A REVIEW PAPER ON ARTIFICIAL INTELLIGENCE FOR HUMAN RESOURCES MANAGEMENT

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Abstract:

The concept of artificial intelligence in human resource management is still disputed, and experts are currently debating whether artificial intelligence is a benefit or a curse for humanity as a whole. Initially, HR departments were opposed to the AI system owing to concerns about job loss and greater reliance on robots and machines. However, the situation eventually shifted. Technologies and techniques like as e-recruitment, Human Resources Analytics, Cloud Computing, Management Information Systems, and computerised performance monitoring have decreased the workload of HR employees, allowing them to focus on other organisational goals and objectives. These study focuses on the many benefits and drawbacks of intelligent machines, as well as the overall influence of artificial intelligence on management of human resources.

Keywords: artificial intelligence, technology, HR, workload, machine.

Introduction

This review paper we will put some light in various aspect of Artificial intelligence by referring few literature on Empirical study on Artificial intelligent in Human resource department and its limitations This research paper majorly talks about artificial intelligence (AI) and how it is used in the human resource management (HRM). The topic is very relevant today because the usage of AI in HRM is growing and will continue to grow in the next years leading to the point when most HR professionals will use AI in some form in their everyday job. This is proven by the current state of literature, published by people specialised in HR and AI.

Keywords: HR-Human Resources, HRM- Human Resource Management, AI-Artificial Intelligence
IT-Information Technology, R & D- Learning and Development

Literature Survey

As of current scenario total number of companies with HR, the usage of AI technology is still relatively small. AI is mostly used in larger companies and in specific industries, which is sensible due to the cost and benefit factors. It does not change the fact that the usage is growing and someday even the smaller firms will be taking advantage of AI. This this review

paper we will also see various limitations for usage of AI in HRM The research shows it brings on many benefits to the company, saves them money and makes them more efficient. This paper will discuss more about the advantages and disadvantages of the subject.

AI has wide range of applications which are explored and documented on a day to day basis which helps in techno innovative solutions for the modern world. These solutions and benefits would increase the efficiency, effectiveness, productivity and performance of employees with bench marking of standards.

These would ensure that there is a major transformation which could happen in HR systems and processes. The Benefits of AI is clearly illustrated in the picture below:
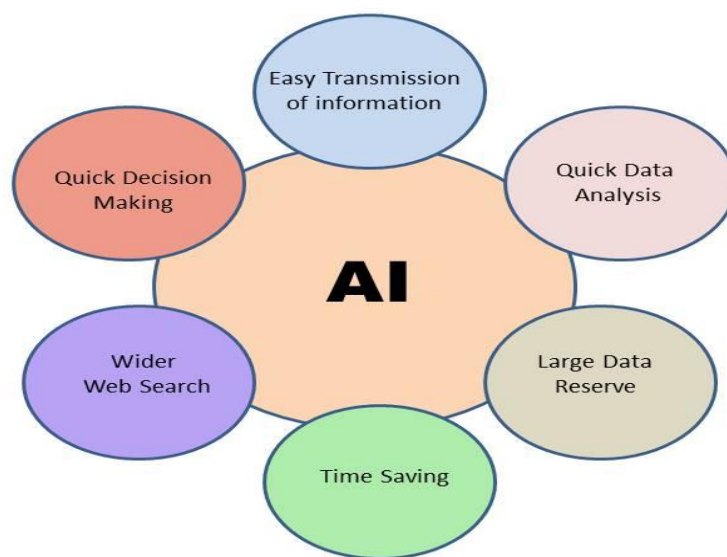
Source: (Hossin et al., 2021) The above picture shows the various benefits of AI which enables quick decision making, time saving, data analysis and effective transmission of information.

(Di Vaio, Palladino, Hassan, & Escobar, 2020) had done a systematic literature review on AI and development of business model for sustainable development and progress.
The study found that AI would contribute to innovations which would provide products which can enable sustainable development of economies.

Although modern HR practices and systems have been implemented in Bangladeshi organizations, we could find that AI based studies and (Mahmudul Islam Choudhury, 2020; Mathur; Spadafora, 2016) its applications are less prevalent in this country. These studies illustrate that AI can replace human engagement and involvement totally.
AI can aid in effectively managing both internal and external constraints which are prevalent in the organization which could be financial, training, data backup, employee commitment and dedication & other issues related to data management and control. This provides a wide range of possibilities and applications of AI which has to be explored and investigated with

empirical dimension. This would provide more support and give more confidence for companies to implement AI for HRM applications. The AI adaptation challenges in Bangladeshi organizations are provided below:
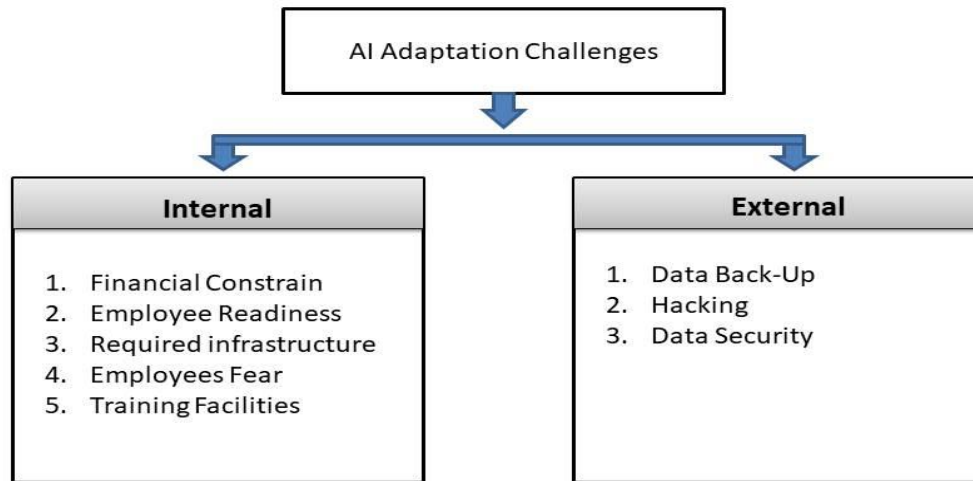
Source: (Hossin et al., 2021)

The study concludes that there is a need for more empirical studies on employee perception and implementation of AI in HRM related issues.

(JAWALKAR, 2020) had done a study to identify AI as the new talent in Human resource management practices. The study identifies the new practices of HRM using AI & how some companies still prefer to use the traditional modes of HR practices. The study has used primary data and opinions from 61 HR professionals have been collected for the study. Most of them are aware of AI and had opined that AI is the new talent in HRM practices.

(Kulkarni, 2020) had done a research on AI applications on human resource management and has opined that AI had brought in lot of transparency in HR systems and practices. AI assists in identifying the behaviour patterns of employees and provides them with specific compensations as indicated. Perceptual and attitudinal bias which is prevalent in the systems could be eliminated.

(Thamodaran, 2020) had done a study to find out the impact of AI practices in HRM. A conceptual model has been provided in this study which evaluates the various applications of AI on HRM. AI assists in candidate selection, training and performance management of employees.

The common areas in which AI is used would include: customer analytics, supply chain analytics, fraud and risk management along with sales forecasting. The usage of AI in HR process is clearly provided in the chart below:

AI and HR applications
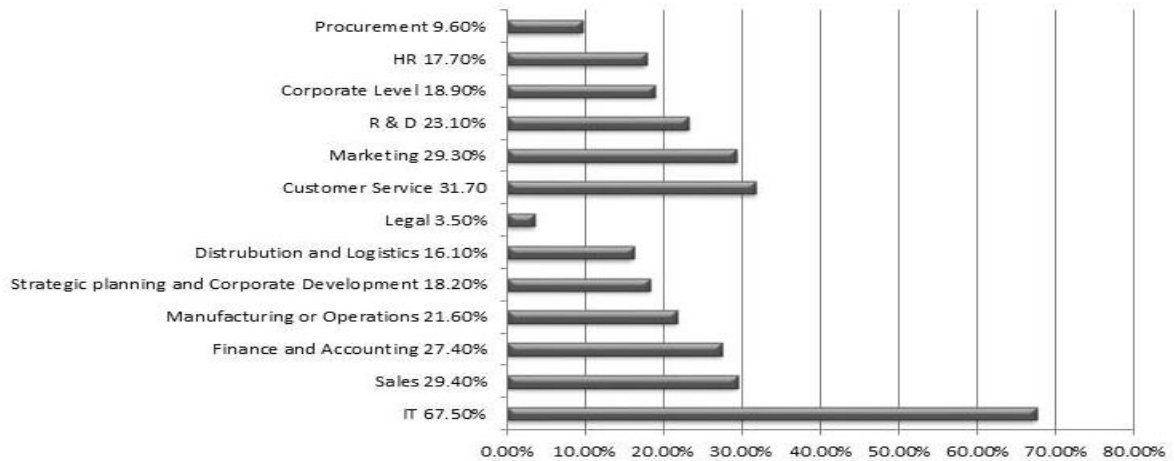
Source: (TCSGlobalTrend, 2017)

The above chart clearly states that HR is used among 18% of companies. R and D, manufacturing along with IT are the benefits which are obtained by companies using AI.
(Berhil, Benlahmar, & Labani, 2020) had done a systematic literature review on AI and its services for HRM. In this review paper it is found that various IT solutions have been provided from 2000 till 2018 for HRM practices which is traced in this article. The study firmly concludes that HR analytics would transform business performances and efficiencies of organizations. The study has also provided various IT solutions for various HR related issues which are prevalent in organizations which is presented as a chart below:

HR issues and IT based solution-Research Papers
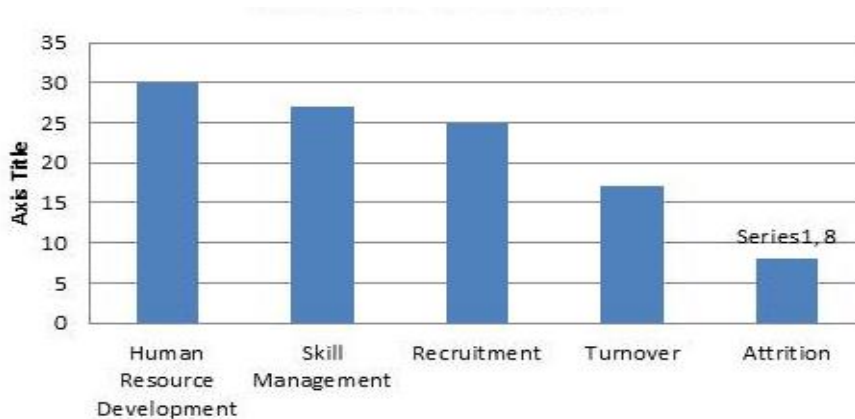
Source: (Berhil et al., 2020)
The study states that IT based solutions related papers for Human resource development has been published to the maximum, followed by skill management, recruitment, turnover and attrition.
IT solutions for HR based issues:
These research papers have provided a variety of IT solutions for HR issues which is provided as a chart below:
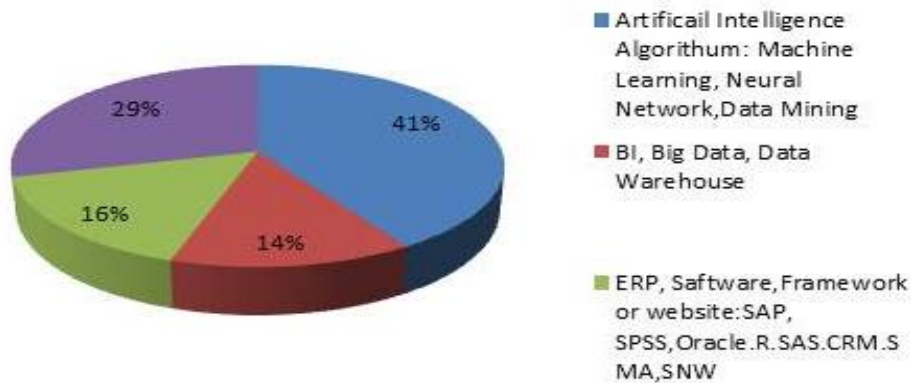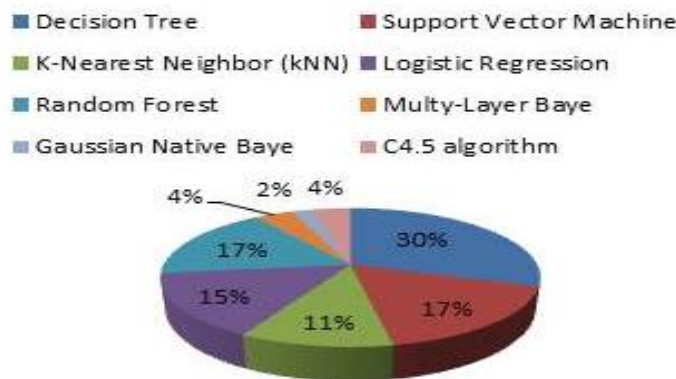
Source: (Berhil et al., 2020)

The above chart states that 41% of these papers provide AI as the most viable option for HR related issues which can be implemented. The study also provides various AI based solutions for HR related issues which is given as a chart below:

Source: (Berhil et al., 2020)

The various AI based algorithms which are widely used are decision tree, random forest, support vector machine, logistic regression, multi-layer perception & Gaussian Naïve baye which can be implemented across organizations. This study clearly states the various AI based applications which can be used in organizations all over the world.

(Panda) had done a research on future transformations in HR industry due to AI and its applications. The study was conducted to know the changes and impact of AI on prevailing HR practices and management.

In this study both primary and secondary data was collected and analysed. The study concludes that AI is an effective tool which ensures more productivity and performance of employees.
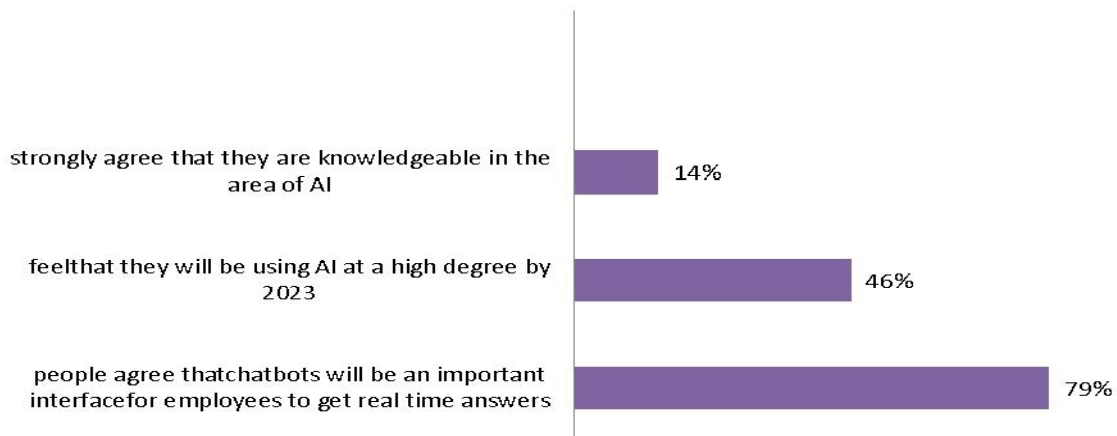
The various AI based HR solutions for various HR activities are given below:

- Job sourcing (for example, Textio);
- Interviewing (myInterview);
- On-boarding (Talla);

- Coaching and training (Saberr) ;
- Employee service centres (ServiceNow).

The various AI related services which are given for HR functions are presented as a chart below:


CURRENT STATE OF AI. IN HR FUNCTIONS

Source: (Panda)

The data provided by HR professionals above clearly state that they are aware of the various functions of AI and its applications in HR functions. The study also states that HR managers feel that AI would have a dominant presence till 2023. They also felt that it can provide an effective interface for employees to get feedback on HR functions.

Limitations of AI in Indian organizations:

The study has also provided the various limitations as visualised by HR professionals which are given below;
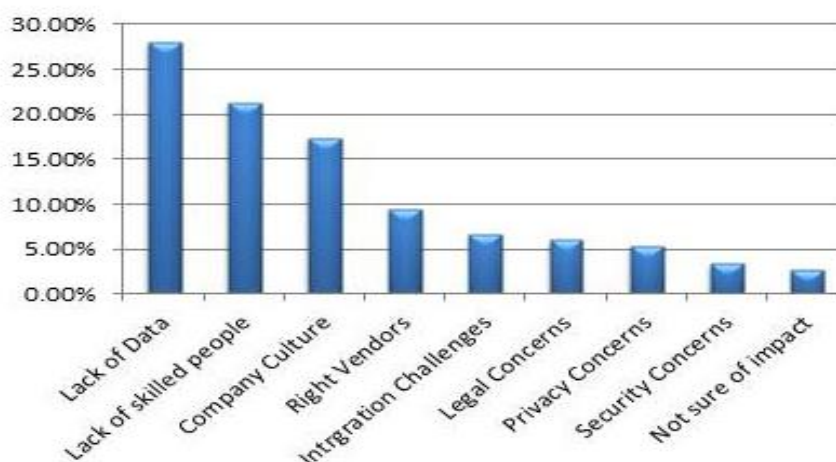
In Indian organizations, lack of data seem to be the major limitation as organizations must keep online records of employees and performances which would enhance better analysis and decision making. There is also a definitive lack of skilled people who can be cross functional and contribute meaningfully on these AI emerging technologies and provide organizational

integrations. There is a need for effective establishment of company culture which could foster these processes effectively. There is a definitive need for right vendors who could provide right solutions at an effective price to these organizations.

There is a need for effectively integrating AI technologies and HRM practices which can ensure organizational efficiency and effectiveness. There are privacy and security issues as well which has to be catered while implementing AI technologies in Indian context.

Conclusion

From out research on the two aspects i.e. Human Resources and Artificial Intelligence, we have seen the different issues raised by the experts and the managers of the domain and to target the most posed problems, and We concluded from the number of articles found that several HR Analytics were proposed and most of them used artificial intelligence algorithms and methods, which shows the rapid and observed development and the increased interest and competition in applying this technology in HR field. The most HR issues asked were about analyzing and predicting: Recruitment, Skills Management, Human Resources Development (employees talents, effectiveness, productivity and performance), attritions and turnover. Proposed solutions were concerning known technologies like Business Intelligence, Big Data, Data Mining & Data Warehouse, some known software, frameworks and ERP (SAP, SPSS, Oracle, SAS, CRM, SMA, SNW) and Artificial Intelligence algorithms(Machine Learning, Neural Network, Deep Learning…), others used or proposed other analysis methods and simple statistics combined with HR analysis and HR approaches. The most Artificial Intelligence algorithms known used were: Decision Tree (DT), Random Forest (RF), Support Vector Machine (SVM), Multi-Layer Perceptron (MLP), K-Nearest Neighbor (KNN), Gaussian Naïve Bayes (GNB), Logistic Regression (LR), C4.5. The field of Human Resources is vast and constantly developing. The concern of each company is the management of its Human Resources by considering human capital the source of development and the pillar of success to increase productivity, attract talent and the customers in order to well cope with the competition. On the other hand, the field of intelligence is always evolving and new approaches and methods are always proposed.

References

1. Hossin, M. S., Ulfy, M. A., Ali, I., & Karim, M. W. (2021). Challenges in Adopting Artificial Intelligence (AI) in HRM Practices: A study on Bangladesh Perspective. *International Fellowship Journal of Interdisciplinary Research, 1*(1), 66-73.
2. Di Vaio, A., Palladino, R., Hassan, R., & Escobar, O. (2020). Artificial intelligence and business models in the sustainable development goals perspective: A systematic literature review. *Journal of business research, 121*, 283-314.
3. Mahmudul Islam Choudhury, S. A. C., Md. Saidur Rahaman. (2020). Human Resource Management Practices in Bangladesh: A Review Paper on Selective HRM Functions. *researchgate*.
   https://www.researchgate.net/publication/344497352_Human_Resource_Management_Practices_in_Bangladesh_A_Review_Paper_on_Selective_HRM_Functions

4. JAWALKAR, P. (2020). IS ARTIFICIAL INTELLIGENCE THE NEW TALENT IN HUMAN RESOURCES? *tjprc*. http://www.tjprc.org/publishpapers/2-67-1600241350-1276IJMPERDJUN20201276.pdf

5. Kulkarni, P. (2020). The Impact and Potential of AI in Compensation & Benefits.

6. Thamodaran, S. S. D. V. (2020). USAGE OF ARTIFICIAL INTELLIGENCE IN HUMAN RESOURCE MANAGEMENT. *drsrjournal*. http://www.drsrjournal.com/no_15_july_20/21.pdf?i=1

7. Thamodaran, S. S. D. V. (2020). USAGE OF ARTIFICIAL INTELLIGENCE IN HUMAN RESOURCE MANAGEMENT. *drsrjournal*. http://www.drsrjournal.com/no_15_july_20/21.pdf?i=1

8. Berhil, S., Benlahmar, H., & Labani, N. (2020). A review paper on artificial intelligence at the service of human resources management. *Indonesian Journal of Electrical Engineering and Computer Science, 18*(1), 32-40.

9. Panda, P. THE FUTURE TRANSFORMATION OF HR FUNCTIONS WHICH APSTOLE BY ARTIFICIAL INTELLIGENCE.