Research Article

# Impact of Machine Learning on Economic Crisis for HR Managers during Covid-19

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## Abstract

The adverse changes caused by the pandemic COVID-19 have had an unprecedented effect on businesses worldwide and have had a significant impact on human resource management. On the other hand, HRM had to cope with the layoffs and staff reductions brought on by the pandemic lockdown. Organizations are currently dealing with an extraordinary crisis that is unlike anything they have ever faced before. HR is taking the initiative to predict change, co-creating various scenarios, and planning for the future. It has been found that machine learning (ML) significantly contributing to assisting HR managers in COVID-19. The paper aims to evaluate the impact of Machine Learning on the Economic Crisis for HR Managers during Covid-19. The quantitative method approach is used in the current paper. In addition, the paper examines the problems that HRM has faced in the business and the effects of the crisis on human resources. The research results provide remarkable insights for human resource managers and organizations using ML.

*Keywords:* Machine learning, Human resource management (HR), Covid-19, Remote working, Economic crisis.

## Introduction

As the world grapples with COVID-19, technological innovations and ML bring companies one step closer to overcoming this pandemic. Machine learning is changing the way businesses operate and function. This applies to all departments of the corporation, especially human resources. Human Resource Management plays a critical role in organizations. Machine learning is helping HR managers to better understand and solve the COVID-19 problem in the business [1]. Machine learning allows computers to imitate human intellect and absorb vast amounts of data in order to swiftly spot patterns and insights. It has been seen that HR managers applying machine learning in numerous areas, including scaling customer communications, managing workforces, understanding how COVID-19 spreads and speeding up research and treatment. The use of ML or

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advanced technology help HR managers in managing remote workers, digitizing the HR department, and reimagining workforce models.

The pandemic's shear stress has had a significant impact on workers. This puts more responsibility on HR managers to provide their employees with the tools they need to thrive and monitor and enhance employee well-being even when they are not in the exact physical location. As a result, HR professionals must respond to this problem by establishing virtual meetings or online interactions to keep staff motivated and productive. However, with work-from-home posing unprecedented challenges for HR, ML can assist in easing the strain. For example, improvements in natural language processing (Alexa or Siri) have already made it possible for bots or intelligent chatbots to undertake various HR tasks. In addition, the possibility for intelligent assistants to take over activities including scheduling, project planning, and general communication has risen rapidly as more organizations migrate away from traditional email and toward group messaging systems.

Further, HR collects a vast amount of data, and machine learning ingests and analyses this data and generates meaningful insights [2]. The data should provide the relevant, actionable insights that machine learning can provide. For example, one of the early applications of machine learning in HR was process automation. Scheduling is a tedious and time-consuming process in general. Whether it's improving on boarding, scheduling interviews and follow-ups, performance evaluations, training, testing, or dealing with the more typical and repeated HR questions, machine learning can relieve HR executives from this tedious work. Hence, it is not wrong to say that Companies who are reluctant to adapt and accept machine learning's new prospects may soon find themselves at a competitive disadvantage, while those that do so successfully will thrive.

In addition, it has been observed that ML exerts various influences on HR managers to identify those, this study is conducted. This research aims to assess the impact of machine learning on HR managers during the Covid-19 economic crisis. In addition, this study also determines the scope and severity of the HRM problem that businesses have been experiencing and predicts the repercussions and adjustments that will be implemented. Finally, the study recognized the situation in which business process continuity has been harmed by the spread of Covid-19, resulting in layoffs or staff reductions.

Table 1: Finding of the study

| S/no. | HR issues | Solution |
|---|---|---|
| 1 | Poor Performance | Automation, Digital platform, Digital work, Monitoring. Real-time data |
| 2 | Job loss/Social distancing | Remote workforce, Employee adjustment, Flexible working opportunity |
| 3 | Stress/ Job insecurity/Layoff | Virtual meetings, online interactions, chatbot |
| 4 | Payroll | Streamlined process with real-time analytics, helping reduce run-time costs. |

| 5 | Workforce Analytics | Models of identifying best skills mix, hiring targets, Intelligent processes reducing complex data management |
|---|---|---|
| 6 | Administrations | Cognitive call guidance can improve issue resolution and employee experiences. |

(Source: Self-made)

## Literature review

A. Jain, et al., [3] reports that Recruiting is one of the most essential but time-consuming responsibilities in HR. Properly used machine learning technology may save time by reducing time waste in recruitment and making the process more trustworthy and accurate through the use of predictive analysis. Machine learning can aid HR in managing the recruitment process from beginning to end. It will enhance results by streamlining the procedure, reducing mistakes, and streamlining the process. In addition, Machine learning will also aid in the removal of human prejudice and other human factors that may be preventing your organization from employing qualified applicants. For example, Unilever uses a variety of machine learning technology. Candidates go through three rounds of machine learning-based "interviews" and assessments. As a result, recruitment hours were saved, and hiring time was cut in half.

Akour I, et al., [4] states that ML helps HR managers in future planning and efficiency improvements. For example, machine learning may assist HR in forecasting attrition patterns, communication difficulties, project progress, employee engagement, and various other critical events and concerns by better understanding the data. This will allow them to become aware of any problems early on and take corrective action before they become great difficulties. Machine learning will give HR and management essential insights into these variables, helping them deal with them more effectively and promptly. More significantly, HR can take corrective action and make the required changes to reduce the problem if they understand the facts around worker turnover and other issues.

Alimadadi A, et al., [5] suggest that there are a variety of ML technologies that HR managers may use to help the company's ultimate mission of being productive and efficient. ML may assist fill in a lot of gaps in regular work, freeing employees time to focus on other things. For example, setting up chatbots to handle frequent client inquiries may free up your employees and increase output.

Androniceanu A, [6] states that while the COVID-19 epidemic brings a new set of difficulties for HR managers. There is a variety of ML-powered solutions HR can use to enhance their employees' wellbeing, engagement, and performance. In the new work-from-home world, HR teams and IT entrepreneurs are collaborating to discover long-term ML solutions that ensure they are assisting their organizations rather than hindering them.

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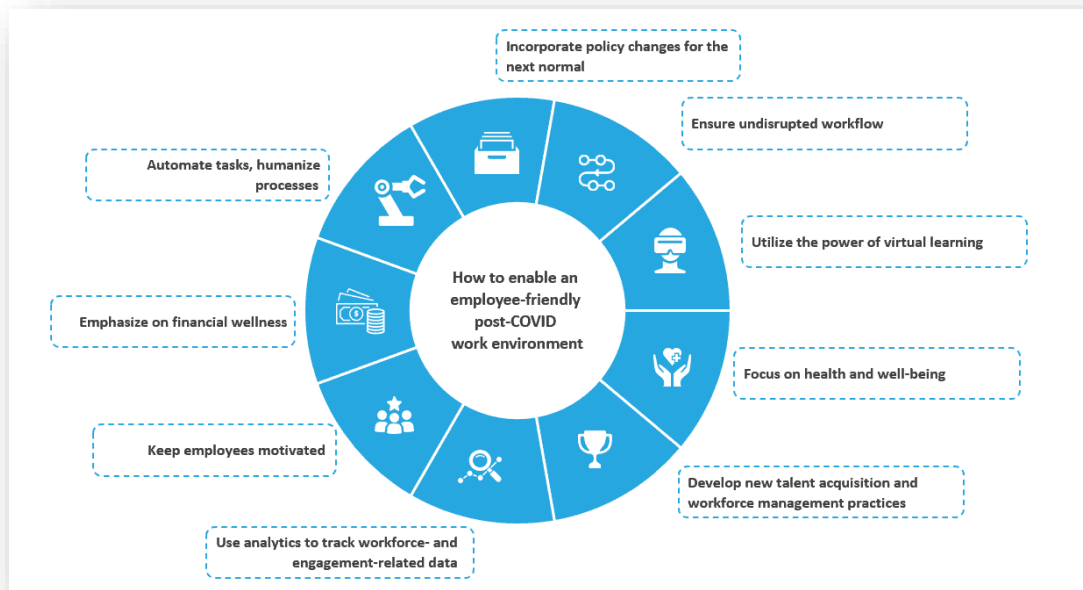
**Figure 1: ML assisting HR managers**
(Source: Preparing For the Future – COVID-19 Implications For The HR Function 2021)

## Methodology

A systematic literature review (SLR) is a technique of validating, assessing, and synthesizing the work that academics, scholars, and industry have done and recorded in a systematic, unambiguous, and repeatable manner. An exploratory quantitative method was employed for this study. The secondary data is used in the research. The data collected through literature, reviews, websites, books were interpreted and analysed with a view to quantitative content analysis.

It has been found that the Covid-19 epidemic has put human resource managers under a lot of pressure. In the face of significant changes throughout the world as a result of the epidemic, businesses must respond and adapt and manage their staff correctly [7]. HRM plays a vital role in assisting employees in overcoming the challenges posed by unanticipated workplace changes and society. It has been found that the roles and decisions of HR managers and HR functions adapt to changes in the economic cycle. The global economy is plunged into one of the most significant structural financial crises of recent times. All international economic output sectors have been affected, generating a broad and severe employment crisis that has resulted in a growing social slump throughout the world. Due to increasing instability and uncertainty, the problems of leading and managing people were exacerbated by the recession.

In addition, these issues have an impact on the strategic HR role. It was feasible to focus on creating and executing sophisticated HR policies and functions or searching for methods to retain talent and improve employee motivation during times of economic boom. However, these must undergo a necessary transformation [8]. In order to build trust and enable communication, the strategic HR function, which is linked with business strategy, necessitates an increase in inventiveness and a considerable degree of leadership capacity. Hence. HR managers are responsible for reforming the policies and procedures of management. In this way, ML is significantly helping the HR executives facilitate the functions. In conclusion, all of these actions are in line with the company strategy resulting from the current economic scenario and aid management in overcoming the challenges.

In today's organizations, the correct strategy, modern technology, and personnel management all significantly impact the company's overall performance. Human Resource Management requires a strategic approach, especially in developing businesses [9]. HR management is essential for growing not just workers but also the company as a whole. Further, the spread of the coronavirus has resulted in a wave of layoffs across a wide range of businesses, including restaurants, and entertainment venues, industry, airlines automakers, and manufacturing. Moreover, the struggle of organizations to pay the same remuneration to staff given that employees cannot perform as effectively as they could before COVID-19. The objective for organizations under the exceptional conditions of the pandemic is to employ effective and efficient HR strategies to cope with the impact of COVID-19 and decrease organizational susceptibility.

In addition, artificial intelligence, machine learning, and the Internet of Things are examples of new-generation communication technologies that have supported innovation in HR practises, particularly during pandemics [10]. Companies have been compelled to embrace remote work as a result of the COVID-19 epidemic in order to continue in business and keep staff engaged. Human resource concerns, on the other hand, are becoming more prevalent. Machine learning allows HR executives to offer the employee the option of work from home. Hence, it would be enhanced the retention of the employee with the average income. ML allows new forms of work advantages for organizations as well as for the employees.

The epidemic has prompted businesses to shift their personnel to digital platforms, lowering the value of fixed capital, social capital, and human capital [11]. Moreover, although it is tough to relate pay to performance, it is much more challenging for companies to decide on awards and bonuses to utilize as financial incentives to offer feedback to employees. It has been observed that Organizations that are unable to monitor performance will be in a more challenging legal and financial situation.

Poor performance also carried out from the crisis. In this way, the modern HR executive may rely on real-time data to assess employee engagement and identify issue areas to enhance work culture by forecasting workforce trends to redefine performance management. Furthermore, real-time data allows HR professionals to respond quickly and in a personalized manner. Machine learning help HR predict attrition patterns, communication issues, project success, employee engagement, and a number of other key events and problems by better comprehending the data [12]. Thus, ML has far-reaching consequences for human resource management. AI breaks down and converts data into an understandable structure.

Employee interactions are bolstered, and HR chatbots aid worker engagement. As a result, HR solution providers and growing businesses are increasingly turning to HR chatbots, which leverage gathered data to expedite and automate the hiring process and increase productivity. Chatbots driven by machine learning have a number of benefits, including simple accessibility, infinite discussion with users, quick response, round-the-clock availability, and excellent cross-channel integration. Further, ML has optimized every hiring process by providing HR professionals with individualized research tools to help them find the best people in the business [13]. An applicant tracking system (ATS) can save time for HR professionals who have to sift through a large number of resumes, minimizing errors and ambiguities throughout the hiring process. It will not only save time but money as well. Further, Machine learning equips HR professionals with mobile-friendly solutions for collecting and sharing real-time input. Machine learning may be used to detect themes and reoccurring concerns in employee surveys, which can assist to enhance feedback quality.

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Moreover, many activities have been automated, allowing HR professionals to focus their efforts on identifying redundant job profiles within an organization and simplifying the chain of command, resulting in cost savings across the board [14].
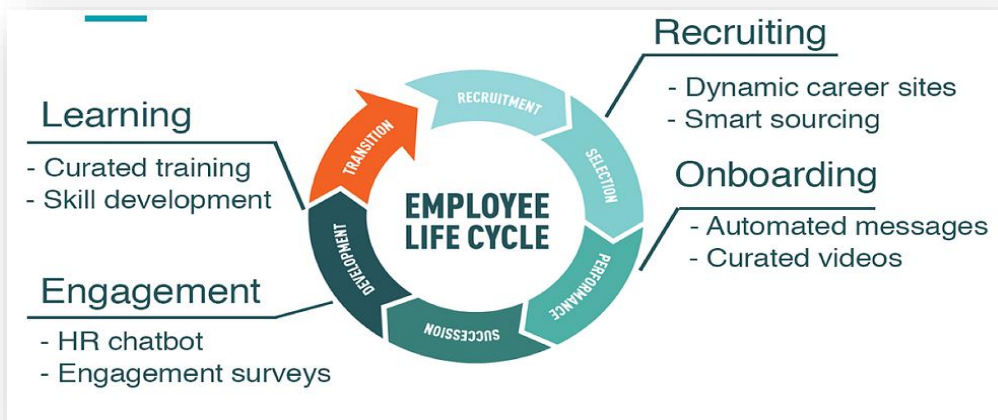


**Figure 2: Impacts of ML in HR functions**
(Source: Mebebot.com 2021)

**Result/Findings**

The data were analysed, discussed and interpreted, and finally, conclusions were drawn based on the results. It was discovered that the unexpected scenario elicited an apparently surprising response, exposing firms' lack of crisis management experience. According to the findings of this study, COVID-19 has a considerable influence on traditional human resource management and demands academics' theoretical and empirical attention.

It has been found that for the great majority of HR managers, COVID-19 has transformed their work experience [15]. It compelled businesses all around the world to change the way they organize work and create jobs. Interviews, performance assessments, group meetings, and various other routine HR procedures may be efficiently scheduled using machine learning. Furthermore, as machine learning learns more about the firm and absorbs all pertinent data, it better understands it. HR collects vast quantities of data on all areas of employee behaviour, but identifying vital patterns, risks, and opportunities will be nearly difficult without some sort of machine learning to ingest and analyse this data and produce meaningful insights.

Table 2: Finding of the study

| S/no | Process/functions of HR | Impact of Machine learning |
|------|-------------------------|----------------------------|
| 1 | Planning | Proactively identifying resource requirements |
| 2 | Culture development | Alignment analysis |
| 3 | Recruitment | Use of multiple data for evaluation, an applicant tracking system (ATS) |
| 4 | Remuneration | Alignment and recommendation |
| 5 | Training | Customised, Al-based training and coaching |

| 6 | ERM and well-being | Chatbot, Burnout predictions |
|---|---|---|
| 7 | Retention | Predictive analysis |
| 8 | Reporting and compliance | Robotic process automation |
| 9 | Exists | Feedback analysis |

## Conclusion

The impact of machine learning on HR managers during the Covid-19 pandemic crisis is identified through a review of the literature. This research aims to perform a comprehensive literature evaluation on developing studies in HR management to determine what the emerging challenges are during the COVID-19 pandemic and recommend relevant strategies to address these concerns. The effect of the COVID-19 outbreak has pushed this problem to new heights in the global economy. COVID-19 has been spreading for more than a year, and its impact on HR concerns will continue for a long time.

The primary issue that organizations face today is not a single event but a new normal that provides a variety of study opportunities for organizational researchers and practitioners. The most widely discussed concerns have been amplified; emerging HR challenges can be comprehensive. COVID-19's emergence amid the aftermath of a catastrophic economic downturn. HR managers should constantly be aware of the unique impacts of insecurity on workers, particularly during times of crisis when any news, even terrible news, appears to be preferable to no news.

Further, it has been found that ML learning helps Hr executives to reduce the unemployment rate resulting from the epidemic and increase job opportunities. HR managers motivate employees to engage in online leisure activities that can contribute to their performance, job satisfaction and more. Through remote work, HR executives maintain excellent communication with workers and provide flexible work options. HR managers' ability to communicate is a critical component in resolving a crisis, with all the implications for human capital loss, union dispute, and even corporate harm.

In addition, ML generates appropriate data to assist HR practitioners in retaining and motivating current employees as well as recruiting new ones. ML analyses data to find patterns and adjusts programme operations accordingly. Suggestions driven by machine learning Using previous data, propose the best ways for resolving anticipated issues, assisting HR executives in developing HRM programmes based on smart data.

## Future work

Finally, the main conclusions from the paper, as well as their significance from both an academic and a business standpoint, as well as the investigation's limits, might help to stimulate additional research. The propositions suggest various study areas for future studies in this subject and nominate relevant human resource strategies to deal with growing human resource challenges. The pandemic's wide variety of developing HR concerns, as well as the pandemic's severe effects on HR, would certainly necessitate further attention and debate. Further, despite the fact that the systematic literature study was thorough, analytical, and theoretical, care is nevertheless advised when interpreting the findings. The regulating function of organizational and environmental variables in the new coronavirus pandemic is studied in each HR practice.

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