence, both of which have been found to have a significant impact on human resource management, which is both a key resource and input for any firm aiming to increase productivity. A company's success depends on its capacity to satisfy customers, which can only be achieved through hours needed of innovative work intended to enhance performance and set them apart from rivals in the market. The administrative duties of “human resource management” are being drastically changed by recent advancements in technology, intelligence, technologies, and artificial intelligence, which are also changing employee characteristics and companies. Failure to incorporate AI into human resource practises could prove to be a grievous sin in a society dominated by high-tech equipment and devices, preventing firms from growing and surviving. The inquiry has started. AI may have a greater impact on business success when combined with human resource management strategies. Even if AI tools lack individual emotional and cognitive

capacities, when human resource behaviours are carefully monitored, they can be a beneficial resource for any sort of organisation.

Keywords— *“Artificial Intelligence”, “Advanced Technology”, Biomedical, Business, Performance, Development, Impact, Management*

Introduction

Over the years, human resource management has shown to be a profitable and fast expanding field that has been a crucial component of every successful firm. A human resources professional has a say in how a company's everyday operations are conducted, including recruitment, people management, continuous employee education and growth, performance management, feedback, employee motivation, and the processes and procedures used in the business (Schmitt and Richard, 1991). Technology improvements have had a huge impact on the way things are done and how people interact during the past few decades, particularly in the United States. To give an example, the internet has substituted marketing since a bigger number of workers are now available online, obviating the necessity for traditional human resource recruitment methods. Everything is now done online with usage evaluations rather than one-on-one with human resource managers, which has changed the landscape of employee performance management. Because of this study's findings, we will be able to better understand why the human resource process has changed substantially and why the emphasis has shifted away from human resources and toward technology (Altemeyer, 2019).

It is important to note that artificial intelligence plays a significant role in human resource management, primarily by alleviating the burden on human resource managers. This is because artificial intelligence makes use of chat bot agnostic alternatives and algorithms and automates the entire process from recruitment to training and development. Physical work and documentation are reduced, allowing the human resources manager to concentrate on the tasks at hand. It also assists in the context of employees being granted leave based on the request for leave and authorizations granted at the time of the request, and provides digital services that provide employee information to which any worker has access, allowing any worker to access employee information (Bhardwaj et al., 2020). Because of the good effects of artificial intelligence, it is relevant to human resource management, and it will surely become a more intriguing field in the future in every firm, regardless of size. In addition to assisting human resource managers in decreasing the amount of work they have to do within the organization, it also supports them in selecting candidates based on their summary and information provided in the summary. When it comes to the field of biomedical services and other sectors where customers face challenges as a result of their work and performance, human resources management (HRM) is a critical management task, and when it comes to the success of the biomedical transformation, HRM is a proactive and critical management task (Khosla, 2014). Human resource management is concerned with the growth and development of individuals as well as organizations (Kooij et al., 2012). The Human Resources Department aims to ensure that each employee's abilities are protected and developed, as well as establish initiatives that encourage communication and collaboration among these employees with the purpose of assisting the organization in its growth. Work analysis and staffing, workforce organization and utilization, monitoring and assessment of employee engagement, implementation of employee incentive systems, manpower career development, and manpower maintenance are all examples of human resource management activities (Rodriguez et al., 2015).

“Human resource management (HRM)” encompasses a wide range of tasks, including hiring, training, and professional development. Included is also compensation. By offering employees ongoing training and development possibilities for prospects at personal and professional advancement inside the company, people management must work to be competitive in the human resources field. Information and communication technologies (ICTs), such as the Web, communication devices, and digital technology, have been shown to greatly aid in the accomplishment of a company's individual goals. Technological improvements can have a significant impact on the human resources department of a business organization. It enables the company in improving its internal processes, critical competences, target markets, and overall organizational structure, among other things (Szierbowski-Seibel and Kabst, 2018). Organizational human resources must be focused primarily toward the attainment of strategic objectives rather than toward other tasks. These strategies must be adopted with the purpose of incorporating the information technology business plan of the corporation. Generally speaking, this phrase refers to any

innovation in a person's technical systems, such as product development (R&D) and information technology (IT) technologies, among others. When it comes to the corporate innovation process, technology development is a vital component, and it may involve the use of previously gained information. The model shown below is based on the work of referred researchers, with R denoting the researchers who were referred in the illustration.

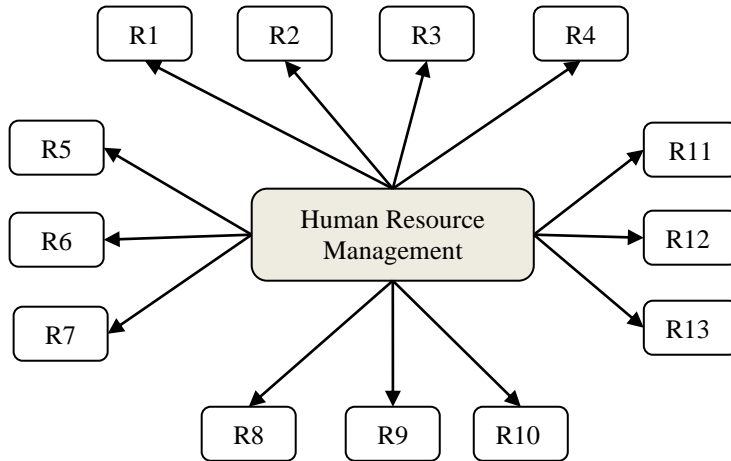


Figure 1: SEM MODEL DESIGN FOR HRM

(Source: Altemeyer et al., 2019)

II Brief Introduction of AI

Artificial intelligence (AI) is a broad term that refers to cognitive engines that aid people in making day-to-day job decisions. Several of these alternatives and responsibilities include the following:

- **Employee Access to Personal Information:** An employee has access to his or her personal information, which may include, but is not limited to, his or her address, emergency contact information, organizational data, and leave permission status. Additionally, conversational AI may aid in the analysis and reporting of analytical and key performance indicator (KPI) data, such as headcount and top performers. In today's world of skill gaps and enhancement, AI is a game changer. Through conversational analytics, AI enables the development of personalized learning paths, thereby elevating learning and growth to new heights. Managers can build digital training opportunities based on the results of a skill gap analysis. Conversational AI enables managers and employees to track such training (Zhang, 2016).

- **Recruitment:** Cognitive solutions based on artificial intelligence can help in the extraction of data from many sources, permitting successful applicant assessment. AI also reduces prejudice in humans throughout the proposal screening process. In order to produce AI-augmented position descriptions that are more accessible and unbiased, large enterprises are collaborating. This will enable objective applicant evaluation.

- **Automating jobs with a poor value-added:** Numerous small chores add up to require a substantial quantity of human resource time. For instance, procedures for onboarding, core benefits, and frequently asked questions. Artificial intelligence has the potential to standardize and automate such responses, freeing up resources for other critical activities. How people and businesses communicate has been significantly impacted by artificial intelligence. A variety of employee engagement duties, such as sophisticated questionnaires, real-time feedback processes, and incentive and recognition programmes, may be automated with AI.

- **“Artificial Intelligence in Human Capital Management”:** AI is vital for integrating critical human resource tasks, hence improving the employee experience. It aids in the creation of personnel policies

with the goal of reducing staff turnover and controlling critical areas including process improvement, career management, advanced analytics, professional pathfinding, and self-service digital support successfully (Gorrell, 2011).

The AI should be more accurate than ever at utilizing historical data and forecasting the future. The data collected may be used to advise the organization on future modifications.

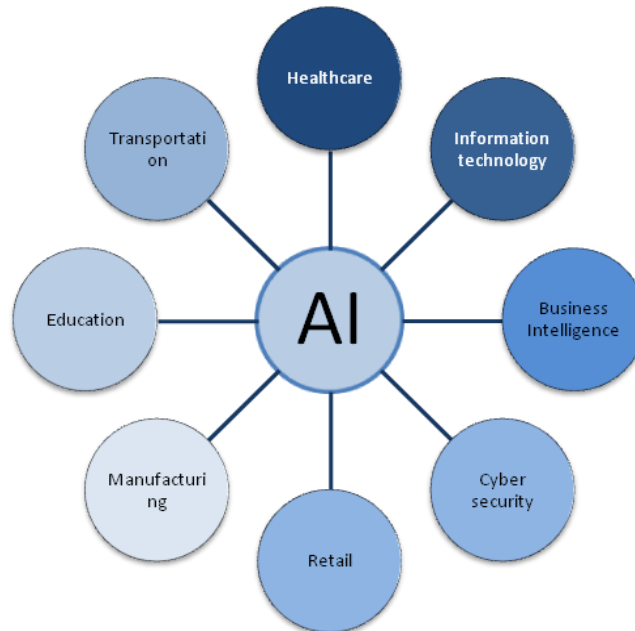


Figure 2: Industries impacted by the AI Revolution

(Source: McHugh et al., 2007)

I. THE IMPACT OF HUMAN RESOURCES ON BIOMEDICAL REFORM

To guarantee effective and efficient medical services and improved patient, “human resource management” is essential in biomedical facilities. This study aims to determine how HRM affects patient happiness and the calibre of biological treatments. The qualitative approach served as a demonstration and evaluation of earlier studies. The research suggests that effective human resource management has a significant impact on the biomedical quality of hospital workers and increases their performance. According to the research, it is necessary to assess the performance of executives in the hospital’s human resources department prior to initiating the process of performance development. When assessing global biomedical systems, it is both beneficial and necessary to include the effect of human resources on biomedical sector change. While the precise mechanism by which biological change occurs varies by country, several trends can be detected. Three important topics are efficiency, equity, and quality. Diverse human resource activities have been made to increase efficiency. Outsourced services have been utilized to convert fixed labor costs into operating costs, hence increasing efficiency. Additionally, strategies such as outsourcing, performance agreements, and corporate contracting are used (McHugh et al., 2007).

Numerous programs involving the transformation of biological resources also entail efforts to increase equality or equity. Recommendations for increasing equity in response to demand necessitate a more complete administration of biomedical services. The development of financial safety nets, the identification of niche requirements and categories, and the delivery of repositioning solutions are a few of the projects. The promotion of equality in their nations must be one of the objectives of human resource specialists, among other things. As the biomedical industry develops, human resources also work to enhance service quality and customer satisfaction. Biomedical quality is classified into two categories: technical and sociocultural. Technical capability refers to the effect that available biomedical services may have on a population’s biomedical situations. Sociocultural quality measures the extent to which a service is accepted and its capacity to engage consumers (Ott and van Dijk, 2005)

Human resource professionals face various obstacles when attempting to supply high-quality biomedical products to the public. Several of these constraints include financial constraints, discrepancy between participants' beliefs, absences, high turnover rates, and biomedical employees' low moral standards. Improved utilization of a broader range of biomedical services and enhanced coordination through multidisciplinary collaboration were suggested for biomedical sector change. Because all biomedical products are ultimately supplied by human resources, effective human resource management will be critical to the success of biomedical infrastructure development.

I. THE IMPACT OF “HUMAN RESOURCES MANAGEMENT” ON BIOMEDICAL.

The superiority of medical procedures performed by patients and hospital workers. The study discovered that doctors and nurses employed by hospitals and the Ministry of Health were more likely to leave their jobs, and that their poor level of satisfaction and unwillingness to continue working in hospitals contributed to patients receiving substandard biomedical services.

The study's most significant recommendations for improving the status of hospital staff include the following:

- Financial and moral incentives for hospital staff to continue functioning and providing adequate medical care;
- Education courses for institutional employees on the characteristics of high-quality medical care, as well as strengthening quality management between personnel and achieving the highest quality standards.

The presence of a positive relationship between the personality of recruited personnel and the technology used in the hospital. Additionally, it is vital to distinguish between employees' perspectives on the accessibility of specialized personal traits. Additionally, it demonstrated the impact of increasing innovation on evaluation, visual design, job categorization, and project size. The reason for workers' poor performance in public hospitals in Turkey was partly due to a lack of interest in improving working conditions for hospital administrators and the creation of incentive systems.

The study came to the conclusion that implementing this system would substantially enhance the efficiency of all personnel in a hospital. It involves using a compensation package, praising staff members and nursing assistants who conduct well, choosing a group of people each fortnight to act as leadership roles for people who work in health facilities, and offering to pay special bonuses to motivate those who are not preferred. Organizational classification of duties related to “human resource management”. This study aims to show that other actors, both within and outside of human resource management, including top and line administrators and vendors who provide outsourcing human resource management, are also accountable for “human resource management”. In order to categorise organisations according to how their agents are distributed and to ascertain whether certain internal and external context factors have an impact on this allocation, the researcher has looked at how firms allocate HRM tasks and responsibilities among those agents (Holland and Bardoel, 2015). This study's findings suggest that a company's human resource management strategy is a question of corporate decision rather than being driven by the environment in which it operates. In other words, rather than being constrained by organisational circumstances, companies choose the structure and method of human resource management they want and appropriately divide the tasks among their many agents. The research found that a wide range of organisations was especially helpful in identifying a variety of actions. revitalization of the biomedical industry. The goal of the strategic plan is to evaluate the human resource components of the development of a new biomedical industry and the restoration of biomedical systems (Ott and van Dijk, 2005). According to the study, when it comes to addressing unemployment problem including challenging administration, disciplinary action, and wage increases, employees are more likely to perceive their supervisors as anti-union and speaking for themselves. The research, which emphasizes on organisational structure changes, including cost and customer choice, proved the crucial role of human resource management in the successes and failures of the biomedical sector and industry in the majority of countries.

II. TECHNOLOGICAL PROGRESS

Technological advancements may have a greater impact on adaptable businesses. This will improve the precision and efficacy of human resource management. Thus, the usage of IT applications for database management and advancement of recruiting systems will increase the organization's profitability (Zehir et al., 2020).

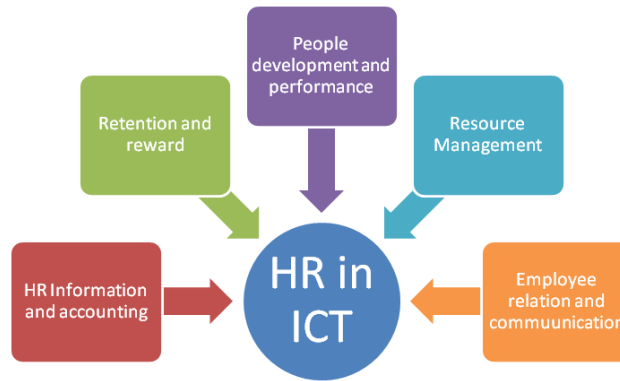


Figure 3: Human Resources in Information and communications technologies
 (Source: Self developed)

Table 1. Significant effects on management of human

Enhanced executive skills	HRM and Team Leaders must work together to assess business needs and determine if present employees should be trained, promoted, or replaced.
Organizing for success	Organizations on a national and worldwide level are attempting to increase their organizational effectiveness.
Information system and assessment	This results in an increase in efficiency and precision. The efficiency of a business may contribute to timely completion in a stable or unstable environment.
Devices for managing inventory and human resources	Entrepreneurs' business abilities are built on three pillars: consumer understanding, operational excellence, and leadership. Changes to outstanding consumer samples must be made in accordance with client requirements.
Customer service & human resource management	Evaluating service reliability and understanding customer quality are two more factors that may influence the success of a company.
Applicant advanced search	HR experts must identify and hire the expertise a firm requires right now. These procedures have altered IT. Tools help HR pros identify more employees and broaden their skill set.

CONCLUSION:

It is clear from the study's analysis that the influence of human resource strategies combined with AI prospects on organisational performance is greater. Despite lacking human mental and emotional capacities, AI devices can evaluate, predict, and treat problems, which makes them a priceless asset for any kind of business. One of the most crucial parts of every company is considered to be its human resources. The relevance of the human resources department is related to the fact that it typically handles a range of tasks and concerns that assist with the administration of the company. Typically, the human resources department is in charge of guaranteeing effective management of varied employees'

performance, which greatly contributes to the success of the company. Typically, the HR department's different services include development and training aimed at increasing human capability and the overall effectiveness of the organization. In order to decide whether or not to adopt technological development, study on the effects of technology advancement on human resource management is essential. We found that, especially in a worldwide setting, the connection between human resource management and biomedicine is rather complex. Our research and analysis showed that there are many crucial issues that need to be resolved and that the biomedical sector's human resource management can and should play a crucial role in doing so.

REFERENCES

- "Research methods in human resources management, by Neil W Schmitt and Richard J. Klimoski. (1991). Cincinnati, OH: Southwestern. 491 pp. \$38.95", Human Resource Development Quarterly, vol. 3, no. 3, pp. 310-313, 1992. Available: 10.1002/hrdq.3920030314.
- A. Jain, A.K.Yadav & Y. Shrivastava (2019), "Modelling and Optimization of Different Quality Characteristics In Electric Discharge Drilling of Titanium Alloy Sheet" Material Today Proceedings, 21, 1680-1684
<https://doi.org/10.1016/j.matpr.2019.12.010>
- A. Jain, A. K. Pandey, (2019), "Modeling And Optimizing Of Different Quality Characteristics In Electrical Discharge Drilling Of Titanium Alloy (Grade-5) Sheet" Material Today Proceedings, 18, 182-191
<https://doi.org/10.1016/j.matpr.2019.06.292>
- A. Jain, A. K. Pandey, (2019), "Multiple Quality Optimizations In Electrical Discharge Drilling Of Mild Steel Sheet" Material Today Proceedings, 8, 7252-7261
<https://doi.org/10.1016/j.matpr.2017.07.054>
- A. Jain, C. S. Kumar, Y. Shrivastava, (2021), "Fabrication and Machining of Metal Matrix Composite Using Electric Discharge Machining: A Short Review" Evergreen, 8 (4), pp.740-749
- A. Jain, C. S. Kumar, Y. Shrivastava, (2021), "Fabrication and Machining of Fiber Matrix Composite through Electric Discharge Machining: A short review" Material Today Proceedings
<https://doi.org/10.1016/j.matpr.2021.07.288>
- B. Altemeyer, "Making the business case for AI in HR: two case studies", Strategic HR Review, vol. 18, no. 2, pp. 66-70, 2019. Available: 10.1108/shr-12-2018-0101.
- Bhardwaj, G., Singh, S. V., & Kumar, V. (2020, January). An empirical study of artificial intelligence and its impact on human resource functions. In *2020 International Conference on Computation, Automation and Knowledge Management (ICCAKM)* (pp. 47-51). IEEE.
- C. M. Thakar, S. S. Parkhe, A. Jain, K. Phasinam, G. Murugesan (2022), "3d Printing: Basic principles and applications" Material Today Proceedings, 51, 842-849.
<https://doi.org/10.1016/j.matpr.2021.06.272>
- D. Khosla, "Emerging HR Practices and Its Impact on Employees Satisfaction in Teaching in Haryana", SSRN Electronic Journal, 2014. Available: 10.2139/ssrn.3672193.
- D. Kooij, D. Guest, M. Clinton, T. Knight, P. Jansen and J. Dijkers, "How the impact of HR practices on employee well-being and performance changes with age", Human Resource Management Journal, vol. 23, no. 1, pp. 18-35, 2012. Available: 10.1111/1748-8583.12000.
- J. Rodriguez, S. Johnstone and S. Procter, "Special issue of International Journal of Human Resource Management: Regulation of work and employment: advancing theory and research in international and comparative human resource management", The International Journal of Human Resource Management, vol. 26, no. 13, pp. 1782-1784, 2015. Available: 10.1080/09585192.2015.1024989.
- K. Szierbowski-Seibel and R. Kabst, "The impact of HR outsourcing and strategic HR integration on the HR-to-employee ratio", International Journal of Manpower, vol. 39, no. 2, pp. 283-300, 2018. Available: 10.1108/ijm-06-2016-0129.
- L. Zhang, "Genre Theory in Information Studies (Studies in Information, Volume 11). 2015. Edited by Jack Andersen Bingley, England: Emerald Group Publishing Limited", KNOWLEDGE ORGANIZATION, vol. 43, no. 7, pp. 563-565, 2016. Available: 10.5771/0943-7444-2016-7-563.

M. Gorrell, "E-books on EBSCOhost: Combining NetLibrary E-books with the EBSCOhost Platform", *Information Standards Quarterly*, vol. 23, no. 2, p. 31, 2011. Available: [10.3789/isqv23n2.2011.07](https://doi.org/10.3789/isqv23n2.2011.07).

M. McHugh, K. Johnston and D. McClelland, "HRM and the management of clinicians within the NHS", *International Journal of Public Sector Management*, vol. 20, no. 4, pp. 314-324, 2007. Available: [10.1108/09513550710750039](https://doi.org/10.1108/09513550710750039).

M. Ott and H. van Dijk, "Effects of HRM on client satisfaction in nursing and care for the elderly", *Employee Relations*, vol. 27, no. 4, pp. 413-424, 2005. Available: [10.1108/01425450510605723](https://doi.org/10.1108/01425450510605723).

P. Holland and A. Bardoel, "Special issue of *International Journal of Human Resource Management: The impact of technology on work in the twenty-first century: exploring the smart and dark side*", *The International Journal of Human Resource Management*, vol. 26, no. 11, pp. 1520-1521, 2015. Available: [10.1080/09585192.2015.1021155](https://doi.org/10.1080/09585192.2015.1021155).

V. Panwar, D.K. Sharma, K.V.P.Kumar, A. Jain & C. Thakar, (2021), "Experimental Investigations And Optimization Of Surface Roughness In Turning Of EN 36 Alloy Steel Using Response Surface Methodology And Genetic Algorithm" *Materials Today: Proceedings*, <https://doi.org/10.1016/J.Matpr.2021.03.642>

Zehir, C., Karaboğa, T., and Başar, D. (2020). The transformation of human resource management and its impact on overall business performance: big data analytics and AI technologies in strategic HRM. In *Digital business strategies in blockchain ecosystems* (pp. 265-279). Springer, Cham.