

**Analysis of Internet of Things, AI, and Machine Learning in Human  
Resource Management**

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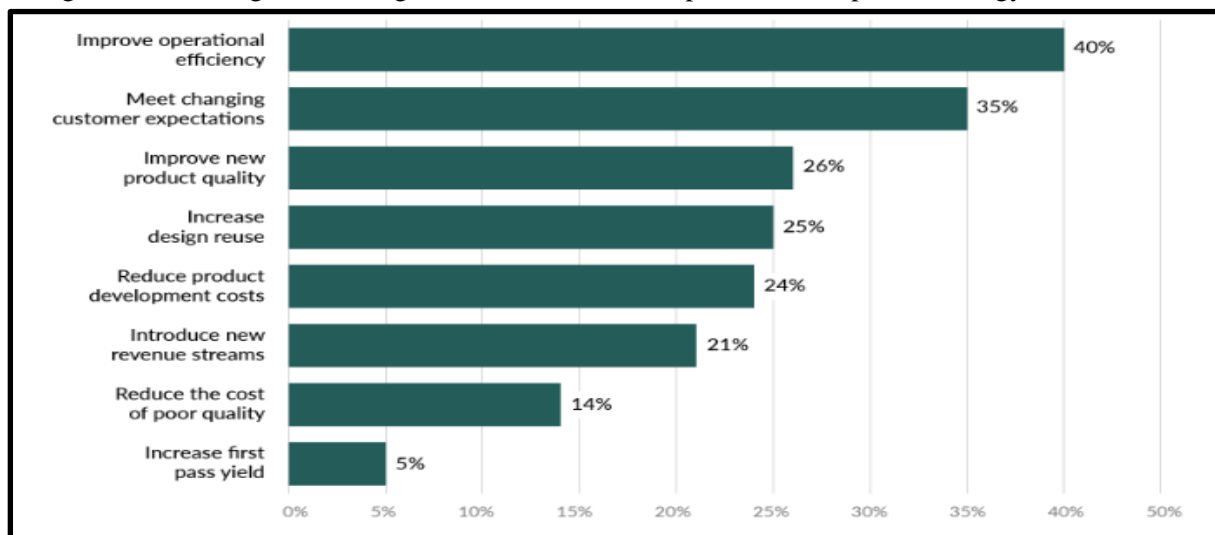
### Abstract

The study elaborated on the usage of Internet of Things, Artificial Intelligence and Machine Learning within the working procedures of HRM of organisations. Through the inculcation of the highly advanced digital tools, the improvement in the overall efficiency of the human capital was noted. The collection of secondary qualitative data from the search database of Google Scholar for the examination through thematic analysis was conducted for the interpretation of the data. The findings of the study reflected the various factors responsible for the integration of digital disruption, and the challenges seen due to their application. The discussion highlighted the different tactics which increases the potential of the firms to entangled digitalisation within its HRM working measures.

**Keywords-** IoT, digital transformation, AI, HR efficiency, ML, HRM, training, digital disruption

### Introduction

Though the occurrence of the Industrial Revolution 4.0, digital disruption has been noted on a global scale within the firms. Digital transformation within the organisational background has proven to be extremely beneficial as it has increased the working efficiency of the employees (Mishra and Tyagi, 2022). According to the findings by Wu et al. (2020), the inculcation of scientific advancements and tools within the various departments have enabled the firms to have a higher productivity, and improved the quality of organisational output. Therefore, the expanded organisational result has further strengthened the integration of digital transformation as a part of the corporate strategy.



**Figure 1: Benefits due to digital transformation in a firm**

(Source: Alreshidi, 2019)

Scientific techniques such as Internet of Things or IoT Artificial Intelligence or AI, Cloud Computing, Big Data, Machine Learning or ML and others have been applied in the management of the human resources in the firms (Alreshidi, 2019). Through such measures, tech companies have been able to keep a check on the working productivity of the employees and helped the management to conduct a smoother recruitment procedure. Hence, the study would be significant in understanding the tools and measures taken by the three major elements of IoT, AI and ML in terms of HRM or Human Resource Management.

## Aim

The aim of the study is to lay an examination of the integration of Internet of Things, Artificial Intelligence and Machine Learning in the HRM of firms.

## Objectives

The objectives developed for the study are as follows:

**RO1:** To inspect the factors of digital transformation occurring within the HRM of companies

**RO2:** To assess the pros of integrating IoT, AI and ML in the HRM department

**RO3:** To analyse the challenges of applying IoT, AI and ML in the HRM of the firms

**RO4:** To scrutinise the strategies to improve IoT, AI and ML application in the HRM department of the companies

## Questions

The questions constructed for the study are as follows:

**RQ1:** What are the different factors of digital transformation occurring within the HRM of companies?

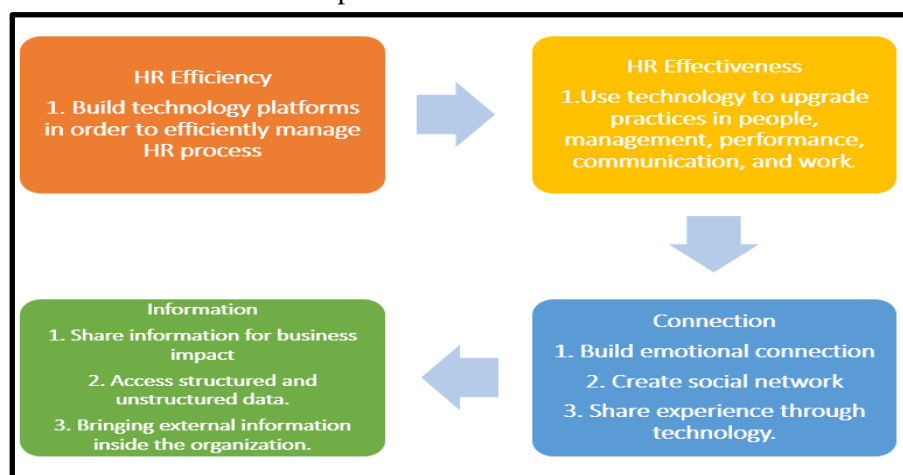
**RQ2:** In what manner is the integration of IoT, AI and ML in the HRM department of the firm advantageous?

**RQ3:** What are the various shortcomings seen in the application of IoT, AI and ML in the HRM of the firms?

**RQ4:** What are the different strategies taken by the organisations to improve IoT, AI and ML application in the HRM department in the companies?

## Literature Review

The integration of digitalisation has increased the HRM efficiency and keeping a track record of the workers have been made possible through the HRM software such as Zoho, Oracle, Bitrix, and others. As per the point of view of Zhang (2021), with the help of IoT in HRM, the easier achievement of the goals have been possible as the managers can precisely monitor the results of the software, and take the requisite actions to increase the performance.



**Figure 2: Steps for achieving heightened HRM performance**

(Source: Andronie et al. 2021)

According to the workings by Khayyam et al. (2020), along with such, IoT and AI has allowed the recruitment processes to become easier. AI has the capacity of evaluating the interviews occurring on the digital medium, and process the replies as per the needs of the firms. On the other hand, as dictated by Andronie et al. (2021), AI and ML can develop the training sessions as per the benefits and

the shortcomings of the employees. By learning their pros and cons, the tactical measures for increasing their skills can be achieved by the digital tools. Hence, for engaging in a more effective HR performance, the application of IoT, ML and AI serves to be important.

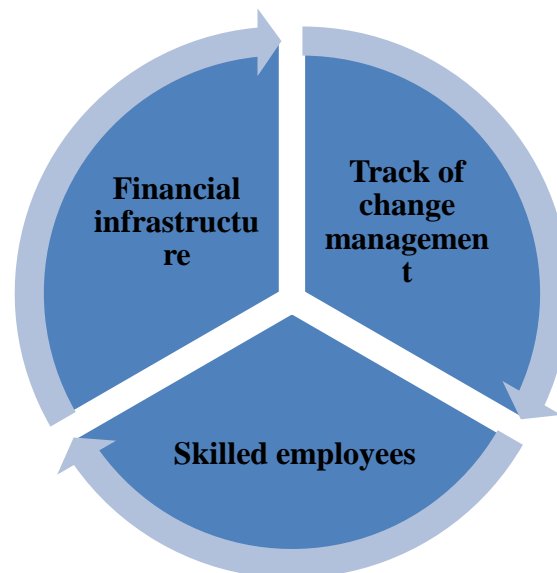
### Methodology

The study was based on the integration of secondary qualitative information achieved from the search database of Google Scholar. The inculcation of the search keywords of IoT, Machine Learning, Artificial Intelligence and, HRM had enabled the collection of the required journals, books and articles for the examination of the core topic of the study. There was the maintenance of the positivism research philosophy, and the inductive research approach was followed. In the thoughts and beliefs by Pandey & Pandey (2021), the recognition of the key characteristics between the occurring variables of a study can be performed through the integration of the inductive research approach. In such a manner, the trends and patterns of the factual information collected was assessed. With the gathered information, thematic analysis was performed for the secondary qualitative data. Through the descriptive research design, an elaborate explanation of the concepts were noted.

### Findings

#### Factors impacting the integration of digital transformation in HRM

Financial backup of the companies proves to be necessary while mediating the integration of digital tools and technologies (Lei et al. 2020). According to the suggestions of Song et al. (2020), the change management for the digital transformation of the workplace needs to be asserted in a smoother manner within the workforce for decreasing the work disruptions. Hence, for decreasing the disruption of the performance of the employees and making them habituated with digitalisation, the skilled leaders and managers capable of handling the digital tools, needs to be present.



**Figure 3: Factors impacting digitalisation in firm**

(Source: Influenced by Lei et al. 2020)

Due to the fact that the tools of AI, IoT and ML are highly advanced, the digital infrastructure present in the HRM department needs to be sufficiently latest, for it to be compatible (Wu, 2020).

### Challenges in the integration of digital tools in HRM

One of the major issues which has been identified in the inculcation of digitalisation within the HRM platform is the lack of skilled and experienced workers to avail the services (Hou et al. 2020). Due to the fact that the digital means are highly advanced, the presence of specific skills and knowledge regarding the infrastructure. According to the comments by Li et al. (2021), the lack of such skilled employees creates disruption in the HRM department. On the other hand, as per the views of Liang et al. (2019), the absence of a strong financial stability of the companies also impacts the integration of digitalisation in the HRM. Hence, the need to have a strong financial support for improving the digital infrastructure is necessary for increasing the efficiency of the tools to support the HRM facilities.

### Discussion

The inclusion of tactics and strategies for the effective integration of digital tools in HRM serves to be necessary. As per the thoughts by Shi et al. (2020), the recruitment of skilled leaders for imparting the necessary knowledge to the employees of a firm is important for developing the human capital as a whole. Such an aspect tends to be significant as it increases the potential of the workforce, and improves the efficiency of the organisation. On the other hand, as per the notions by Firouzi, Farahani and Marinšek (2022), the segregation of the budget as a financial backup for the inclusion of digital means within the taskforce needs to be asserted by the management of the firms.

From the initial stages of budget development, the allocation of a financial section to include the latest means of digitalisation needs to be prevalent. In such a measure, the financial conditions can be mediated in a manner so as to include IoT, ML and AI within the organisational background. As per the comments by Wang et al. (2020), the conduction of a pilot test through the development of an action plan in the HRM by implementing the basic technologies of AI is necessary. With the help of such an aspect, the management would gain an abstract knowledge regarding the growth of efficiency within the workforce.

### Conclusion

Therefore, the study consisted of the significance observed in the inoculation of Artificial intelligence, machine learning and internet of things in the working procedures of HRM. The factors which have been to lay an impact on the application of digital measures are identified to be the financial strength, the skills of the leaders and the digital infrastructure. The shortcomings related to the lack of skilled workers with sufficient knowledge regarding the digital tools, and the absence of a sturdy financial infrastructure decreases the opportunities for the companies to integrate the tools within the HRM. The strategies of budget segregation, pilot tests with basic digital tools and recruitment of skilled employees have been discussed.

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