

Information Systems in Effective Management of Human Resources

Subjects: Others

Contributor: Vishnu Priya S Selvaraj, Santhi V Venkatakrishnan

The effective management of human resources (HR) is crucial for the success of any organization, and information systems play a vital role in supporting and enhancing HR functions. Integrating information systems with HR practices has become increasingly important in today's technologically advanced business environment. Information systems are integral to effectively managing human resources by streamlining processes, improving data management and analytics, enhancing recruitment and talent management, enabling employee self-service, ensuring compliance, and supporting remote work. As technology continues to evolve, the role of information systems in HR management is likely to expand and become even more sophisticated.

Keywords: IT tools ; HRM during pandemic ; HR strategies

1. Introduction

Organizations around the globe have been disturbed by the COVID-19 pandemic, forcing human resource management (HRM) specialists to adapt and deploy cutting-edge ways of handling the problems brought out by this unprecedented disaster. During the pandemic, HRM was essential for managing the workforce and ensuring that key HR tasks ran smoothly. Human resource managers play a crucial role in hiring ^[1] managing employee performance and developing effective strategies for supporting employees during the COVID-19 pandemic ^[2]. They seek innovative and creative solutions to address employees' problems, maintain their health, and establish reliable management strategies ^{[3][4]}. Given the exceptional circumstances and changing economic landscape, managing human resources requires deep thinking and flexibility ^[5].

During the COVID-19 pandemic, many organizations changed their traditional organizational approach and way of communication and adopted IT (information technology) tools for organizational communications due to restrictions and prohibitions such as working from home, prohibition of social gatherings, prohibition of face-to-face meetings, and much more. IT tools, information systems, and their necessity for the employees were considered prior to the change in working conditions during the pandemic. Tools such as Microsoft Remote Desktop, Zoom, Microsoft Teams (MS teams), and Team Viewer were preferred for communication ^[6]. These tools played a vital role among HR practitioners, as they could use them to manage, monitor, support, guide, and communicate with employees. HRM strategies such as virtual coffee breaks, virtual socialization, virtual lunch breaks, etc., had significantly impacted the employee performance of the employees ^[7]. Although some small companies and organizations failed to adapt to digital assistance and the implementation of IT tools and to change their traditional organizational functions due to deficiencies in finances, many organizations were sustained through the incorporation of IT tools into their HR functions. This practice of combining organizational functions with available technological assistance is called an Information System (IS).

2. Role of Information Technology-Based Tools in Executing Various Functions of Human Resource Management

2.1. HR Strategies Used in Planning and Recruitment during COVID-19 Pandemic

The COVID-19 pandemic has significantly impacted recruitment practices and strategies. To comply with COVID-19 prevention measures, organizations had shifted to online recruitment methods and prioritized national recruitment ^[8]. Recruiters adapted their methods based on job requirements and individual candidate characteristics, utilizing social networks, online interviews, and psychometric tests ^[9]. Boomerang hiring, which involved rehiring former employees, emerged as a restructuring method during the pandemic, providing advantages such as cost-effectiveness and customer retention ^[10]. E-recruitment systems and social media became valuable tools in sourcing candidates, improving the speed and quality of recruitment ^[11]. A hybrid recruitment and selection system that combined online and offline components was

implemented with the entire process conducted online except for necessary in-person tests ^[12]. E-recruitment through social media was proven effective, attracting a large number of qualified job applicants ^[13]. Facebook was utilized as an effective recruitment method for reaching a larger pool of candidates ^{[14][15][16]}. Online interviews were facilitated through various platforms, including established applications like Skype and newer platforms like Microsoft Teams and Zoom ^[17]. Human resources professionals emphasized the importance of fostering a sense of belonging and providing support throughout the recruitment process ^[18]. **Figure 1** illustrates the various IT tools used for the recruitment of human resources.

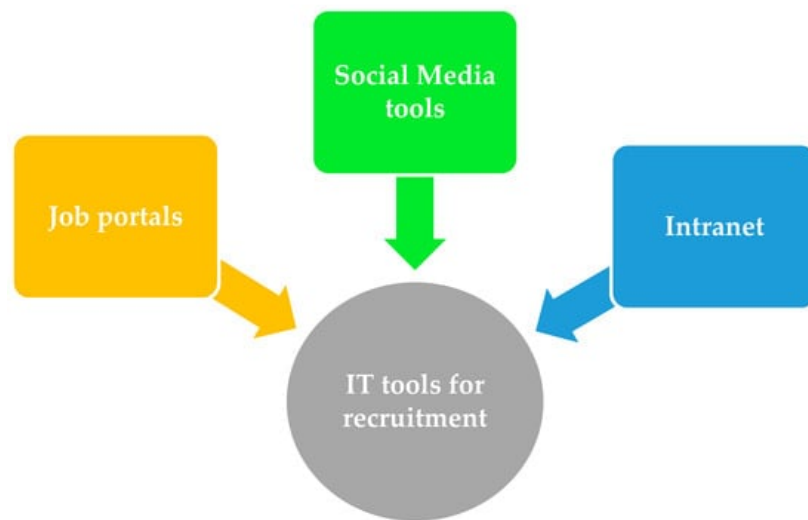


Figure 1. IT tools used for recruitment. Source: authors.

2.2. HR Strategies Used in Performance Appraisal during COVID-19 Pandemic

The COVID-19 pandemic necessitated significant organizational changes to ensure business continuity. Job performance emerged as a critical factor for sustaining operations and overall organizational performance. However, maintaining and shaping job performance during the pandemic posed challenges due to the negative impact on employees, resulting in increased stress and a diminished sense of security. In this context, HRM specialists played an increasingly important role in developing strategies that positively influenced the job-related attitudes of employees, thereby improving job performance during these challenging times ^[19].

The authors of ^{[20][21]} suggested measures that can enhance work motivation during the pandemic, such as comfortable workspaces, well-being promotion, positive relationships, and effective communication. By examining attitudes like work motivation, job satisfaction, and organizational commitment, the researchers investigated the impact of COVID-19-oriented HRM strategies in 378 organizations during the COVID-19 pandemic in Poland. It was found that the best results were achieved by combining “hard” HRM strategies related to finances with “soft” HRM strategies focusing on well-being. It has been demonstrated that satisfaction with the organization’s COVID-19 responses is positively correlated with job performance ^[22]. A well-managed crisis led to a sense of security among employees regarding their health, well-being, and career. The findings of ^[23] suggest that job-related knowledge, informal communication, and organizational loyalty contribute to the impact of social isolation on job performance. It was evident from qualitative research that hindered development, missed informal conversations, and detachment from the organization played an important role. The extent to which employees are satisfied with their jobs reflects their level of work-related experiences. This relationship cannot be fully understood without a comprehensive understanding of how work motivation is influenced by external factors as well as HRM practices. A fulfilling work environment motivates employees to perform at their best ^{[24][25][26][27]}. **Figure 2** portrays the various IT tools used for the performance appraisal of human resources.

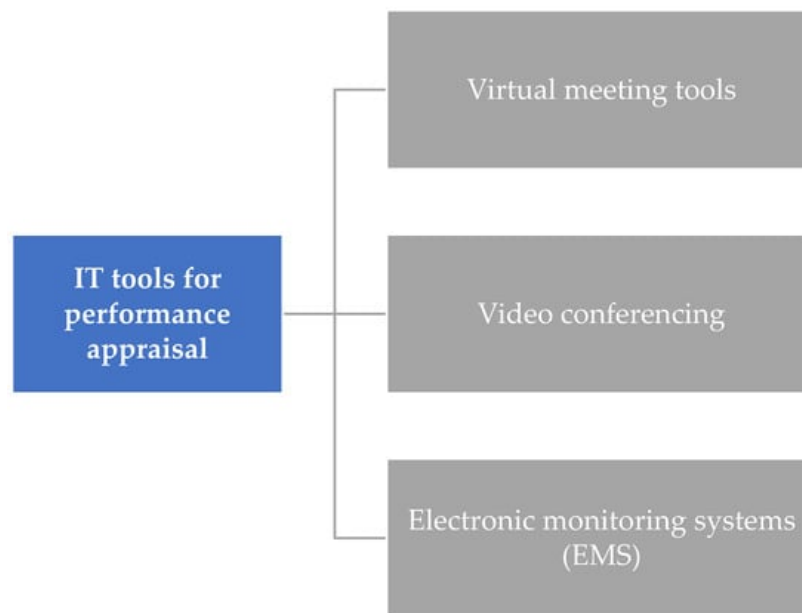


Figure 2. IT tools employed for performance appraisal. Source: authors.

2.3. HR Strategies Used in Training and Development during COVID-19 Pandemic

Employees play a vital role in the productivity, success, and future of any organization, which is why organizations invest significantly in employee development. Employee development not only enhances individual skills but also contributes to the overall growth of the organization. Productive employees lead to the prosperity of the organization as a whole [28]. However, during times of crisis, when survival in the market becomes critical, organizations often take drastic measures that reduce the organization's flexibility [29]. In such circumstances, the HR department plays a crucial role in managing the consequences of the crisis by reducing stress among employees and strategically minimizing costs [30].

In a crisis, organizations frequently cut down additional expenses related to benefits, promotions, and employee development, despite employees' increasing expectations. Recruitment is also often reduced or halted, requiring HR departments to implement tools to retain current employees and mitigate potential dissatisfaction resulting from reduced promotion and development opportunities. One of these tools is the adoption of modern practices such as offering alternative job roles, freelance positions, or flexible working times [31]. These actions provide workers a sense of security, which, in turn, during a worldwide crisis improves their performance and likelihood to bond with the company [32].

The authors of [33] conducted a study on the changes in the approach to employee development in organizations as a result of the COVID-19 pandemic. The findings suggest that in addition to changes in the format and approach of employee training caused by the pandemic, employees also express a need for new topics to support their development. The research also observed a decline in employee engagement and an increase in fatigue resulting from the use of various online development initiatives.

The COVID-19 pandemic has compelled the training market to heavily rely on video formats as a viable alternative to in-person meetings. Professionals in various industries experience everyday interactions through video conferences, webinars, virtual trade fairs, open days, and networking events. It is increasingly evident that remote communication will persist as a prominent aspect of the daily lives of employees, prompting the need to explore effective strategies for implementing developmental processes in order to gain competitive advantages in this new landscape.

According to [34], HR managers faced the significant responsibility of designing effective training programs and implementing suitable training methods to ensure the organization's survival during the pandemic. It was crucial to provide employees with quickly adaptable training that would enable them to navigate the challenges posed by the crisis.

During the COVID-19 epidemic, ref. [35] conducted research at Oman Air on the effects of training and development on employee performance. The findings of the study demonstrated a favorable relationship between employee performance and training and development.

According to [36], *gamification* is defined as a process of incorporating non-gaming environments (online community, intranet, websites and learning management system/LMS) and people (partners, employees and consumers) to increase their interaction level and collaboration with the host (company, employer and organization). In simpler terms, gamification in HR practices is used as a design element term that incorporates employees' involvement to break larger tasks into

smaller ones and increase the productivity, thus attaining the organizational goal [37]. It is utilized by HR departments to foster a positive organizational culture that promotes collaboration across departments, facilitating streamlined processes for product or process improvement and suggestions. This approach encourages employee and co-worker participation for intrinsic motivation and creates a platform for tracking employees who demonstrate potential for promotion, tangible rewards, and salary rises in the future. In the context of learning and training, HR can incorporate gamification elements by transforming training content into interactive games [38]. Activities can be introduced where employees earn points and badges as they progress through different levels. Gamification can also be applied to team-building exercises and projects, allowing employees to engage in competitive and collaborative approaches to business processes, requirements, and events.

2.4. HR Strategies Used in Compensation and Benefits during COVID-19 Pandemic

Organizations encountered a number of difficulties administering employee remuneration and benefits during the COVID-19 epidemic. To meet the demands of their employees and protect their safety during the pandemic, many organizations implemented the “Taylorian management” method of flexible work arrangements like remote work, flexible hours, or compressed workweeks, which were significantly considered to create a positive impact on job autonomy, according to [39], prior to COVID-19. To overcome the financial restrictions during the epidemic, some organizations imposed salary freezes or reductions [40]. This plan sought to reconcile cost management with a reduction in employment losses. Salary reductions during COVID-19 fortunately motivated employees’ working from home, which gave them job security and motivated them to perform well to secure their position. This in turn increased organizational profit and performance and thus organizational sustainability, which indirectly led to job security and increased salary post-COVID-19 [41].

Employer Aid Programs (EAPs) were introduced or improved to offer aid to workers who experienced a variety of pandemic-related issues, including mental health support, financial counseling, and help balancing work and personal obligations [42]. Aiming to improve healthcare benefits, these organizations have expanded coverage for COVID-19 testing, treatment, and immunizations. Resources and services for mental health support have been highlighted in the study conducted by [43]. In order to ensure that employees were informed of any modifications and their justifications, HR departments realized the value of open and regular communication regarding compensation and benefit changes [44].

2.5. HR Strategies Used in Employee Engagement and Communication during COVID-19 Pandemic

Effective communication within an organization is vital for managing human resources, especially during dynamic changes like the COVID-19 pandemic. Several authors such as [45][46][47] concluded that only the satisfied employees and their accurate communicational behaviors shaped an organization as a whole, and the exchange of right information at the right time played a crucial role for organizational performance and sustainability. Communication can take different forms (vertical or horizontal) and serve various functions (directive, supportive, cultural, and democratic) [48][49][50][51][52][53]. It influences employees’ emotional commitment, trust, and engagement with the organization. Informal communication reduces resistance to change and facilitates employee adaptation [54][55][56][57][58][59]. Keeping employees informed about important aspects of the pandemic or the organization’s future contributes to their engagement, job satisfaction, and performance [60][61][62][63].

During the pandemic, HRM professionals implemented various strategies to enhance employee engagement and communication. Online communication tools and virtual team-building exercises were used to promote collaboration and maintain social ties among employees [64]. Open and frequent communication through channels like email updates, virtual town hall meetings, and intranet platforms helped share crucial information and build trust [65]. HRM experts also emphasized employee inclusion in decision-making processes, seeking their advice and feedback to enhance engagement and loyalty [66].

2.6. HR Strategies Used in Employee Well-Being and Personal Support during COVID-19 Pandemic

The COVID-19 pandemic and the resulting societal challenges, such as social isolation and financial uncertainty, have significantly impacted both the physical and mental health of individuals [67]. Researchers found that the general population in China was experiencing stressful and depressive conditions during the pandemic [68][69]. From an organizational perspective, the presence of stress, anxiety, or depression among employees negatively affected the engagement, willingness to work, and overall effectiveness of the employees [70][71][72][73][74][75][76][77][78]. Therefore, organizations had to prioritize employee well-being to help them navigate through these challenging times.

The concept of well-being is multifaceted, with researchers viewing it as the ability to achieve goals, happiness, life satisfaction, or a global assessment of an individual’s quality of life based on their own criteria [79][80][81]. Amid the COVID-

19 pandemic, employees' psychological balance was found to be significantly affected particularly due to the reduced social interactions and increased sense of isolation in remote work settings, leading to heightened stress levels [82]. Employers had to ensure that employees had unrestricted access to technology, maintained communication channels among colleagues, and facilitated face-to-face-like interactions to mitigate the risks associated with remote work. Consequently, the well-being of employees, particularly those working remotely, was heavily dependent on the personal interactions and social characteristics, which was challenging to provide in the remote work mode.

2.7. Challenges Faced by HR during COVID-19 Pandemic

The authors of [83] conducted an investigation on the challenges and opportunities, as a result of the COVID-19 pandemic. Human resource management (HRM) has played an important role in supporting employees during the period of complete lockdown. Throughout this challenging time, HRM played a vital role in alleviating employee stress and maintaining work continuity, as discussed in the study of [84].

Employee-related challenges were numerous during the pandemic for HR managers. In the beginning, working from home in the presence of family was difficult for organizations that transitioned to a digital work platform. In addition, HR managers were responsible for making sure that the employees who were affected by the virus established a healthy relationship between the organization and other employees [85]. Furthermore, employees no longer had the opportunity to interact with colleagues or engage in social activities during work, which led to a disconnection from their social lives. During this period, there were also concerns about employee safety, changing customer preferences, and the lack of continuous business activities [86]. The human resource management department made considerable efforts to mitigate the negative consequences of working from home.

In a pandemic situation, employees were required to work beyond their usual hours, which was extremely stressful. A new set of policies were developed by HR executives to help employees deal with that stressful situation. Employees worked from home in the presence of their families under COVID-19, which fundamentally changed the work environment. The role of HRM was critical in helping employees to adapt to the new workplace and making sure that they were productive as well.

Another challenge was effectively managing remote work arrangements, facilitating virtual collaboration, and ensuring efficient communication among remote teams [87]. Additionally, HR faced difficulties in managing workforce planning and resourcing, including issues such as workforce reductions, layoffs, and talent acquisition within the context of remote work [88]. Another challenge for HR was promoting employee well-being, addressing mental health concerns, and providing necessary support and resources to employees [89].

2.9. A Theoretical Framework on the Role of HR Strategies in Maintaining Sustainability

The COVID-19 epidemic has forced businesses to put sustainability first in order to maintain and flourish over the long term, which has extended the role of HRM. The preservation of the environment, the adoption of sustainable practices, and the welfare of employees and communities have now become the responsibility of HRM. Through this change, the idea of corporate social responsibility (CSR) has increased the value of an organization among the people, giving rise to a new paradigm known as sustainable human resource management. CSR as a business concept integrates environmental and social concerns with stakeholders along with the operations of the businesses. The above strategy, also known as the triple bottom line (TBL), representing the three facets of sustainability—namely, environment, finance, and social (people)—has gained importance. The notion of HRM that is presently seen as being the most inclusive and complete strategy in terms of organizational sustainability is sustainable HRM [90].

Organizations have faced difficulties as a result of the COVID-19 pandemic, prompting questions about the nature of employment in the future [91]. It has sped up modifications to HRM procedures and promoted the adoption of scenario-based planning (business strategy) as a crisis management strategy. In order to survive and sustain their businesses, organizations are today reexamining their HRM strategies and embracing information technology as a vital ally. To help businesses adjust to this quick change, new laws have been established in a number of nations. It is thus understandable that to gain organizational sustainability, utilization of the IS and IT tools (performance appraisal, training and development, benefits, compensation, and more) during and post-COVID-19 seems rather highly effective.

The COVID-19 epidemic has caused a rise in virtual meetings and remote working. Despite the fact that it is unknown whether all businesses would continue remote work after the pandemic, a report by [92] shows that distant work and virtual meetings will continue but at a lower intensity than during the height of COVID-19. In industries with significant human

involvement, such as healthcare and personal care, the pandemic has also expedited the deployment of automation through the usage of IS and IT tools.

To enable flexible work arrangements and the shift to a hybrid working model, organizational culture must be rebuilt [93]. Especially for individuals who work remotely, maintaining a coherent culture that fosters relationships and exchanges among employees is essential. The authors of [94] and other authors have advised creating a digital organizational culture handbook that distant employees may access as well as toolkits that supported and communicated the symbolic parts of the culture.

Figure 3 illustrates the conceptual model that has been developed based to associate the variable HR strategies and organizational sustainability.

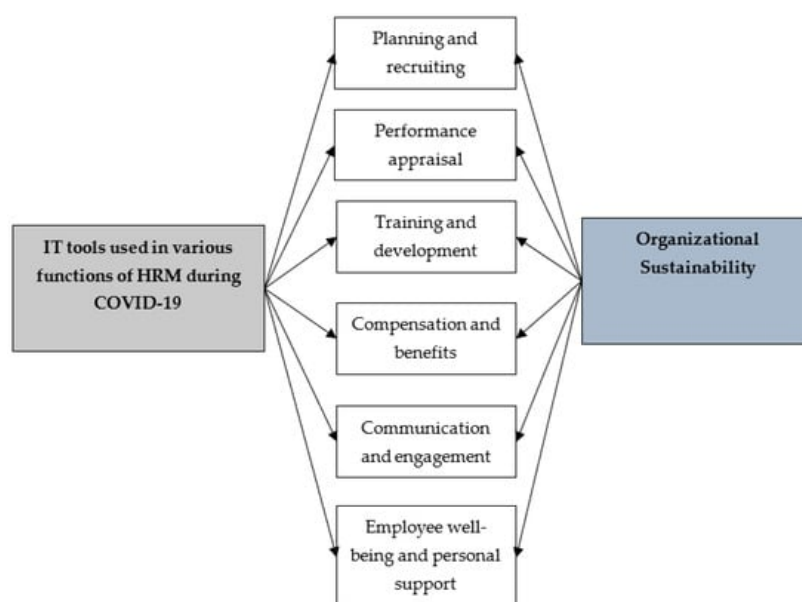


Figure 3. Association between HR strategies and organizational sustainability. Source: authors.

3. Summary

During the COVID-19 pandemic, HR departments implemented various strategies to adapt to the new work environment and support employees. **Figure 10** presents the various strategies adapted for performing the different functions of human resource management. These strategies included virtual interviews and remote onboarding for recruitment, virtual performance evaluations and continuous feedback for performance appraisal, e-learning platforms and virtual training sessions for training and development, revised compensation structures and flexible work arrangements for compensation and benefits, virtual team-building activities and transparent communication for employee engagement and communication, and mental health resources and flexible work arrangements for employee well-being and personal support. However, HR departments also faced challenges such as managing remote teams, addressing employee well-being, ensuring effective communication, and adapting to changes in work processes and regulations.

Pre-COVID-19: For employees to be satisfied with their work, it was essential to have appropriate HRM practices in place [95]. Job satisfaction and performance were positively related to HRM practices [96][97][98]. It was demonstrated that HRM strategies that promoted employee performance were effective [99] and as long as employees were engaged and performing well, they were more likely to stay with the company. The effectiveness of HRM practices enhanced organizational commitment, i.e., identifying, assuming, and fulfilling responsibilities, and avoiding quitting the company [100][101][102]. Employee behavior was positively impacted by organizational commitment [103][104]. Employees who were committed to achieving organizational goals were more likely to act in a positive manner [105][106].

During COVID-19: The HR strategies adapted during COVID-19 by the organizations for effective human resource management was studied by several authors. The authors of [107] examined the crisis management, and 6Cs concept (compensation, caring culture, creativity, collaboration and coordination, clean/hygiene and communication) was adapted as an HR practice during COVID-19. The study by [108] concluded that adapting to new changes during the pandemic initially caused a denial of changes that affected the physical and psychological stability of employees. However, with the assistance of IS and IT tools, employees accepted the changes which, in turn, increased their productivity and

performance. The authors of [109] examined and concluded that good HRM and HR practices (adopting IT tools and IS) positively impacted the organizational sustainability globally, whereas the bad HRM and HR practices failed to sustain.

Post COVID-19: Several authors like [41][110][111][112][113] studied the practice of incorporating more IT tools and ISs by the HR as a part of the working culture post-COVID-19. The conclusions from the studies revealed that employees' performances increased when they used IT tools and ISs in remote work settings. Hence, the authors insisted that removing the usage of IT tools and ISs post COVID-19 will decrease the productivity and performance. Hence, it is recommended and argued among the researchers that implementing an IT tools-based working culture and the usage of ISs in regular working mode as well will motivate employees and result in organizational sustainability.

Role of HR during COVID-19: In order to help organizations overcome the obstacles posed by the COVID-19 pandemic and develop strategies to achieve their goals, human resource management is essential. This entails putting employee well-being first while striving to meet the organization's objectives for the COVID-19 pandemic [114]. HR professionals were responsible for motivating employees and providing them with adequate support during the abrupt transition in their work mode [115]. Numerous studies have emphasized the significance of organizational support during times of crisis [116]. It is clear that ensuring the internal consistency of these support measures is crucial not only in how they relate to each other when implemented during a crisis but also in alignment with established practices from the past, as this alignment can enhance their positive effects on employees.

In conclusion, the COVID-19 epidemic has confronted HR professionals with difficulties that they had never seen before, prompting the adoption of novel approaches in a number of HRM activities. To fulfill the specific requirements of the pandemic, all of the functions of Human Resource management such as planning and recruitment, performance evaluation, training and development, remuneration and benefits, employee engagement and communication, employee well-being and personal support had required the adaptation of new strategies. Further investigation is required to evaluate the efficacy and results of these tactics, examine the integration and synergy between various HR activities, and comprehend the unique difficulties faced by HR professionals. Organizations may improve their handling of the current crisis and the effectiveness of their HR procedures for the benefit of both their workforce and overall organizational performance by filling these research gaps.

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