Navigating HR Complexity with IoT: A Tech-Driven Approach

Dr. Amit Yadav

Assistant Professor (Senior Scale)

School Of Law, Manipal University Jaipur

amit.yadav@jaipur.manipal.edu

Dr. Arpit Totuka

Assistant Professor

School Of Law, Manipal University Jaipur

Arpit.Totuka@Jaipur.Manipal.Edu

Dr. Pankaj Kumar

Assistant Professor

School Of Law, Manipal University Jaipur

pankaj.kumar@jaipur.manipal.edu

Dr. Deepankar Sharma

Assistant Professor (Senior Scale)

School Of Law, Manipal University Jaipur

deepankar.sharma@jaipur.manipal.edu

Ms. Paridhi Jain

Research Scholar, Manipal University Jaipur

paridhi.231351002@muj.manipal.edu

Abstract

A surprising topic that is currently getting a lot of media attention is the so-called "Internet of Things" (IoT). The term "Internet of Things" (IoT) is a hot topic of discussion right now, both inside and outside of the workplace. The way individuals live their lives has unquestionably been greatly improved by technology improvements. In practise, technology has had a profound impact in all aspects of life, encompassing multiple methods of communication utilising various aspects of digital gadgets such as computers, cell phones, iPad, and smart phones, among others. Nowadays, it is a fact that household items and electronics can be interlinked to the web and constantly send and obtain information from smartphones, and this situation is only the beginning of an eternally networked society from the not future. Because it offers significant information to optimize process visibility and increased automated testing levels of accessibility, the use of items and 5G innovation sharing computational resources, and sustain for additional functionality, such as pay-as-you-go Human Resource Management (HRM) facilities and equipment, and also our focus on Small and Medium Sized businesses, the entrepreneurship scheme is required to digitise. In this study, a model of an Organization Human Resource Management System is created and implemented in order to address the HR difficulties that exist in the area using IoT technology. The suggested structure comprises of sixteen basic functionality that are commonly used with well-known HRM platforms. Hence, the issue in the human resource management is tackled using the Internet of Things technology.

Keyword: Internet of Things, Human Resource Management, Challenges

1. Introduction

The Internet of Things (IoT) aims to connect and programme commonplace objects utilising cutting-edge technologies including pervasive connectivity, sensor network technologies, and Radio Frequency Identification (RFID). The Internet of Things (IoT) is essentially a highly developed distributed eco-system in which items are connected to one another and work together to accomplish a shared goal. The IoT eco-system is explained by the diverse and dynamic nature of the resources connected to the numerous nodes of this environment (Shet et al. 2021). The components that come together to form an IoT eco-physical system are its assets; each of these physical resources is thought to contain one or more intrinsic capabilities that may be identified by a Uniform Resource Identifier (URI). Computational requirements, storage capabilities, and energy production are examples of these resources.
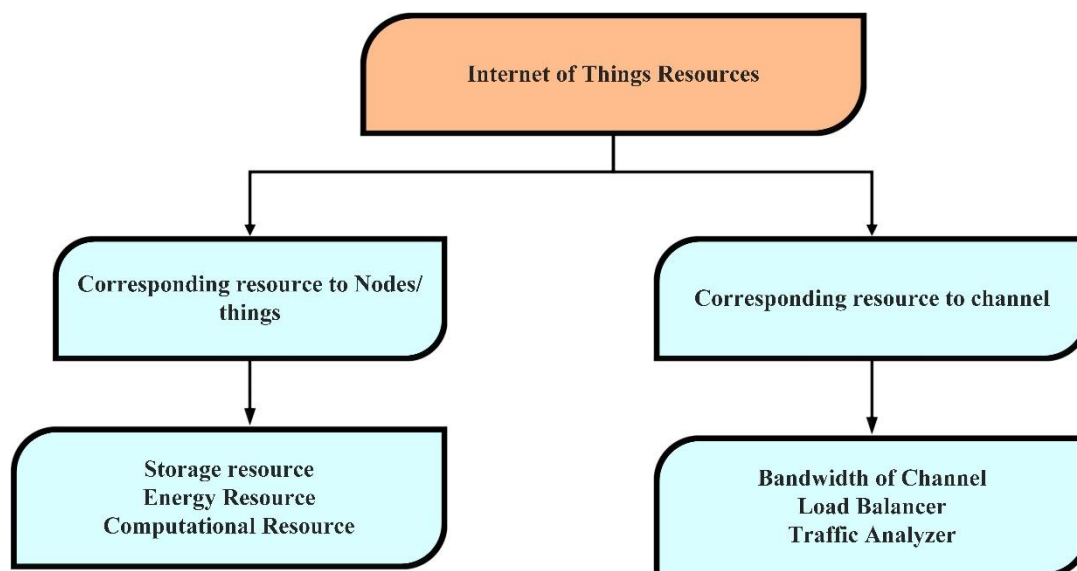
Fig.1 IoT Resource Classification

Another type of IoT resource is the equipment connected to the communications platform or networking devices. The many IoT resource types used in IoT strategic planning are shown in Fig.1 IoT Resource Classification. One of the most important tasks in distributed systems is resource management, which has long been the subject of research. Uncovering and recognising all resources available, choosing suitable resources, partitioning and configuration management them to optimise the expected utility, which can be in terms of general achievement, charge, fuel efficiency, accuracy of information, media attention, and durability, are all examples of effective resource management.

Cloud-edge computing is a sort of decentralized system in which many digital information processing resources are spread among servers and demand groups. Due to the rapid development and adoption of IoT, the world of today produces a vast volume of data that is managed by cloud technology (Barman, n.d.). However, there are significant and major problems with cloud computing, including unreliable delay and a lack of support and aid with knowledge placement and provision. As the industry for the Internet of Things (IoT) grows and more devices are linked to the internet via wireless and data is transferred and received through them, this concern will become more complex and difficult and sophisticated than in the past. The Internet of Things (IoT) is a network of objects and gadgets that are linked to the internet and each other in order to exchange data and improve output. As a result, it is the internet-based interconnectivity of computing devices implanted in common things, allowing objects to exchange and receive data. For example, using the network to manage home appliances located far absent from work, intelligent medical products for remote patient care, and sensors to monitor overall health and wellness and provide therapy as needed. Physical things are now linked to the virtual environment and can be operated remotely from various locations that serve as internet entry points (Venkatesh 2017).

In order to prepare the workforce for this new style of working and to make use of the massive amounts of data generated by the Internet of Things, human resource management is in a good position (IoT). The way we interact with our surroundings could be completely changed by the Internet of Things. Data-driven decision-making has the potential to expand into new forms of human resource management, improving the quality of structures and procedures, saving time for people and businesses, and enhancing quality of life with the ability to digitally format monitor and control things in the physical realm (Powell and Dent-Micallef 1997). Human Resource Management was one of the lesser parts of Enterprise Resource Planning but was nevertheless an essential element that would aid in the proper management of an organisation and may lead a business to reach its goal (HRM). The advancement of an internet-based format for people management, known as e-HRM, was linked to this, as was the rate of technological change and communication. This would aid data managers oversee investigation, trying to search, and improving necessary details to make it more useful.

HR will have to use software to transform the firm's human resources, and platform HR will become the organization's 'key competence.' Productivity, wellness, flexible workplace, performance assessment, talent development, customer experience, development, modernization, automation, HR platform as a service, machine intelligence, database management, and HR Technology are all addressed in the worldwide perspective on integrating technology in HR spaces. As a result, innovation and HRM have a broad variety of relationships, and HR professionals ought to be qualified to adopt

techniques that allow rearchitecting of HR actions, be told to prepare to preserve organizational and employee project changes have been brought on by advanced technologies and be capable of maintaining an appropriate management climate for imaginative and experience and understanding associations (Patil and Suresh 2019).

Disaster management, often known as emergency preparedness, is the development of programmes that urge populations to minimize their vulnerability to hazards and prepare them to cope with disasters. Disaster response does not focus on preventing or eliminating hazards; rather, it focuses on developing plans to mitigate the effects of disasters. Natural and man-made calamities are the two sorts of disasters. Earthquakes, volcanic activity, flood, Tsunamis, plagues, cyclones, forest fires, and landslides are examples of natural catastrophes (Snell and Dean Jr 1992). Chemical spills, nuclear spills, traffic fatalities, structural damage, and suicide bombings are examples of man-made disasters. Because to urbanisation and globalisation, all these calamities are occurring throughout the world in this decade.

2. Literature Review

In the current era of computation, the Internet of Things (IoT) has gained popularity as a way to establish mechanisation high-quality environmental, innovation and dependable services, and productivity benefits. (Chowdhury and Raut 2018) suggested a strategy for managing the resources of the Internet of Things as a survey. As a result, IoT is now utilised in a variety of sectors, including business, agriculture, healthcare, education, and government. The resources that IoT programs demand are complex in nature, such as storage, processors, networks, core network, energy, and so on. The immediate flaw is figuring out how to effectively handle these restricted resources. Several attempts have lately being made to optimise resource management utilising various optimization techniques. These scheduling strategies are essentially divided into three categories in this study: Quality of Services (QoS), Internet of Things (IoT) design, and IoT communications infrastructure. The study also includes a comparison of alternative resource provisioning strategies and an assessment based on several metrics for IoT resource optimization.

The adoption of cloud-edge technology opens a lot of possibilities in terms of cost savings, productivity, and environmental protection. Users and businesses have been encouraged to embrace the intelligent federated cloud-edge model in the Internet of Things as a result of these characteristics (IoT). The human resources department is one of the main concerns in federated cloud-edge computing (HRM). The selection of the finest resources based on Quality of Service (QoS) considerations is an essential and crucial issue in IoT environments since the equipment and software resources allotted to the edge environment are assigned for responsive to people requests. In the sense that overall effectiveness and response time increase with effective resource allocation, selection, and management, HRM can be seen as an NP-problem. The Whale Optimization Algorithm is used in this research to present an optimization strategy for the HRM challenge in cloud-edge computing (WOA). An technique on optimization human resource management proposed by (Liu et al. 2021) deals with the could computing in the internet of things.

Connecting the Dots is a concept put forth by (Venkatesh 2017) based on the Internet of Things and HRM. As every organisation grows progressively more focused on technology to successfully oversee business operations, HR leaders have little choice but to adapt to improvements in procedures like hiring, benefits administration, and payment. The so-called "Internet of Things" is an intriguing topic that is currently getting a lot of media attention (IoT). The "Internet of Things" (IoT) is a hot topic of discussion right now, both inside and outside of the workplace. The way we live our lives has unquestionably considerably enhanced as a result of technology improvements. In reality, technology has significantly impacted every part of life, including the many ways that people communicate using different electrical devices like computers, mobile phones, tablets, and smart phones, among others. It is common knowledge that individuals spend most of their time at work, and as a result, it is essential to understand how well the Internet of Things (IoT) will transform the employment environment in ways, as well as how it is indeed having an impact on how organizations are managed now. The Internet of Things (IoT) appears to be changing how businesses run as well as how human resources professionals work in organisations, from the growth of the mobile job seeker to the usage of computer chips to watch staff.

The proposed paradigm for comprehending Internet of Things in human resource management (Charan, n.d.) This study looks into how the Internet of Things (IoT) works in HR and aims to create a framework for defining it. The Delphi technique is used to reach agreement on position descriptions and infrastructure development in order to examine the implications of the Internet of Things on human resource activities. After assessing the insights gathered using Delphi on a selection of twenty professionals in the field, the requirement for regulations and management risks are determined for reference in the future. The framework that examines the function of IoT in HR was finally built based on the results of the focused group's survey.

The study on Internet of Things and human resource development that was suggested by (Yawson, Woldeab, and Osafo 2019). National centres of excellence are evolving due to the Internet of Things (IoT), as are how businesses approach development and generate value for stakeholders in their daily operations. A new, more effective approach to human resource development is required because of how the Internet of Things (IoT) will change how human resources are developed and managed. Human-to-human contact is the most common type of Internet transmission. Every object would have a strange version of identifying and will be able to be contacted, allowing each product to be interconnected. Technology between humans, things, and things-things will be introduced to the mix. As a result, Human Resource Development (HRD) will experience an unprecedented challenge. The function of HRD in the Internet of Things is conceptualised in this study, which provides a summary of the IoT devices.

The suggested information and resource management system by Umer et al. (2019), which is based on the Internet of Things Energy, holds communication protocols for energy management and potential applications. Using their embedded design and contemporary communications, objects in our environment can now communicate with one another in a variety of working circumstances thanks to the Internet of Things (IoT) idea. Humans now have the ability to modify procedures and data from several information systems by utilising smart technologies in their surroundings thanks to the Internet of Things. The Internet of Things aims to improve humankind's quality of life in many areas, including business, healthcare, domestic life, and routine information management tasks (IS). Resource management is essential to the efficient running of IoT operations due to the enormous number of heterogeneous network components interacting and cooperating under IoT-based information security. One essential component of IoT systems is the engagement of embedded machines and devices with energy sources in IoT operations.

3. Methodology

3.1 Understanding the Framework for IoT

The name "Internet of Things" conjures up images of connected thermostats and smart household appliances for consumers, as well as enterprises installing data-gathering sensors that monitor autonomous assets. An enormous network of sensor, communications technologies, and computational power lies beneath any of these apparently innocuous gadgets. The Internet of Things (IoT) is a technological architecture that combines computers with other devices to carry out tasks. It is a technique to precisely combine many different kinds of information systems to produce something new. The Information Value Loop describes the architecture—the way those technologies are connected—in any IoT deployment, defined as "an individual technology used. The revolution has had a significant impact on human resource management. In most situations, digital information and technology innovation have aided Human Resource departments in preparing employees for changes in the organization and utilising big data from acquisition to succession planning. IoT is a technological innovation that has had a significant impact on human resource management.

3.2 IoT in Smart application based on Human Resource Management

Here are a few computing-related solutions. There is indeed a stronger link between actions and events in IoT systems. All raw events are gathered from sensor readers and analysed entirely in the cloud, culminating in redundant data and communication bandwidth. Expenses can be minimized, and the system's power performance can be increased by processing large amounts of data locally via IoT systems. On paper, the establishment of IoT systems is a contemporary way to proceed that continues in this manner; as the coupling of physical phenomena and the cyber environment, its impact on the next agricultural revolution is critical. The authors address its development in this paper, considering the fog technique known and extending an inspection procedures machine-to-machine communication architecture to allow container-based management techniques (Youndt et al. 1996). Data concerning the occurrence of defects, components, stock, and various demands should be consistently communicated across brilliant gadgets/measures, resulting in better competence, leading, limit utilization, character of invention, and development in organisations. Again, from perspective of Human Resource Management, smart urban environments, magnificent manufacturing sites, and savvy things are important Human Resource Management concepts. Hence in this research the application on Smart cities or smart factory presented to tackle the issue in the human resource management in IoT (Hornsby and Kuratko 1990).

3.3 Application of Smart City

With the development of technical infrastructures and the formation of some cities, the world's population is predicted to grow to around 6 billion people. By 2050, the need for additional information and applications on Earth will be driven by growth in population. The first predictive analysis huge data is referred to as such. In order to nurture future intelligent

cities, home automation, smart offices, intelligence services, smart local hospitals, precision farming, and industrial automation, it is required in a lot of formats (Su, Li, and Fu 2011). Human Resource Management has various needs and uses in each of these domains. Smart city development policies consider six factors: smart economics, smart transport, building automation, smart people, smart life, and smart administration. In the topic of smart cities, there is a lot of research going on. For example, the planned smart city can go beyond the new framework inherent restrictions. It takes a long time to transform a city into a smart city.

3.4 Application of Smart Factory

The sensitive business will include a robot construction task and a senior fashion designer. The advancement of ML enrolling and AI is relying on the ground of the cautious future of current workspaces. It is necessary to modify a self-ruling aspect and system is an organized due to these mechanical gadgets, detectors, controllers, and the CPU (Wright and McMahan 1992). Observing the panel, in order to regulate such an air, IoT centre, you can regulate the obliviousness of millisecond has indeed been restricted, depending on the development of IoT developments in the CPS, the technical cycling, necessary for very strong and low remainder reaction, have been restricted. Inertness has been represented as jitter, resource use, and the use of the remaining as far as feasible in such situations. These gimmicks will help you meet the project's perplexing requirements. This association is about a portion of the frameworks, protection and cost reduction, and transparency.

Long life battery and energy

There is a necessity to ensure that the complete affiliation's energy accomplishments are profitable and improved. It is critical that the fantastic device has enough battery accumulating to the aim, so that it may be used for an extended period (Rao and Teegen 2009). The Human Resource board structure is presented below, taking into consideration the items system, 5G connection, and Internet connections.

Throughput: The ratio of data working with is a diverse set of applications. It should be consistent with the requirements of the program.

Delay: Several examples of implementations, any site should indeed be constrained to surrender during Human Resource Department great time, which includes putting up an extensive reaching, constructing, moving, and computations.

Reliability: The Human Resource Management permanent organization requires dependable implementation courses of action.

Network Topology: How to place employees and the number of electronic devices in a way that improves QoS

All Human Resource Development applications are a significant basic when it comes to security, protection, and coverage. For instance, a given technological workspace must be a comprehensive aim of their security and protection, and no one will be able to access private information (Kirimtat et al. 2020). In a clinical assistance application, feasibly implies that the client's data must be safeguarded and cannot be changed; confirmation, accessibility, and authorization are the total of the techniques associated with a careful security framework.

Low cost

It is the foundation of magnificent technologies that are utilised in Human Resource Management programs in order to minimise CAPEX/OPEX. Various industrial relations 4.0 membership should not be, because it changes into the reason for the dreadful company environment.

Long Range

It is described as a contrivance, and it should be skilful enough to span the optimal range.

Standardization

It is noted that there is no normalization for such relationship or connection ad I is defined as the open master test.

Apparatus maintenance

The boss gadgets in a continuous gadget, one another, are connected to the Web in the company 4.0 contraptions of a heterogeneous network (Mazur 2015). The stated organizing computer software has been irritated, and it has been employed again for change maintenance contraptions such a problem.

Network Checking

In general, wireless technology and multi-nature identification, as well as the board, may cause geographic adjustments of linkages that demand an interface.

Performance

One of the most reliable presentation packages of these QoS criteria can be found. There must be convincing levelling and headway assistance for the parts that effect execution. Automation's unavoidable future is critical for strategy plan implementation.

4. **Result and Discussion**

Contracts must be intelligently constructed in order to achieve the purposes of the parties. There is a deep insight electronic device exponential increase in human resources management application areas at the time portal of roboticization. Institutions for rule formulation, fuel efficiency, filled minimization slowness, range capabilities, storage memory multiplication, and the goal are all important requirements for implementing the shock barrier as a precondition for using the transmission rate.

Routing

The ideal bunching hub, such as various sensors hub shining moments or xenogeneic tissue, will be chosen based on the residual energy ratio and the distance between both the parties' heads. The values were compared to the LEACH and September model plans, and as an outcome, a long power and organisational life was scheduled in order to enhance effectiveness. LEACH (50 percent) and September are strong ideas for expanding the organisation's information timescale (25 percent).
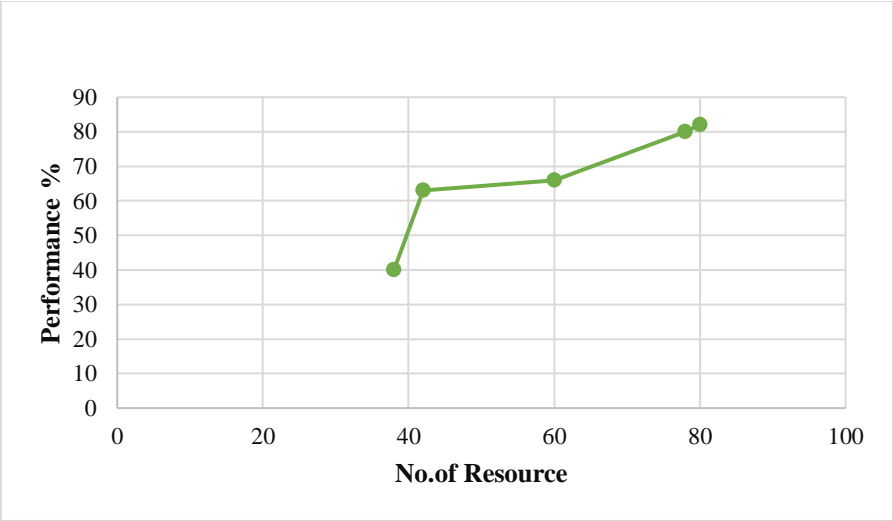

Fig.2 Routing Table

The Fig.2 Routing Table, discusses the effectiveness of assigning values in the Routing table, and the proposed approach for enhancing the delivery ratio.

Throughput Rate

Routing algorithm refers to the sharing of information between mobile phones in real time. Direct exchange is a crucial component in supporting Data transmission. In order to realize a skilful execution outcome, you need have a fundamental organisational strategy in place for any novel installations. Practical exploration suggests that you wish to employ the

downloading mode with branch-and-bound computation to improve the performance and energy level of the new framework development.
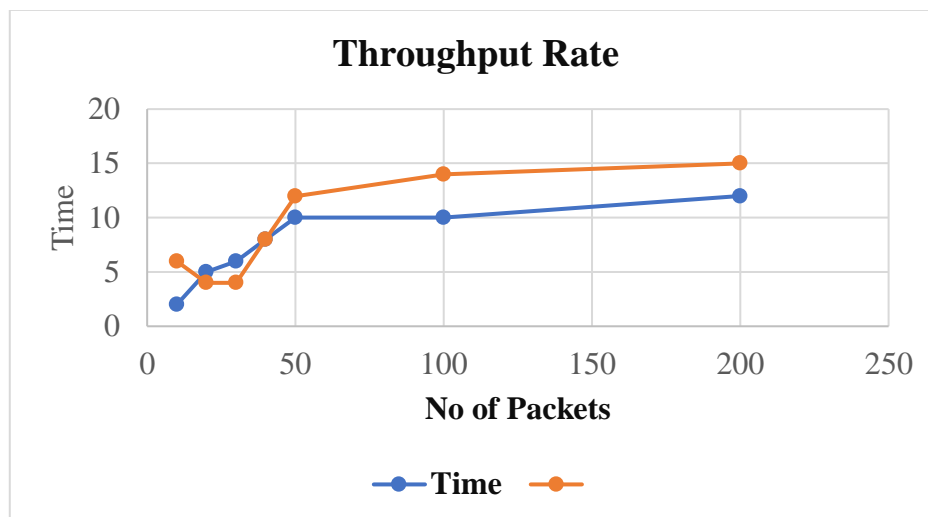

Fig.3 Throughput Rate

The above Fig.3 Throughput rate highlights the entire performance of transmit and enough progress, in which an improvement has been suggested and goals have been met, and MEC provides higher survival and efficiency results. The above graph of routing table and throughput rate shows that the issue in the human resource management could be reduced using the Internet of Things. The better performance in the Packet delivery ratio and Throughput rate shows the tackle issue in the human resource management.

Conclusion

It has been conceived, developed, and implemented a capable Human Resource Management System (HRM). The proposed approach can help Small and Medium Enterprises (SME) executives cope with money and authority concerns, as well as transition their staff's elements to a computerized technique. As a result, it is likely that the conceptual approach will serve as the foundation for connecting all company departments in diverse places to a single electronic system. The suggested EHRMS improves both the organization's and income directorates' and units' communication, as well as the personal letters among subsidiaries. It also increases communication between employees and offices/units while allowing for complete flexibility. The system is designed to save money, time, and effort.

Reference

1. Barman, Arup. n.d. "Internet of Things (IoT) as the Future Smart Solution to HRM," 8.
2. Charan, Padma. n.d. "Framework for Understanding Internet of Things in Human Resource Management," 12.
3. Chowdhury, Abishi, and Shital A. Raut. 2018. "A Survey Study on Internet of Things Resource Management." *Journal of Network and Computer Applications* 120 (October): 42–60. https://doi.org/10.1016/j.jnca.2018.07.007.
4. Hornsby, Jeffrey S, and Donald F Kuratko. 1990. "Human Resource Management in Small Business: Critical Issues for the 1990's." *Journal of Small Business Management* 28 (3): 9.
5. Kirimtat, Ayca, Ondrej Krejcar, Attila Kertesz, and M Fatih Tasgetiren. 2020. "Future Trends and Current State of Smart City Concepts: A Survey." *IEEE Access* 8: 86448–67.
6. Liu, Yishu, Wenjie Zhang, Qi Zhang, and Monire Norouzi. 2021. "An Optimized Human Resource Management Model for Cloud-Edge Computing in the Internet of Things." *Cluster Computing*, June. https://doi.org/10.1007/s10586-021-03319-y.
7. Mazur, Barbara. 2015. "Sustainable Human Resource Management. The Attempt of Holistic Approach." *Ekonomia i Zarządzanie* 7 (2).
8. Patil, Madhukar, and M Suresh. 2019. "Modelling the Enablers of Workforce Agility in IoT Projects: A TISM Approach." *Global Journal of Flexible Systems Management* 20 (2): 157–75.

9. Powell, Thomas C, and Anne Dent-Micallef. 1997. "Information Technology as Competitive Advantage: The Role of Human, Business, and Technology Resources." *Strategic Management Journal* 18 (5): 375–405.

10. Rao, Pramila, and Hildy Teegen. 2009. "Human Resource Management."

11. Shet, Sateesh V, Tanuj Poddar, Fosso Wamba Samuel, and Yogesh K Dwivedi. 2021. "Examining the Determinants of Successful Adoption of Data Analytics in Human Resource Management–A Framework for Implications." *Journal of Business Research* 131: 311–26.

12. Snell, Scott A, and James W Dean Jr. 1992. "Integrated Manufacturing and Human Resource Management: A Human Capital Perspective." *Academy of Management Journal* 35 (3): 467–504.

13. Su, Kehua, Jie Li, and Hongbo Fu. 2011. "Smart City and the Applications." In *2011 International Conference on Electronics, Communications and Control (ICECC)*, 1028–31. IEEE.

14. Abd Algani, Y. M., Caro, O. J. M., Bravo, L. M. R., Kaur, C., Al Ansari, M. S., & Bala, B. K. (2023). Leaf disease identification and classification using optimized deep learning. *Measurement: Sensors*, *25*, 100643.

15. J. K. S. Al-Safi, A. Bansal, M. Aarif, M. S. Z. Almahairah, G. Manoharan and F. J. Alotoum, "Assessment Based On IoT For Efficient Information Surveillance Regarding Harmful Strikes Upon Financial Collection," 2023 International Conference on Computer Communication and Informatics (ICCCI), Coimbatore, India, 2023, pp. 1-5, doi: 10.1109/ICCCI56745.2023.10128500.

16. Kaur, C., Kumar, M. S., Anjum, A., Binda, M. B., Mallu, M. R., & Al Ansari, M. S. (2023). Chronic kidney disease prediction using machine learning. *Journal of Advances in Information Technology*, *14*(2), 384-391.

17. Eadline, D. (2015). *Hadoop 2 Quick-Start Guide: Learn the Essentials of Big Data Computing in the Apache Hadoop 2 Ecosystem*. Addison-Wesley Professional.

18. M. A. Tripathi, R. Tripathi, F. Effendy, G. Manoharan, M. John Paul and M. Aarif, "An In-Depth Analysis of the Role That ML and Big Data Play in Driving Digital Marketing's Paradigm Shift," 2023 International Conference on Computer Communication and Informatics (ICCCI), Coimbatore, India, 2023, pp. 1-6, doi: 10.1109/ICCCI56745.2023.10128357.

19. Khan, S. I., Kaur, C., Al Ansari, M. S., Muda, I., Borda, R. F. C., & Bala, B. K. (2023). Implementation of cloud based IoT technology in manufacturing industry for smart control of manufacturing process. *International Journal on Interactive Design and Manufacturing (IJIDeM)*, 1-13.

20. M. Lourens, A. Tamizhselvi, B. Goswami, J. Alanya-Beltran, M. Aarif and D. Gangodkar, "Database Management Difficulties in the Internet of Things," 2022 5th International Conference on Contemporary Computing and Informatics (IC3I), Uttar Pradesh, India, 2022, pp. 322-326, doi: 10.1109/IC3I56241.2022.10072614.

21. Abd Algani, Y. M., Caro, O. J. M., Bravo, L. M. R., Kaur, C., Al Ansari, M. S., & Bala, B. K. (2023). Leaf disease identification and classification using optimized deep learning. *Measurement: Sensors*, *25*, 100643.

22. Ratna, K. S., Daniel, C., Ram, A., Yadav, B. S. K., & Hemalatha, G. (2021). Analytical investigation of MR damper for vibration control: a review. *Journal of Applied Engineering Sciences*, *11*(1), 49-52.

23. Naidu, K. B., Prasad, B. R., Hassen, S. M., Kaur, C., Al Ansari, M. S., Vinod, R., ... & Bala, B. K. (2022). Analysis of Hadoop log file in an environment for dynamic detection of threats using machine learning. *Measurement: Sensors*, *24*, 100545.

24. Abd Algani, Y. M., Ritonga, M., Kiran Bala, B., Al Ansari, M. S., Badr, M., & Taloba, A. I. (2022). Machine learning in health condition check-up: An approach using Breiman's random forest algorithm. *Measurement: Sensors*, *23*, 100406. https://doi.org/10.1016/j.measen.2022.100406

25. Mourad, H. M., Kaur, D., & Aarif, M. (2020). Challenges Faced by Big Data and Its Orientation in the Field of Business Marketing. *International Journal of Mechanical and Production Engineering Research and Development (IJMPERD)*, *10*(3), 8091-8102

26. Umer, Tariq, Mubashir Husain Rehmani, Ahmed E. Kamal, and Lyudmila Mihaylova. 2019. "Information and Resource Management Systems for Internet of Things: Energy Management, Communication Protocols and Future Applications." *Future Generation Computer Systems* 92 (March): 1021–27. https://doi.org/10.1016/j.future.2018.11.032.

27. Venkatesh, Dr A Narasima. 2017. "Connecting the Dots: Internet of Things and Human Resource Management," 4.

28. Wright, Patrick M, and Gary C McMahan. 1992. "Theoretical Perspectives for Strategic Human Resource Management." *Journal of Management* 18 (2): 295–320.

29. Yawson, Robert, Daniel Woldeab, and Emmanuel Osafo. 2019. "Human Resource Development and the Internet of Things." Preprint. https://doi.org/10.31124/advance.9638417.v1.

30. Youndt, Mark A, Scott A Snell, James W Dean Jr, and David P Lepak. 1996. "Human Resource Management, Manufacturing Strategy, and Firm Performance." *Academy of Management Journal* 39 (4): 836–66.