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Computer-Aided Design AND APPLICATIONS

Human Resource Management for Interactive Devices in Hypertext Systems Based on Virtual Reality and Big Mobile Data

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Abstract. With the fast advancement of mobile devices and Internet technologies, numerous human resource hazards resulting from asymmetric information continue to cost businesses money and possibly put them out of business. The goal of this study, which is focused on Virtual Reality (VR), is to integrate strong classical devices with hypertext systems and provide encryption using blockchain to create a human resource (HR) information methodology that decreases the risk of human resource information validity. A big mobile data-VR-assisted human resource management (BMD-VRHRM) model is proposed in this article. This model intends to address the lack of authentication of human capital data and give genuine and efficient guidance to a firm's human resources management. The operation technique is used to verify human capital paperwork and tie the evidence and information. Moreover, human capital data is stored in a hypertext-based accounting book, making it impossible to amend and validate throughout the whole network. The consensus protocol, consortium blockchain, bookkeeping, and payment functionalities of hypertext systems can all help with human resource data management. Furthermore, decentralization of the protective measure is implemented to achieve cheap costs, high effectiveness in data transmission, and a tremendous work environment in human business resources.

Keywords: human resource management, big data, information management, Hypertext systems, virtual reality.
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1 INTRODUCTION TO HUMAN RESOURCE MANAGEMENT

Enterprises face extraordinary challenges and barriers due to society's fast growth and the growing trend of economic globalization. As a vital carrier of information, innovation, and operation, human resources are a critical component of effective corporate Management [10]. HR departments have a strategic worth and relevance for a company's growth that cannot be duplicated. The constant updating of digital technologies has become a significant driving factor for the rapid growth of all

societal sectors [26]. The fundamental production force is human assets, and only through keeping talent can a firm's development be accelerated.

Human Resources Management (HRM) is a role of an organization that enables the most efficient use of people to meet corporate and individual objectives [19]. A business has a strong HRM process, and a great key competitive plan helps the company succeed. Management Of Human resources is responsible for making business choices, monitoring, coaching, and evaluating processes, as well as managing the actions in the organization so that it advantages them [16].

Modern HR functions should merge digital technologies with an innovative people management concept, optimize management techniques and methods, and enhance HRM effectiveness and impact to ensure core competitiveness in a firm's changing situation. The cost and effectiveness of HRM are directly affected by the accuracy of human resource data [22]. According to research, over 70% of job candidates provide somewhat secret and wrong data during the hiring process. Some job candidates falsify their resumes, degrees, and qualifications certifications, while others overestimate their talents on purpose [11].

Enhancing monitoring and assessing HR information validity has become an important issue that necessitates answers from the HR department and state welfare departments to improve service quality [23]. By adopting BC technology to decrease the risk of HR information validity, this study seeks to develop a staffing methodology, consequently delivering genuine and effective guidance for a firm's human resources.

HRM is an important aspect of an organization since it acts as a key ally in decision-making to achieve the organization's goals [2]. Management teams, middle-level Management, and outside managers make important choices. Digital HRM has replaced conventional HRM as a result of technological advancements. As a result, digitalized HRM enables managers to make choices more efficiently and effectively, which provides value to consumers. Efficiency, wellness, adaptable workforce, grading rubric, talent development, experience design, creativity, digitalization, robotics, machine learning, analytics, and computation model [13]. The implementation is addressed in the wide perspective on integrating technology in HR sectors.

As a result, innovation and HRM get a broad range of interactions. HR managers must be qualified to embrace technologies that enable retooling of HR processes, be ready to manage job and employee project contributions made by new tech, and be capable of maintaining an appropriate management climate for inventive and experience and understanding organizations [18]. Technology and HRM must work together to fulfil the requirements, manage the worldwide workforce, enhance HR functions with execution, and save money. With the shifting competitive market situation and the understanding that human resource planning must play a more key position in a company's productivity, human resource department are rapidly transforming.

VR is being effectively employed for acquiring knowledge and capacity building in various areas, including surgery, the military, and education. The following paper is to investigate one of VR's higher levels: HRM. Nevertheless, for some users, VR navigating might be overpowering. Navigation in hypertext systems, which are responsive node-based systems with paths flowing to information and other content, may be difficult and usually characterized by dislocation. Workers lose their feeling of belonging and perspective, similar to VR [15]. This occurs when movement is excessively taxing on the brain, resulting in cognitive overload (i.e., an excessive demand on a person's learning and memory when performing a task). The contributions to this paper are as follows:

- A VR -based human resource management model is proposed with big data analysis in this article.
- Hypertext-based computation model for the interactive system is suggested to enhance the better available human resources.

- A mathematical model based on a fuzzy system is suggested to analyze the outcomes of the system.

The remainder of the research is as follows: Section 2 discusses the literature survey of the human resource management models. Section 3 shows the proposed big mobile data-VR assisted human resource management (BMD-VRHRM) model. Section 4 demonstrates the software outcome and evaluation of the proposed model. The conclusion and future scope are discussed in section 5.

2 LITERATURE SURVEY OF THE HUMAN RESOURCE MANAGEMENT

HRM was critical to the success of any business. Management had been defined as the exchange of information between employee and employer in attaining its objectives. HRM encompassed more than just staff recruitment, selection, and work assignment; it also involved grievance resolution, reward systems, learning & support programs, health & security, and incentives [5]. If an organization had strong human resource practices, it helped develop a positive brand name and improve revenue. As a result, efficient and productive employee engagement would aid in making strategic decisions in an organization.

Trying to handle the dynamics of adjustment was the toughest moment for the key personnel. With business departments, HR now played a key role in generating the defined success and core competencies for firms suggested by [9]. With the change in the competitive business scenario and the understanding that Management of human resources played a more significant position in a company's productivity, the position of the HR manager was expanding.

In the Management of human resources, information was crucial. For a long time, there has been a weak regulatory framework to ensure human resource data accuracy [3]. In the field of human resources, it was continually confronted with the following dangers.

2.1 Employment Risk

In the labor market, candidates' confidential communications included their aptitude, academic background, expertise, and the labor age value they were prepared to take. In addition, businesses paid a lot of money to get the data and perform interviews and psychometric evaluations suggested by [12]. In most situations, businesses have no idea if the sorts of job searchers meet their requirements. The truth was that a significant amount of job searchers were dishonest, and many businesses were skeptical of job applicants' claims. Job searchers deceive employers on purpose, yet employers cannot accurately identify the sorts of job applicants.

As a result, the candidates applying yielded unsatisfactory outcomes [4]. This was essentially a kind of selection bias in economic literature and costs significantly increased selection bias. Consequently, there was a significant level of unpredictability in the labor service industry, generating people management risks for businesses.

2.2 Risk of Moral Degeneration

Companies typically presented the main issues when establishing labor contracts: they were sluggish and cut shortcuts, as suggested by [20]. Employees sold things to family and friends at a lesser price or claimed reimbursement for tickets unconnected to their employment. In general, employee actions were not detected in the implementation of employment agreements. Employees were aware of their efforts, while bosses were unaware of them [6]. As a result, individuals engaged in indolent behavior, such as donating to non-labor activities. Between employers and candidates, information was

lopsided (or employees). Job candidates had confidential info on their personality types, as suggested by [25]. Uncertainty existed on whether or not they accurately tell businesses about their kinds.

The literature examined the requirements for different areas like the connection of a new network and the program's dependability, the dual slave method, the reciprocate method of different computers, and the controllers' method of one laptop's dependability [7]. Then, chose and assessed the controller processors and created a great system design that fits the software program's criteria, which was the foundation of this study. The literature described the present research trends in time frequent patterns and, on that basis, suggested a time-weighted comparing algorithm for different datasets, offered the algorithm's concept and deployment and adoption approaches, and ultimately applied the algorithm suggested by [1].

The management prototype system of the heterogeneous distributed network was shown based on the total software architecture, market research, and analysis method [17]. Every controller was constructed in detail, and the concepts and ideas for developing the hardware were presented. The design primarily consisted of a two-machine judgment component, a serial bus connectivity device, an Ethernet communication unit, memory, a monthly clock module, energy, and the capacity to connect with system dependability [8].

After labor contracts were allocated, it is still unclear if the employees were slackers or hard workers, as suggested by [27]. Human resources were at risk as a result of this ambiguity. As a result, knowledge asymmetry was a major cause of human resources risk. The following was a list of human capital cyber risks that had an impact on the hypertext system's efficiency for HRM applications:

- human capital demographic details, such as age, family status, years of practice, etc.;
- human resource training programs, comprising education and diverse training opportunities [24].
- the capacity to obtain high-quality human-relevant information, such as technical titles, technical grades, certificates, and so on;
- human capital pay-for-performance data, such as evaluation results, compensation incentives, promotions, and so on;
- human resource motivation data, such as different honor certificates and award and discipline details.

Data asymmetry's hazards to human resources lead businesses to lose money regularly, sometimes fatally suggested by [21]. Researchers looking into the relationship between HRM and VR using a hypertext interactive system were interested in the future possibilities of workplace change due to computerized occupations, particularly if employment restructuring was required to achieve elevated mechanization in HRM. Certain experts were also interested in smart features that a comprehensive employee system could require, such as presenting schedules and agendas, eligibility gaps, break time management, and recruitment, to name a few.

The peaceful interplay of humans and VR at work has also been investigated. The impact of virtual reality on the retail industry has been investigated. It has been discovered that incentive to shop and technological autonomy have a moderating influence on customers' adoption of hypertext systems. According to [14]. the use of IoT in human resource management is a part of the fourth industrial revolution and, hence, a new phenomenon. They looked at how blockchain and bitcoins may be used to develop an intelligent, cost-effective, and efficient industrial monitoring system. They discovered that using analytics, a blockchain-based recruiting system, and a blockchain-based HRM may be constructed to optimize organizational advantages.

A new people management paradigm must be developed to successfully tackle employment hazards and the danger of moral depravity in HRM. Better human resource management and

information management model was required. A big mobile data-VR based human resource management (BMD-VRHRM) model was suggested in the next section.

3 PROPOSED BIG MOBILE DATA-VR BASED HUMAN RESOURCE MANAGEMENT MODEL

Currently, the overall quality of HRM personnel is fairly low, and troubles of unfair or irregular dispersion of appropriate personnel arise from period to period, leading to the inability of corporate workers to meet job needs. At the same time, the assistant manager is paid well, resulting in the stagnation of some companies' development. Realism and creativity are absent from HRM, and it isn't easy to distribute human resources mindlessly without adhering to quality management or to adopt successful strategies without actively pursuing innovation.

Many approaches are employed in data mining, including characterization, contrast, connection, categorization, etc. There are several algorithms for each strategy. The algorithms used directly impact the pace of mining and the accuracy of the timely information. As a result, as indicated in Figure 1, it is required to improve further the components of the human resources archiving databases.

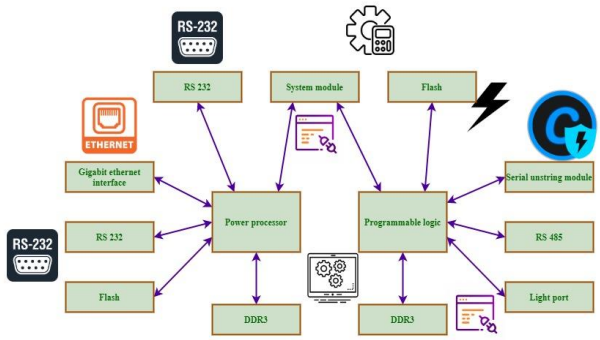

Figure 1: The components of human resource management.

The following stages are often followed when using data analysis to define the concept:

- Choosing a range. The SQL query "select" can be used by users who demand to learn the contents of "archives."
- Determination of the target category and comparative class for an HRM file query.
- An examination of the file attributes. Attribute material analytics, attribute generalization, correlation, and variable selection are particular stages.

Numerous issues need to be resolved in the way of human asset information management, like talent retention, in order to balance the link between organizational recruitment skills and how to pick the greatest agreement for staff members so that each employee can play their part in the fullest extent possible and generate more benefits for businesses (Institutions). In addition, the salary structure must be adjusted. No matter how efficient the staff strategic plan is, it would be useless if there is no wage system to recruit, nurture, and retain great talents. The file computational system's function is not restricted to this; it also aids in selecting leadership candidates, guides management in determining the emphasis of business strategy, and assists management in communicating with investment analysts [28].

As a result, data storage technology is a more advanced database system for storing information, assigning resources, and improving data assistance for business decision-making. The appropriate

statistical approach is employed as the foundation to evaluate and derive data. Data gathering, deep learning, and artificial intelligence (AI) systems offer corporate HRM decision-making to identify the knowledge buried behind the data. A data warehouse can offer specific topics, unified and reliable data, and historical data sets that have been updated through time. The information in the database system is then cleaned and extracted, which completes most data preparation in data analysis and provides a solid basis for data analysis.

3.1 Contents of Human Resource Information Management

The following are the contents of HRM Management, as determined through an examination of human resources information disclosure:

3.1.1 Basic information management of human resources

Inclusion: Personal data, legal agreements, archive information, and organizational and personal details are all included. Employees' required data must be controlled, documented, and searched. People with varying rights to look through the information are given varied permissions by the system. The personnel of the human capital department can view assigned project details, additional knowledge, amended data, and canceled data.

3.1.2 post-appointment and title information management

In China, post-appointment and position data management is a critical component of the storage server and one of the most fundamental duties of HR functions at all levels. Many skilled and vocational employees' critical interests are closely tied to occupational title administration. Skilled title administration, which places a larger emphasis on strategy and correlation, is also linked to the passion of skilled and vocational employees, which is mobilized or safeguarded.

3.1.3 Training and deployment information management

Competency, job advancement, and certain post-deployment actions can be achieved due to human assets' training satisfaction and outcomes and past post-deployment data. Human capital education and post-move data are documented in a computer network that is frequently updated to assure competence in staffing areas and encourage effective deployment of resources via optimal allocation.

3.1.4 Performance appraisal and salary information management

The cornerstone of HRM is performance assessment and compensation data management. Its outcomes, which represent human capital input and production, directly impact promotion prospects. The required information is loaded into the computer system to acquire the related performance assessment and pay stubs. These computer data systems then produce the appropriate sheets to anticipate the human capital investment potential.

3.2 Design of HRM Model Based on Hypertext

Figure 2 depicts the framework for the big mobile data-VR-assisted human resource management (BMD-VRHRM) model. The interactive application device sends the control information in two components: sends and receives the input/ output commands for the visualization process and hypertext information for the system framework. The construction of a personal BC is the foundation for the HR information method based on BC. Companies or businesses own the BC, and the BC is available to all internal employees and is not exclusive to Management. As a result, the BC increases management solution openness, notably in education, assignment, performance, remuneration, and sensitive data.

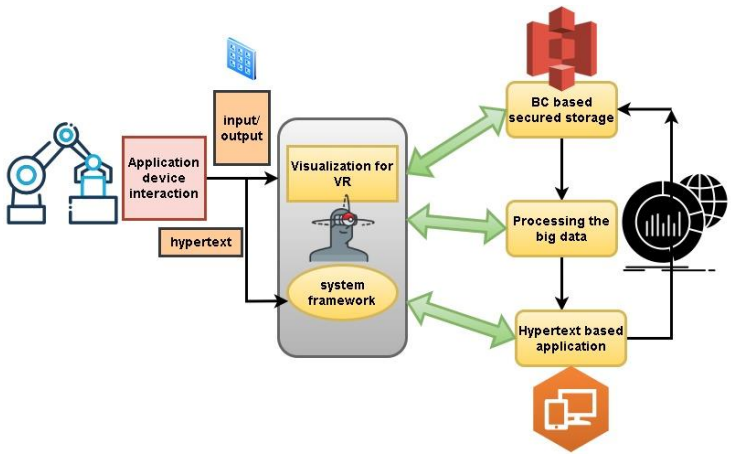

Figure 2: Framework for the big mobile data-VR assisted human resource management (BMD-VRHRM) model.

It is critical to be fair, unbiased, and open to strengthen the credibility of businesses and create a healthy and happy work environment. The framework comprises four levels: a decentralized storage database based on BC, a blockchain's core layer, a hypertext application program, and resource planning through big data processing. All levels are autonomous, with some coupling, making software creation and maintenance easier.

3.2.1 BC-based secured storage and smart contract model

Enterprises are at risk information asymmetries in human resources. It can create a succession of contract agreements that motivate and constrain people's conduct. HR function devised this approach as a contract. It is founded on the following premise: individuals behave to their own greatest advantage, and important knowledge is asymmetrical between employers and workers. Employees, on the whole, understand more about their employment.

Once the model has verified the accuracy of human resource data, it is captured and incorporated as a virtual contract kept in the accounting ledger. Creating a smart contract is a completely automated process that does not require any human interaction. Each software system has its identifier, encoded and inserted in texts or other electronic transmitters that store the contract's information. As a result, a contract monitoring system guarantees that contracts are properly identified and maintained. An engineering team creates and maintains the Blockchain (BC) in this architecture. The encryption establishes a trust connection along the stem, which does not require a specific organization to grasp. Decentralization is achieved using this innovative HR information approach to Management. As a result, there are more cross-verification and monitoring channels available.

3.2.2 Control system design

The base station, the microcontroller, is at the heart of the control system (CS) program's local command center. Its primary duty is to gather information, provide control systems commands, interface with higher-level systems, and perform control techniques.

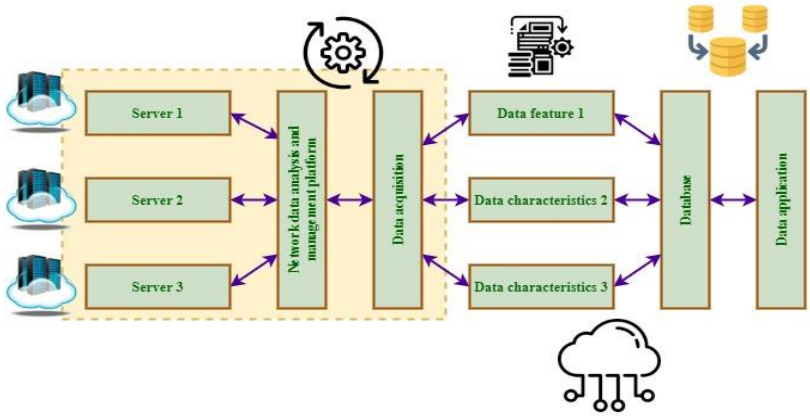

Figure 3: The control system model for human resource management.

The control system model for human resource management is depicted in Figure 3. To find better results, it has servers, data acquisition models, databases, and data application models. The elements of the control system are discussed below:

Memory - This is where required information and core system memory are stored. These are the two primary purposes of the controller's memory. The central processing unit (CPU) requires memory to run applications, and vital information is automatically stored after closure. It can immediately view essential data and continue to execute prior control operations as soon as the switch is switched on. SRAM and DRAM are the most prevalent types of memory, whereas Flash keeps records that may be turned off.

CPU - The characteristics of Power personal computer (PC), Intel, and Power PC are distinct, and the magnitude of the CS system determines the processor type chosen. Network interface for network management Incorporates and analyses the information before sending the processed data to the clever input/output (I/O) module. When there is no uniform network protocol, there is generally a lot of congestion at this layer.

System network (NET) interface - The NET network adapter downloads and runs numerous algorithm programs from the management program's engineering station and higher workstations. The HMI can also show the actual information acquired by the controller. Each operator's system consists primarily of the initial CS system is unique, and the designing control is not switched on at this level. Companies have nearly entirely adopted redundancy Ethernet since the release of the fourth generation of CS.

Redundant communication interface - This route could send actual information among controllers, although some manufacturers prefer not to utilize it as a redundancy mechanism. Other modes of communicating electronic phones (like smart meters or programmable logic circuits (PLC)) are linked to the extension controller using the protocols mentioned above, comparable as RS485, RS232, and so on, to expand the system's accessibility.

3.3 Evaluation Method

In the research, combining TOPSIS with non - disruptive is seen as a novel addition to making an optimal candidate selection in the people selection method. The TOPSIS approach is utilized to handle the problem of people selection, as indicated in the existing literature. TOPSIS is used in the following recent studies to solve classic business issues.

Manufacturing: fuzzy positivity optimal situation and ideal negative alternative are used to solve supplier selection difficulties. The neutrosophic environment was presented as a solution to the crisis of ambiguity and inconsistency in people selection. A contemporary approach for selecting the best-suited business operations is the fuzzy hierarchy TOPSIS. The hierarchical analytical process (AHP) is often used with TOPSIS to determine the best maintenance approach.

Marketing: evaluating new goods, service levels, and tourist management to improve hotel services using fuzzy approaches and AHP. There are two stages to the standard employee selection procedure. First, a panel of experts develops the techniques for evaluating applications. Including more than one political appointee aims to eliminate any potential for human bias in the panel and concentrate on enterprise elements' effectiveness. Second, depending on the committee's findings, a conclusion is offered. Regrettably, owing to the choice maker's bewilderment or lack of expertise, the circumstances of ambiguity and inconsistencies cannot be noticed by humans.

The following phases will explain the conceptual processes of integrating the intuitionistic fuzzy AHP with TOPSIS methods:

Step 1: Using the AHP paradigm, establish standards and goals.

Step 2: Assemble a committee of experts who provides their opinions on the selected respondent and requirements. Use the neutrosophic ratings to combine the committee judgments. The criteria are expressed in a similarity measure, and if criteria 1 is much more important than criterion 2, then the neutrosophic scaling value is stated as $(3,7,9)$. In contrast, the neutrosophic ratio of criterion 2 to criterion 1 is $\left(\frac{1}{3},\frac{1}{7},\frac{1}{9}\right)$Which is the opposite of $(3,7,9)$. In addition, the pervasive presence level for truth, uncertainty, and incorrect level is tied to the intuitionistic fuzzy scaling factor, which depicts key stakeholders' opinions.

The degree of certainty is employed in the study calculations in the future. For instance, the architecture of the neutrosophic triangle is shown as $(3,7,9)$ in the individual determines maker's viewpoint $(0.7,0.14,0.53)$. The neutrosophic triangle scale's bottom, medium, and top values are depicted as $(3,7,9)$, respectively. The level of certainty of the choice maker's viewpoint is expressed as $(0.7,0.14,0.53)$. Furthermore, the degree of certainty of truth, uncertainty, and falsehood are considered to be separate.

Step 3: Using the scoring functions of x_{pq}, transform the neutrosophic grades 1 to discrete values. The scoring function is denoted in Equation (1)

$$f(x_{pq}) = \left\| a_{i_{pq}} \times b_{i_{pq}} \times c_{i_{pg}} \frac{T_{i_{pq}}+I_{i_{pq}}+F_{i_{pq}}}{9} \right\| \tag{1}$$

T, I, F are the reality of the situation, uncertainty, and falsehood fuzzy membership, in both, of triangle neutrosophic, in which a denotes lesser, midpoint, and top of the magnitude neutrosophic, and $a, b, c$are the reality of the situation, uncertainty, and falsity class labels, respectively. The opinions of policymakers must be collected after the translation of neutrosophic levels into discrete values. As previously stated, the aggregate must reflect true choices within relationships. The scoring value is denoted in Equation (2)

$$x_{pq} = \frac{\sum_{c=0}^{C} x_{pq}^{c}}{C} \tag{2}$$

The aggregated feature is denoted x_{pq}^{c}, and the total number of resources are denoted C. The pictorial view of the function x_{pq} is depicted in Figure 4. It uses the aggregated feature and a total number of resources. All the aggregated resources are added to the final results. As previously stated, the aggregate pairwise comparisons matrix captures the estimate between choices and expected in Equation (3).

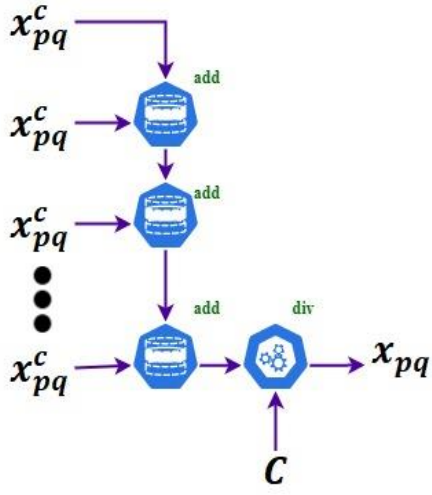

Figure 4: The pictorial view of the function x_{pq}.

$$X = \begin{bmatrix} a_{11} & a_{12} & \cdots & a_{1n} \\ a_{21} & a_{22} & \cdots & a_{2n} \\ \vdots & \vdots & \vdots & \vdots \\ a_{n1} & a_{n2} & \cdots & a_{nn} \end{bmatrix} \tag{3}$$

The aggregated feature elements are denoted a_{pq}.

Step 4: Check consistency factor using Equation (4)

$$C_F = \frac{C_{In}}{RC_{In}} \tag{4}$$

The coherence rate is C_F, the composite index is C_{In}, and the random composite index is RC_{In}. The steps for measuring uniformity are outlined in detail.

Step 5: Calculate the relative importance of each criterion in the eyes of the responsible party.

Add up all of the average row values to get the response, and it is expressed in Equation (5)

$$w_p = \frac{\sum_{q=0}^{N} a_{pq}}{N} \tag{5}$$

The aggregated feature is denoted a_{pq}, and the number of human resources are denoted N.

Use the continuity formula to normalize w_p and it is expressed in Equation (6)

$$w_p^n = \frac{w_p}{\sum_{p=0}^{N} w_p} \tag{6}$$

The row average value is denoted w_p.

Step 6: Use TOPSIS methodologies to accomplish effective staff selection:

Create evaluation criteria judgments type of decision makers' viewpoints and knowledge. When there is more than one final authority, combine the judgment matrices of the policymakers:

Convert the aggregate decision rule to discrete values. The aggregate of pairwise comparisons is derived and constructed in the format of several policymakers.

Following the de-neutrosophic procedure, the crisp result of a_{pq}, that is in the format of a decision problem, must be normalized using Equation (7)

$$\hat{s}_{pq} = \frac{s_{pq}}{\sqrt[2]{s_{pq}^2}} \tag{7}$$

The decision matrix element is denoted s_{pq}.

To create the weighting matrix, combine the values w_q of criterion derived by neutrosophic AHP by the normalized decision problem and is shown in Equation (8)

$$c_{pq} = w_p \times s_{pq} \tag{8}$$

The decision and weight function are denoted $s_{pq} \text{and} w_p$.

Step 7: Using Equations (9) and (10), calculate the desirable and undesirable areas:

$$X^+ = \begin{Bmatrix} \max(c_{pq} | p = 0,1,\cdots,n) | q \in q^+ \\ \min(c_{pq} | p = 0,1,\cdots,n) | q \in q^- \end{Bmatrix} \tag{9}$$

$$X^- = \begin{Bmatrix} \min(c_{pq} | p = 0,1,\cdots,n) | q \in q^+ \\ \max(c_{pq} | p = 0,1,\cdots,n) | q \in q^- \end{Bmatrix} \tag{10}$$

As a result, q^+ denotes a lucrative influence whereas q^- denotes a non-profitable effect. The decision criteria are denoted c_{pq}.

Calculate the distance measure between the offered solutions' positive (l_x^+) and negative (l_x^-) ideal solutions are denoted in Equations (11) and (12)

$$l_x^+ = \sqrt[2]{\sum_{x=0}^{N} (C_{pq} - C_q^+)^2} \tag{11}$$

$$l_x^- = \sqrt[2]{\sum_{x=0}^{N} (C_{pq} - C_q^-)^2} \tag{12}$$

The decision criteria are denoted C_{pq}, the positive criteria is denoted C_q^+, and the negative criteria are denoted C_q^-.

The mathematical view of the function l_x^+ is depicted in Figure 5. It uses the criteria function for the decision, positive and negative criteria value. Calculate the relative proximity of the choices to determine the most suitable and efficient judgment. The judgment value is denoted in Equation (13)

$$z_p = \frac{l_x^-}{l_x^- + l_x^+} \tag{13}$$

The positive solution is denoted (l_x^+), and the negative solution is denoted (l_x^-).

Choose the safest alternative depending on the ranking of the options.

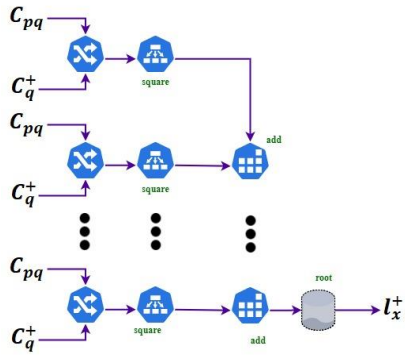

Figure 5: The mathematical view of the function l_x^+.

3.4 HR Hypertext Systems

In the operation of HRM, once the staff members create the proper large data consciousness, can they fully exploit the current state of the art and realize the group of human resources metadata instead of enterprise personnel. The usage of big data aids in acquiring real and reliable data and provides a critical data assurance for the growth of mankind managing resources. The following proposals are based on the study above and consider integrating internet technology.

(1) HRM must appropriately utilize big data techniques and use them as an HRM tool to adapt quickly to the " Internet +" era. A lot of data is collected throughout employee selection, initiation, boot camp, performance appraisal, assessment, and overall appraisal. HRM better understands workers by using big data technologies, establishing a centralized database, and selectively analyzing large amounts of data. Humanization in research methodology and the quality of HRM's judgment may be considerably increased.

(2) In the "Internet +" age, the hypertext application breadth of internet protocols and platform-based recruiting methods have expanded, and corporate recruiting efficiency has increased. Enterprises must progressively establish cross-border thought in recruiting to study online skills to adapt quickly to the "Internet +" age.

(3) Companies gain a detailed understanding of the product of each job based on the defined models, and into the processing and analysis of relevant hypertext, accomplish a precise and optimum human distribution of resources.

The suggested BMD-VRHRM system is designed and implemented in this section. The big mobile data and VR based hypertext system reduces the complexity and provide better human resource management and interactive device management.

4 SOFTWARE OUTCOME ANALYSIS

Several HRM processes are examined in this study because they represent fundamental HR contributions to businesses and are related to corporate goals. HR recruiting process, HR reward management, HR skills development, HR data or insights, and HR reward systems are involved. The questionnaire included questions relating to these HR functions with representation from each segment. But besides being an insufficient collection of components for measuring HRM, this list serves as a starting point for researching the impact of VR on HR functions. Though it is obvious that HR statistics or insights are prone to vary as a function of technology, other HR tasks are also subject to systematic changes due to VR and hypertext systems. This is particularly true now that sensors

are being used to measure HRM functions. Mean and variance are the statistical parameters considered for analyzing various HRM functions using the proposed BMD-VRHRM framework.

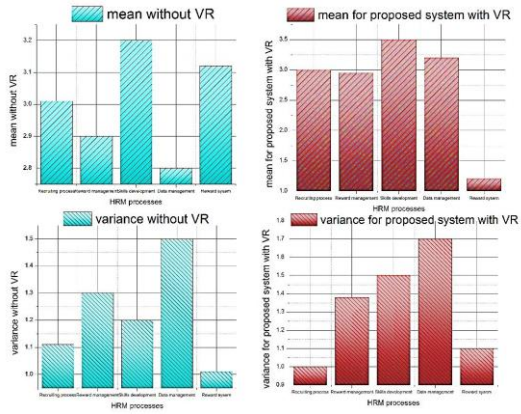

Figure 6: Mean and variance for the proposed system by considering various HRM processes.

Figure 6 depicts the mean and variance for the proposed system by considering various HRM processes. The presence of VR in the HRM process, along with big data for the proposed system, has increased the HRM functionality in terms of mean and variance. Among the various HRM processes considered, the performance of the proposed BMD-VRHRM system improved in terms of mean and variance for skills development and data management than the system without VR. HR reward system gave an identical performance for systems with and without VR. However, the proposed system with VR gave a poor performance for the HR recruiting process than the system without employing VR.

An actual example shows how the suggested technique works in real-world situations. The study is premised on Cairo, Egypt's intelligent village. Because the existing manager has been relocated to another location beyond the nation, the customer services have to appoint a new manager. The judgments committee comprises four policymakers who propose five applicants as the best out of those who applied. Following the decision-makers conference, the following broad selection process is noted: Technical competence and expertise, prior professional experience, and potential.

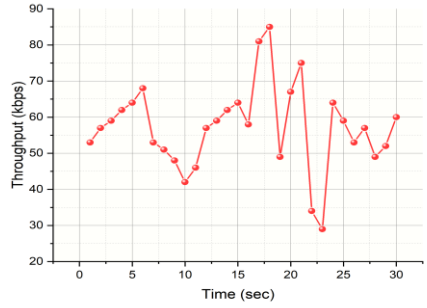

Figure 7: Throughput analysis of the suggested BMD-VRHRM system.

The throughput and goodput analysis of the suggested BMD-VRHRM system are depicted in Figure 7 and 8. The suggested BMD-VRHRM system is designed and analyzed continuously, and the simulation outcomes are monitored for throughput and goodput. The suggested BMD-VRHRM system produces

higher simulation outcomes with big mobile data and fuzzy systems to calculate human resource and information management. The higher throughput and goodput lead to higher simulation outcomes with the help of hypertext systems.

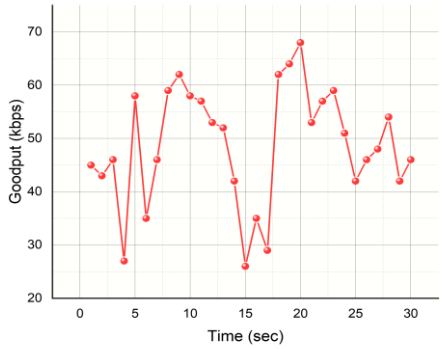

Figure 8: Goodput analysis of the suggested BMD-VRHRM system.

Table 1 indicates the effectiveness analysis of the suggested BMD-VRHRM system. The simulation outcomes of the suggested BMD-VRHRM system are evaluated for efficiency and reliability, and the outcomes are monitored under different simulations with the same simulation environment. The number of available human resources is varied from a minimum of 10 HR to a maximum of 100 HR with an increment level of 10 HR. As the number of HR increases, the respective efficiency and reliability of the system also increase more than the lower level.

The efficiency and reliability analysis of the suggested BMD-VRHRM system are depicted in Figure 9 and 10. The suggested BMD-VRHRM system is implemented with the help of a hypertext system, big mobile data, and a fuzzy inference system. The outcomes of the suggested BMD-VRHRM system are computed and plotted periodically. The simulation outcomes are computed concerning the number of available human resources. The higher human resources lead to better simulation outcomes in terms of higher efficiency and reliability. The reliability is increased with the help of big mobile data and human information systems.

Number of HR	*Efficiency (%)*	*Reliability (%)*
10	56	48
20	59	51
30	61	53
40	63	56
50	65	57
60	67	59
70	69	62
80	72	64
90	75	68

100	78	72

Table 1: Effectiveness analysis of the suggested BMD-VRHRM system.

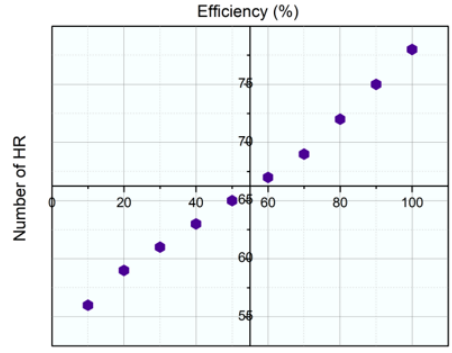

Figure 9: Efficiency analysis of the suggested BMD-VRHRM system.

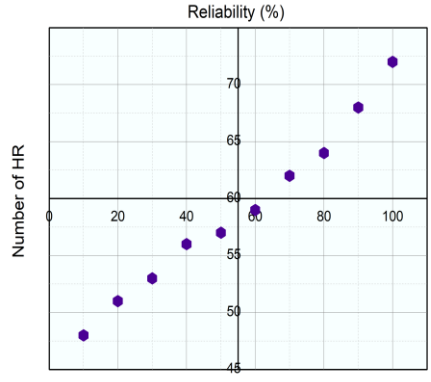

Figure 10: Reliability analysis of the suggested BMD-VRHRM system.

Number of HR	*Accuracy (%)*	*Precision (%)*
10	82	85
20	85	87.2
30	87	88.2
40	90	88.6
50	91	89.1
60	93	89.8

70	95	90.2
80	95.7	90.8
90	96.4	91.5
100	96.9	92.8

Table 2: Simulation outcome evaluation of the suggested BMD-VRHRM system.

Table 2 indicates the simulation outcome evaluation of the suggested BMD-VRHRM system. The simulation outcomes of the suggested BMD-VRHRM system are computed, and the results for accuracy and precision are evaluated. The suggested BMD-VRHRM system is designed with a fuzzy system to decrease the computation complexity and big mobile data to enhance the overall system effectiveness. The simulation analysis considers the different human resources from a minimum to a maximum level. The suggested BMD-VRHRM system produces higher results at the higher number of human resources.

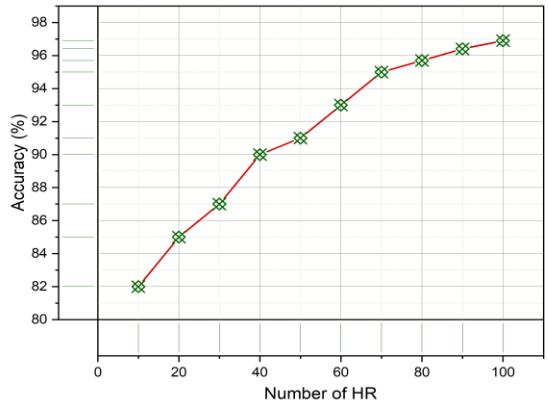

Figure 11: Accuracy evaluation of the suggested BMD-VRHRM system.

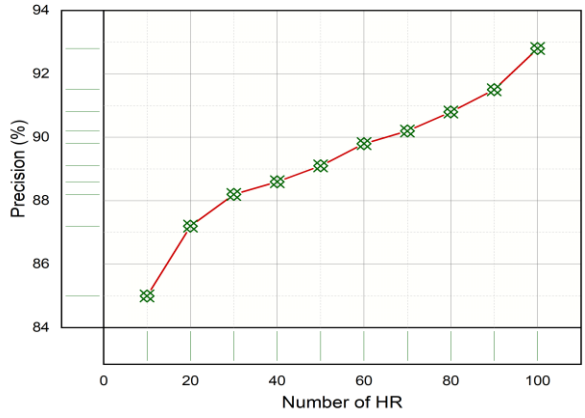

Figure 12: Precision evaluation of the suggested BMD-VRHRM system.

Figure 11 and 12 show the suggested BMD-VRHRM system's accuracy and precision evaluation. The simulation outcomes of the suggested BMD-VRHRM system are done by changing the number of human resources from a minimum of 10 HR to a maximum of 100 HR with a step size of 10 HR. As the number of HR increases, the respective simulation outcomes of the suggested BMD-VRHRM system are also enhanced with the help of mobile big data and hypertext models. The encryption method ensures the security and fuzzy inference system ensures the lower complexity of the suggested BMD-VRHRM system.

This section evaluates and analyzes the suggested BMD-VRHRM system under simulation environments and test conditions. The suggested BMD-VRHRM system shows higher system outcomes with VR, big mobile data, blockchain, and hypertext computation system modules.

5 CONCLUSION AND FUTURE STUDY

A big mobile data-VR assisted human resource management (BMD-VRHRM) model is proposed in this article. By adopting VR and BC technologies for hypertext systems, this research plans to address the risk exposures of HRM. Creating an HR information administration system based on these technologies can give relevant and useful human resources judgment. Without the need for a third person, this strategy can achieve the accurate consideration of human resource data at a very low operational cost. Several HRM processes are examined in this study because they represent fundamental HR contributions to businesses and are related to corporate goals. Among the various HRM processes considered, the performance of the proposed BMD-VRHRM system improved in terms of mean and variance for skills development and data management than the system without VR. The VR-based HR information administration model was created to decrease the risk of HR is validity, fix the problem of HR information truthfulness discriminating, and increase the efficiency and effectiveness of HRM information. The system's efficiency can be increased by using a machine learning model in the future.

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