

Performance Management Model Innovation and Organisational Change Driven by Artificial Intelligence

Tingliang Yan^{1,2,✉}

¹*Zhuhai College of Science and Technology, Zhuhai, Guangdong, 519041, China*

²*City University of Macau, Macau, 999078, China*

ABSTRACT

In the current business environment, artificial intelligence is becoming a key force driving performance management and organizational change. In this paper, finance, customer, internal process, learning and growth are selected as the indicators of performance evaluation of Enterprise A through the balanced scorecard model, and the fuzzy algorithm is used to provide comprehensive scores and grades for the above indicators. In addition, this paper sets up an organizational structure change evaluation model and analyzes the effect of the system on the organizational change of Enterprise A through the measurement of key indicators. The recognition rating of the questionnaire set up in this paper by the employees of Enterprise A is 4.15, and the recognition degree of the Intelligent Performance Management System is “basically recognized”. The intelligent performance management system improves the design and execution of internal processes in Enterprise A, and promotes the organizational change of Enterprise A in terms of total resource utilization. In conclusion, this study provides reliable technical support for enterprise performance management and organizational change.

Keywords: artificial intelligence; fuzzy algorithm; balanced scorecard model; intelligent performance management system

1. Introduction

In recent years with the rapid development of China's mobile Internet and artificial intelligence as well as the rapid change and development of various industries, the external market competition faced by enterprises has become more and more intense, and the external environment has become more and more complex. Nowadays, the domestic mobile Internet industry has entered the era of stock economy, under the influence of the international situation of the storm clouds and economic cyclicity, there is a great uncertainty within the high-tech enterprises, but also to the internal management of the enterprise has brought great challenges [1-3]. In this process enterprises began to constantly recognize that the

✉ Corresponding author.

E-mail address: jluzhsnow@163.com (T. Yan).

Received 05 March 2024; Revised 18 April 2024; Accepted 21 November 2024; Published Online 15 April 2025.

DOI: [10.61091/jcmcc127a-036](https://doi.org/10.61091/jcmcc127a-036)

© 2025 The Author(s). Published by Combinatorial Press. This is an open access article under the CC BY license (<https://creativecommons.org/licenses/by/4.0/>).

traditional human resource management model is no longer able to efficiently respond to and accurately deal with such a large amount of information and management changes [4-5]. As a result, driven by artificial intelligence, enterprises in various industries have invested large amounts of money, human and material resources to join the development of digital transformation of internal management [6-8]. Artificial intelligence technology can assist various aspects of the performance management process, such as goal setting, feedback provision, and training support [9-10]. Meanwhile, human resource management practices cover employee training, incentives, etc., and combining AI technology with these practices can achieve comprehensive improvement of employee performance [11-12]. SMEs also hope that the digital management organizational changes brought by digital platforms and technologies can help them better reach their strategic goals in order to improve management and corporate competitiveness [13-15].

Combining AI with HRM practices can help optimize performance management effectiveness. Han, L. emphasizes that big data and AI are important and indispensable tools for HRM in enterprises, which provide more accurate and efficient management methods and promote innovation and development of performance management, training, and other forms of human resource management [16]. Faqih, A. et al. based on AI to design an intelligent human resource management (HRM) automation solution for talent career management, with the goal of improving the link between professional assessment and planning characteristics, and utilizing automation modules to improve corporate talent management strategies [17]. Fosso Wamba, S. et al. used resource-based theory to develop a higher-order model of AI competencies and resources, with the corporate AI capability sustainability and found that data-driven culture plays an important mediating role between AI capabilities and enterprise performance [18]. Kumar, P. N. et al. illustrated how AI-driven advanced analytics can improve the efficiency of the enterprise quality circle and that AI-supported analytics help quality controllers to understand the underlying causes of performance patterns and problems that have been overlooked in the past, allowing for a more focused and effective problem solving [19]. López, V. et al. state that AI technology has the ability to optimize key human resources and provide managers with data-driven decision making, which can help to achieve an organization's strategic goals, however, there is also a need to confront the key ethical issues that technology brings with it [20]. Chakraborty, T. et al. discuss the evolution of performance management software and the role it plays in streamlining the performance appraisal process by introducing artificial intelligence and data analytics into performance management software to enhance the objectivity of decision making, realize the best practices and future trends of the organization, as well as to improve employee motivation, engagement and overall performance [21].

This paper designs an artificial intelligence-driven performance management system and applies it to Enterprise A, aiming to promote the innovation of Enterprise A's performance management mode and organizational structure change. This paper utilizes the performance fuzzy comprehensive evaluation model to score the financial, customer and other dimensions of the performance of enterprise A and classify the performance according to the scores. The evaluation system of organizational structure change is established, including the specific evaluation model, evaluation key indexes and index metrics. Finally, the role of the intelligent performance management system constructed in this paper in the innovation of enterprise performance management mode and organizational change is analyzed.

2. Artificial intelligence-driven intelligent performance management systems

This section describes the overall architecture of the Intelligent Performance Management System, followed by the design of the database and network structure, as described below.

2.1. System Functional Design

In the design of the overall structure of the system, should be in accordance with the needs of the system analysis, as well as the reality of the organization, for the available resources, as well as the overall structure of the system in the form of the design of the overall structure of the system, which is a general, macro-

planning and design of the overall structure of the intelligent performance management system as shown in Figure 1.

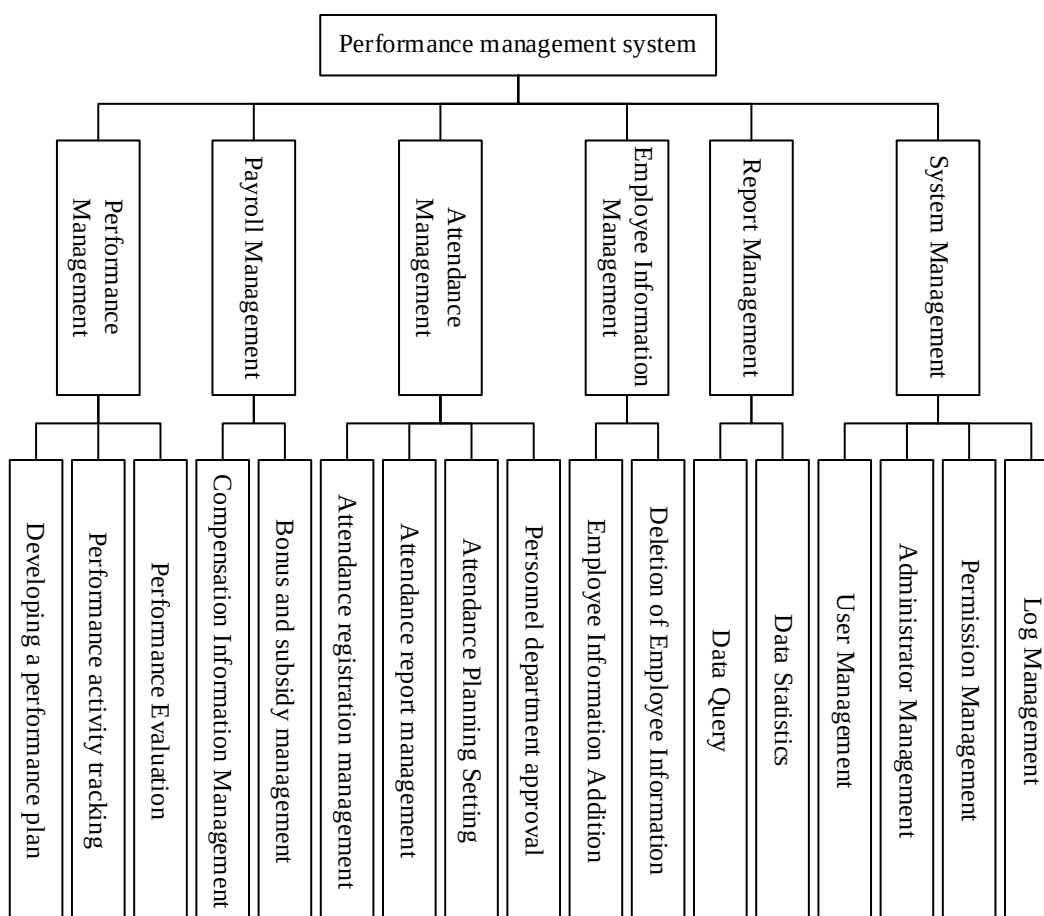


Fig. 1. Performance management system structure diagram

Intelligent performance management system is divided into the following functional modules:

- 1) Attendance Management. It is mainly used to grasp the attendance of employees, and the main functions are attendance registration management, attendance report management, attendance planning setting, and personnel department approval.
- 2) System Management. It is mainly used to manage the performance management system, and the main functions are login management, log management, permission management and user management.
- 3) Employee Information Management. It is mainly divided into information addition, information modification, information deletion and information modification operations.
- 4) Wage management. In order to payroll related information for the convenience of statistics designed by the module, mainly divided into salary information management, bank account management, bonus and subsidy management, personal income tax management function module.
- 5) Report Management. The use cases mainly include data statistics and data query. Data statistics is mainly for performance information and other related information statistics, data query is mainly used by administrators in the checking of accounts.

6) Performance Management. It is the core of this performance system, mainly for the use of artificial intelligence technology to formulate performance plans, track performance activities, performance evaluation and performance interviews and feedback function module.

2.2. System architecture design

The framework of the performance management system is shown in Figure 2. The performance management system is divided into a total of three layers: the performance layer, the business layer, and the data storage layer, and is developed and realized using .NET technology, thus effectively enhancing the development progress of the performance management system.

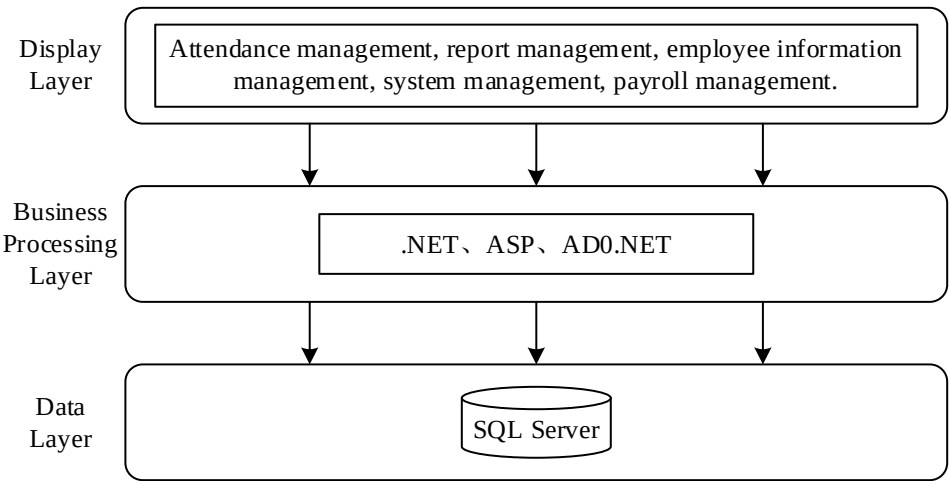


Fig. 2. Performance management system structure diagram

- 1) Display Layer. The display layer is the browser for the display of information, does not require the installation of any logical applications, zero maintenance of the client, through the interface layer, the user input data, access to data.
- 2) Business Processing Layer. The main functions of the business processing layer are system management, performance management, salary management, attendance management, report management, employee information management function module, which is the main part of the system and is responsible for all the data processing work and realizing most of the functions of the system.
- 3) Data storage layer. The data storage layer is used to store the company's core information, specifically including wage information, employee information, attendance information, performance information and other core information, specific performance management system through the Microsoft database for storage.

2.3. Network Architecture Design

Since the intelligent performance management system runs in the Internet environment, security becomes one of the important prerequisites for it to be able to keep running, so for this performance management system, the security test includes aspects such as specific testing of the security measures adopted, and the same in the design of the network structure, security is also one of the key issues to be considered. Figure 3 shows the topology of the network structure of the company's performance management system.

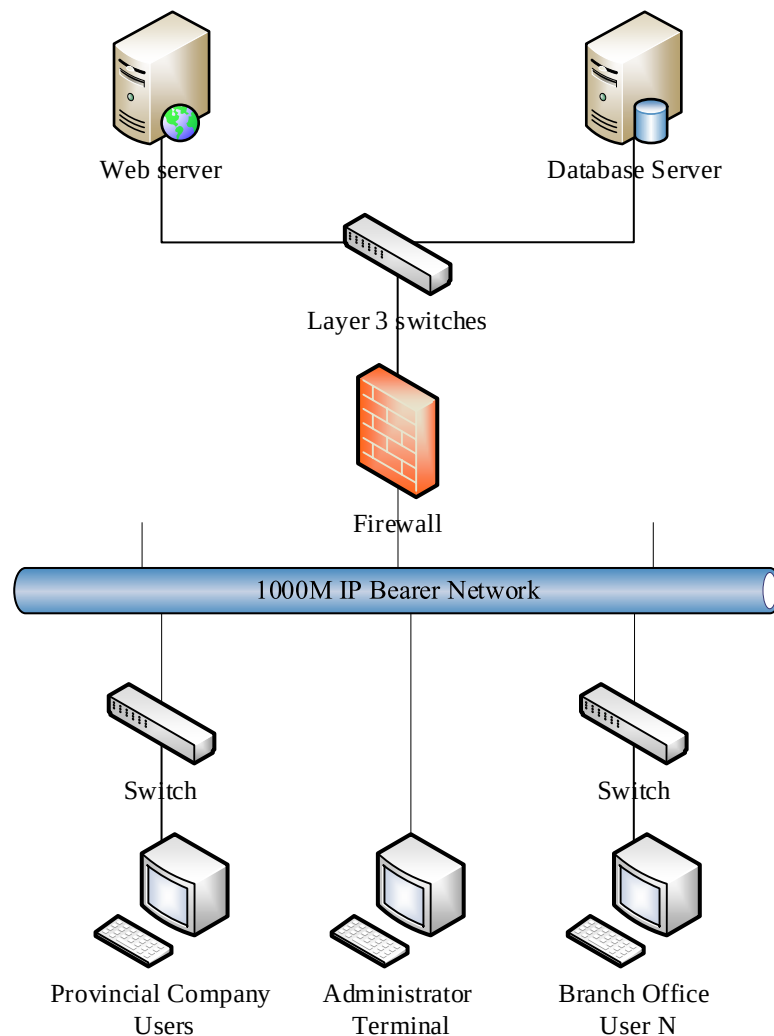


Fig. 3. Performance management system network topology

The company's provincial companies and branches of the various users of these departments of the staff through the Internet to contact the server. The network topology of the performance management system has three main layers, the database layer is divided into a database server and a Web server, the client is the client of each company to access the server of the performance management system through the Internet, the server is mainly stored in the company's performance management system of all the functions of the logic of the code, is mainly responsible for the management of the information of the employee information, performance information, salary information, report information and other information. It is mainly responsible for the management of employee information, performance information, salary information, report information and other information.

2.4. Database design

There are two main tasks of database design, one is to derive what entities are needed for the system based on the requirement analysis and what database tables the entities need to correspond to, and the second is to reflect the relationship between these database entities through artificial intelligence techniques, mapping between the data tables, after analyzing the performance management system it can be seen that the corresponding entities and attributes as well as the corresponding detailed database tables are designed as follows described.

- 1) Employee information, name, number, gender, date of birth, etc..
- 2) Salary information, employee number, month, basic salary, bonus, daily overtime, late deductions, etc.
- 3) Attendance information, login month, employee number, days of the month, full attendance days, days of personal leave, etc.

- 4) Performance evaluation information, employee number, month, work performance, leadership evaluation, leadership bonus factor, etc.
- 5) Department, number, name, etc.

2.5. Research and Analysis of Performance Management Model Innovation

This section mainly investigates and analyzes the application recognition of the intelligent performance management system built in this paper in enterprise A through questionnaires.

The questionnaire design is mainly based on the process of the intelligent performance management system, mainly covering a total of 15 contents at 4 levels: "Cognitive Degree of Intelligent Performance Management System" (Question No. 1-3), "Performance Evaluation Index Setting" (Question No. 4-6), "Performance Appraisal and Results" (Question No. 7-9), and "Overall Effect" (Question No. 10-15). A total of 100 employees from various departments of enterprise A were randomly selected. The questions are set using a Likert 5-point scoring method, with numbers 1-5 indicating "not at all", "basically disagree", "partially agree", "basically agree", and "approve". Figure 4 shows the results of the model innovation recognition survey based on the intelligent performance management system.

As can be seen from the figure, most employees of enterprises have a "basic recognition" of the intelligent performance management system built in this paper. The average recognition score for the 15 items set in this article is 4.15. Specifically, the average scores of employees in the four dimensions of "cognition", "indicator setting", "performance appraisal and results" and "overall effect" of the intelligent performance management system were 4.03, 4.3, 4.21 and 4.10, respectively. It reflects that the employees of enterprise A have a high degree of awareness of the system, show a strong sense of identity with the selection and formulation of performance evaluation indicators, highly recognize the scientific and fair performance appraisal, and believe that the department can truly reflect its practical application effect.

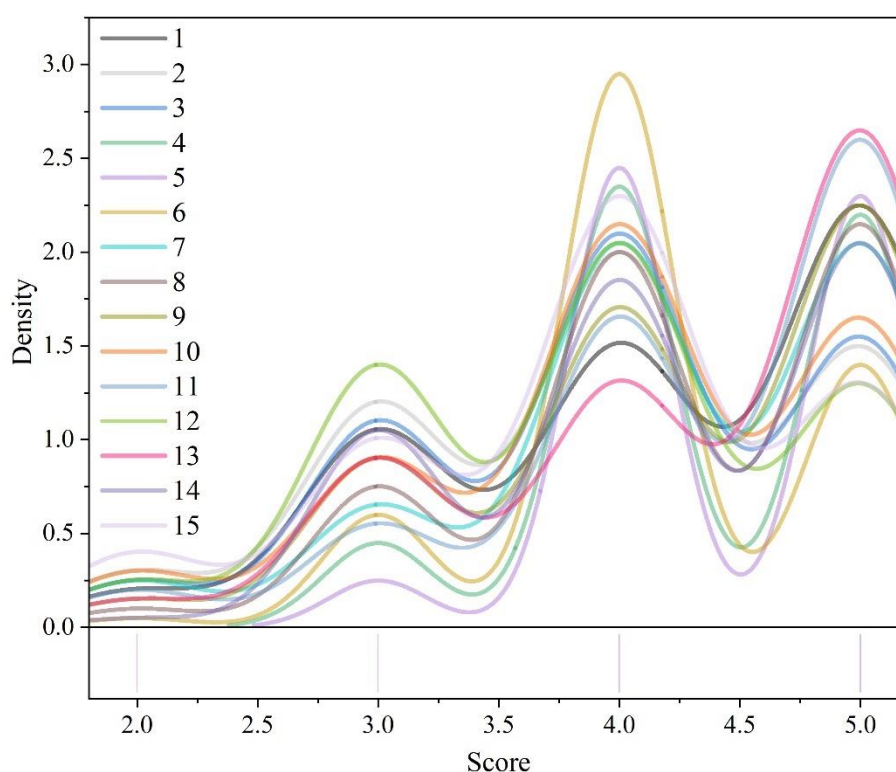


Fig. 4. Intelligent performance management system recognition survey results

3. Performance Evaluation Model for Intelligent Performance Management System

3.1. Comprehensive performance evaluation based on fuzzy algorithm

3.1.1. Methods for describing fuzzy algorithms. The basic formulation of fuzzy theory [22-23] is shown below:

$$S = \{U, A, D, V | f\} \quad (1)$$

U as the thesis domain of fuzzy formal background S , with the set of attributes A , the set of relations $D (D \neq \emptyset)$, and the set of constraints $V = \bigcup_{a \in C \cup D} V_a$, there exists the following mapping relation $f: U \times (C \cup D) \rightarrow V$.

If: $P \subseteq C \cup D$, then:

$$IND(P) = \{(x, y) \in U^2 | f(x, a) = f(y, a), \forall a \in P\} \quad (2)$$

Let, the upper and lower approximate general forms be as follows:

$$\begin{aligned} P_*(X) &= \{x \in U | [x]_P \subseteq X\} \\ P^*(X) &= \{x \in U | [x]_P \cap X \neq \emptyset\} \end{aligned} \quad (3)$$

Then, the above set of relations D can be divided into:

$$POS_P(D) = \bigcup_{X \in U/D} P_*(X) \quad (4)$$

Then it can be called: P has fuzzy classification capability with respect to D . And satisfies the following relationship:

$$\begin{cases} POS_R(D) = POS_C(D) \\ POS_{R-\{a\}}(D) \neq POS_C(D), \forall a \in R \end{cases} \quad (5)$$

3.1.2. Fuzzy comprehensive evaluation model based on specific elements. For element-specific fuzzy set $A \subseteq C \cup D$ and element-specific fuzzy set $B \subseteq C \cup D$, they can be classified in a fuzzy basic descriptive way as: $\{X_1, X_2, \dots, X_n\}$ and $\{Y_1, Y_2, \dots, Y_m\}$ and satisfy the following conditions:

$$\begin{aligned} [U/A: p] &= \begin{bmatrix} X_1 & X_2 & \dots & X_n \\ p(X_1) & p(X_2) & \dots & p(X_n) \end{bmatrix} \\ [U/B: p] &= \begin{bmatrix} Y_1 & Y_2 & \dots & Y_m \\ p(Y_1) & p(Y_2) & \dots & p(Y_m) \end{bmatrix} \end{aligned} \quad (6)$$

where: $p(X_i) = |X_i|/|U|$, $i = 1, \dots, n$; $p(Y_j) = |Y_j|/|U|$, $j = 1, \dots, m$. Their information entropy can be recorded as the following relation:

$$H(A) = -\sum_{i=1}^n p(X_i) \log(p(X_i)) \quad (7)$$

The conditional information entropy $H(B/A)$ of attribute set B with respect to attribute set A can be defined as:

$$H(B/A) = - \sum_{i=1}^n p(X_i) \sum_{j=1}^m p(Y_j/X_i) \log(p(Y_j/X_i)) \quad (8)$$

where $p(Y_j/X_i) = |Y_j \cap X_i|/|X_i|$, $i = 1, \dots, n$; $j = 1, \dots, m$.

3.1.3. Fuzzy comprehensive evaluation algorithm based on specific elements. As an example, the element-specific fuzzy comprehensive evaluation algorithm defines the relationship between the optional specific fuzzy comprehensive evaluation attributes $a \in C$ and $b \in C$ as:

$$\kappa(a, b) = H(\{a\}/\{b\})(1 - H(D/\{a_i\})) \quad (9)$$

where k is the $k(k=1, 2, \dots, b)$ nd method. For $H(\{a\}/\{b\})$, the smaller its value, the smaller the information support of b for a ; and vice versa. Under the condition of $\kappa(a, b) \neq \kappa(b, a)$, the basic fuzzy evaluation relationship of the element-specific fuzzy comprehensive evaluation algorithm is:

$$\kappa'(a, B) = \sum \kappa(a, b) \quad (10)$$

3.1.4. Comprehensive Evaluation Algorithm Flow. Based on the definition given above, a bottom-up algorithm can be described as follows. Denote the kernel of the decision table by C_0 and the set of approximate attributes by B . The algorithm starts with the order $B = C_0$ and then gradually selects the attributes that are most complementary to the set of attributes B and adds them to B until the classification ability of B is the same as the set of all conditional C attributes, i.e., $H(D/B) = H(D/C)$, and the program terminates, at which point B is the minimum relative approximation.

Input: decision table $S = (U, C, D, V, f)$.

Output: relative approximation B .

Step1: Compute $H(D/\{a_i\})$ and $H(D/C)$.

Step2: Compute the kernel attribute set C_0 for the conditional attribute set relative to the decision attribute set, and the candidate attribute set $A = C - C_0$.

Step3: Compute the complementary measure for each attribute pair.

Step4: If $|C_0| \neq 0$, then let $B = C_0$, otherwise, let B be the empty set and select the attribute with the minimum condition large $H(D/\{a_i\})$ to be added to B . If $|B| \neq 0$, skip to Step6.

Step5: Select an attribute a with maximum complement $\kappa'(a, B)$ from A and remove it from A .

Step5.1: Calculate the conditional quantity $H(D/B \cup \{a\})$.

Step5.2: If $H(D/B \cup \{a\}) \neq H(D/B)$, add a to B . Otherwise, skip to Step5.

Step6: Calculate the conditional entropy $H(D/B)$. If $H(D/B) \neq H(D/C)$ jump to Step5. otherwise, the program terminates, at which point B is the final approximation.

3.2. Performance Evaluation Model Based on Balanced Scorecard (BSC)

3.2.1. Balanced scorecard system. The balanced scorecard system is centered on corporate strategy and is systematically developed with good logic [24–25]. It can effectively assist the company to implement its strategic management system, the enterprise's strategy, with simple cause and effect logical thinking, starting from the goal of the existence of the enterprise, according to the four dimensions of the financial dimension, the customer dimension, process, and learning and growth, and then develop into a chain of interlocking and clear strategic objectives. The Balanced Scorecard expands down to each department and each level, and becomes a tool to assist the organization to focus and effectively communicate to all levels of management, and also becomes the specific goals and performance evaluation indicators for each department and employee. In this section, the BSC is used to determine the evaluation indicators and the scores for each indicator, and then the fuzzy algorithm above is used to calculate the overall evaluation score for each dimension of performance.

3.2.2. Indicators for assessing performance dimensions. Figure 5 presents the causal structure between different dimensions of performance.

Learning and growth dimension performance, learning and growth performance is mainly reflected in three aspects: human capital, organizational capital, and intellectual capital, and the formation of each of these three types of capital has its own influencing factors.

Operation process dimension performance, the performance of the current operation process dimension depends on the efforts of the current management and employees in operation management, but also by the level of performance of the previous operation process dimension.

Customer dimension performance, that is, the overall evaluation of the company's products or services by customers.

The financial dimension performance depends on the overall evaluation of the products or services by the customers and the efficiency and effectiveness of the overall operation process in the current period. In addition, it is also affected by the past performance of process dimension and customer dimension, and other factors such as political, economic, regulatory and industrial factors in the current period.

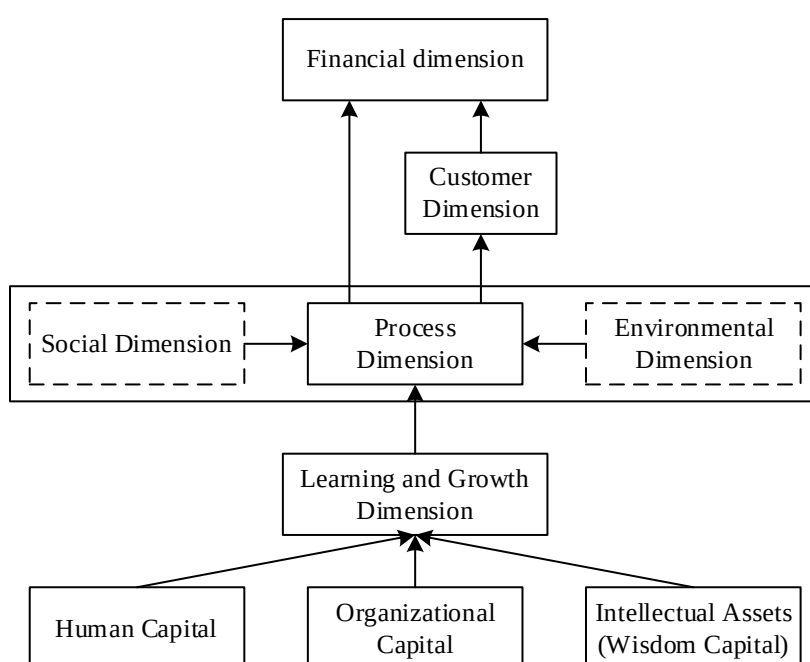


Fig. 5. Causality architecture of different dimensional performance

Empirical Results and Analysis of Enterprise A Performance Evaluation

In this section, based on the BSC performance evaluation model constructed above, four dimensions of enterprise A, namely, finance, customer, internal process, learning and growth, are selected as the performance evaluation level 1 indicators. The performance evaluation of Enterprise A in 2023 after using the intelligent performance management system of this paper is studied, and the weights and scores of the secondary indicators of each dimension are integrated and calculated using the fuzzy algorithm of comprehensive performance evaluation described above to obtain the score of the first-level indicator of performance evaluation of this enterprise.

The financial dimension includes operating profit margin, return on net assets, total asset turnover, accounts receivable turnover, owner's equity ratio, cash current liabilities ratio, operating income growth rate, total asset growth rate, and the second-level indexes 1-8, and the customer dimension includes customer transaction success rate, marketing expense investment rate, customer retention rate, ticket docking growth rate, customer satisfaction rate, system operation and maintenance renewal rate, and the second-level indexes 9-14. Indicators 9-14: Business process includes R&D investment rate, online transaction growth rate, timely after-sales service rate, partner satisfaction rate, and Level 2 indicators 15-

18: Learning and growth dimension includes core employee retention rate, employee compensation growth rate, employee training rate, and intellectual property rights growth rate, and Level 2 indicators 19-22: Evaluation score of each dimension ranges from 1 to 8, and the evaluation score of each dimension ranges from 1 to 8.

The evaluation scores of each dimension range from 0 to 1.1. Combining the industry averages and the company's situation, this study has developed a score level division table. The specific division of score levels is shown in Table 1.

Table 1. Fractional grading

Grade	Excellence	Good	Mean value	Lower	Worse
Score	>0.9	$[0.8, 0.9]$	$[0.6, 0.8]$	$[0.5, 0.6]$	<0.5

Figures 6 and 7 show the results of calculating the weights and scores of each second-level indicator and first-level indicator of enterprise performance evaluation, respectively. As can be seen from the figure, the average scores of the secondary indicators of enterprise A's financial dimension, customer dimension, and learning and growth dimension are 0.749, 0.939, and 0.858 in order, which are in different score levels, but lower than the comprehensive performance evaluation score of 0.957. This indicates that the performance of enterprise A's financial, customer, and learning and growth dimensions is relatively low. The average score of performance evaluation in internal process dimension is 1.03, which is within the range of excellent scores and higher than the comprehensive performance evaluation score of enterprise A. It indicates that the enterprise performs better in the design and implementation of internal processes.

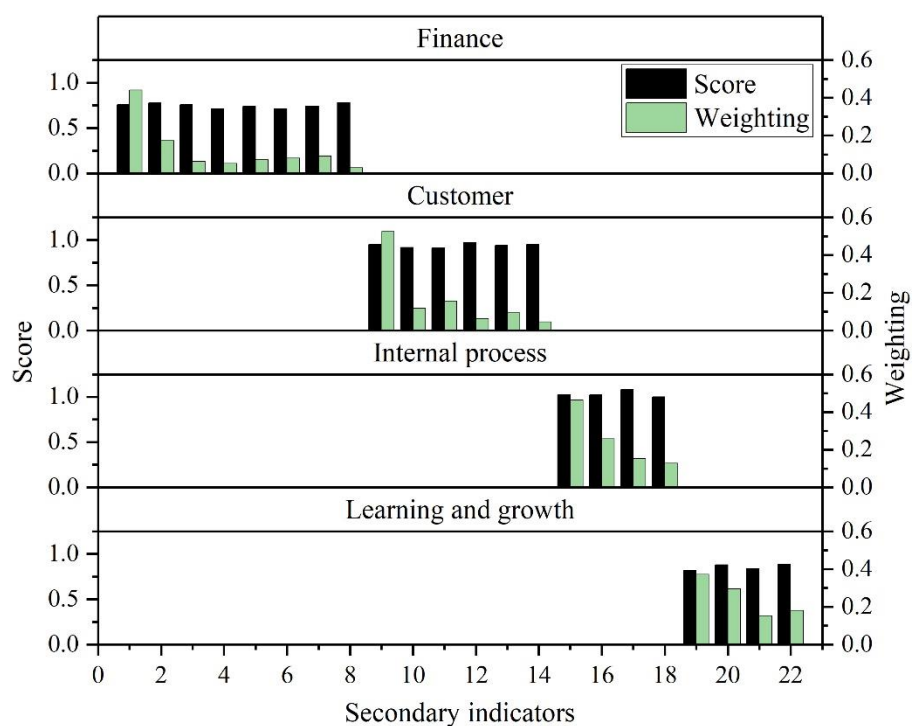


Fig. 6. Secondary indicator weights and scores

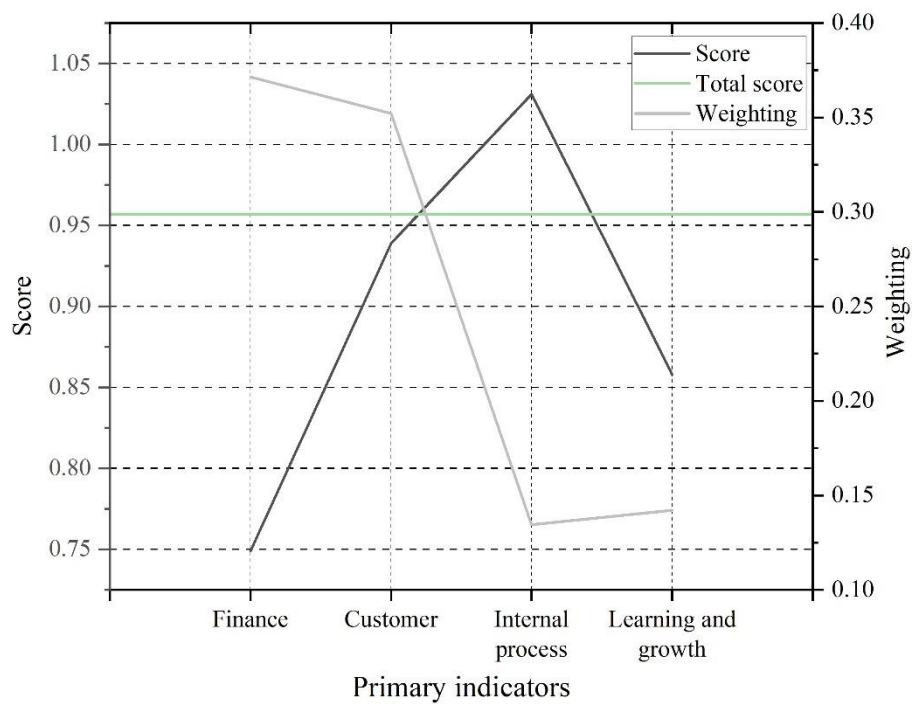


Fig. 7. Primary indicator weights and scores

4. Evaluation system for organizational change

Enterprises in the implementation of intelligent performance management model, this paper builds a set of organizational structure evaluation system, using this evaluation system to measure and analyze the status quo of the enterprise organizational structure, to provide direction and basis for its change, and use this set of evaluation system to evaluate the results of the effectiveness of the changed enterprise organizational structure.

4.1. Organizational structure evaluation system model

The model of the organizational structure evaluation system is constructed as shown in Figure 8 below. the model shows that a perfect organizational structure evaluation system model should include two parts: the support subsystem and the main evaluation subsystem, and the support subsystem is the prerequisite for the operation of the evaluation subsystem, and the organizational structure evaluation index system is established in the next section by combining with the practice of enterprise organizational structure change.

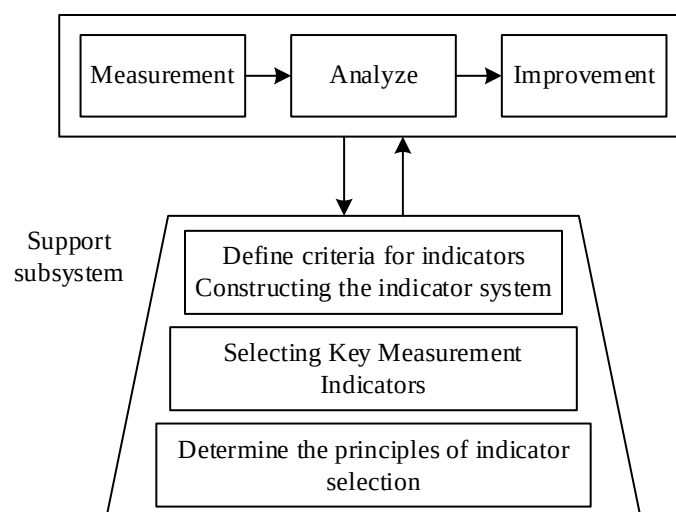


Fig. 8. Organizational structure measurement system model

4.2. Key indicators for the evaluation of the organizational structure

Combining the various factors affecting the organizational structure of enterprises, considering the interaction between organizational structure and resources and the importance of teamwork to organizational performance, this paper adds two key indicators, resource utilization and organizational structure coordination, to the original five aspects of adaptability, advancement, operation speed, business performance and matching with the actual enterprise when constructing the key indicators. The seven key indicators are: actual enterprise adaptability, adaptability, operation speed, synergy, advancement, resource utilization capacity, and enterprise business performance.

4.3. Organizational structure evaluation indicator metrics

1) Human resource utilization rate U_r . It mainly evaluates the utilization of key technical talents, while general employees work according to the specified time schedule, and it has a stage evaluation effectiveness because this indicator can help the organizational structure selection. Definition:

$$U_r = \frac{\sum D_s}{D \times \bar{N}} \quad (11)$$

Where D_s : the actual number of days worked by all members after the implementation of this organizational structure.

$\bar{N}$: The average number of employees;

D : the total number of days the program employees should work.

2) Fixed resource utilization U_s . Fixed resource utilization in this paper refers to the larger equipment, machines and other equipment and facilities. Definition:

$$U_s = \frac{\sum \lambda_{i \times} D_{si}}{D \times \bar{S}} \quad (12)$$

Here:

λ_i : Discount factor. Where $\lambda_i = 1 (\lambda_i \leq 1)$.

D_{si} : The actual number of days the i th equipment unit worked.

$\bar{S}$: Average number of equipment units.

D : Total number of working days of the planned general equipment.

3) Technical resource utilization. Technical resource utilization mainly refers to intangible technology, that is, knowledge can be technical means, and tangible technology (such as high-tech equipment, etc.), can W fixed resource utilization to evaluate. Definition.

$$U_j = \frac{C'}{C} \quad (13)$$

Among them:

C' : Number of times technology was utilized to solve a problem.

C : Number of times encountering technical difficulties.

4) Information resource utilization rate. Information resource utilization rate is evaluated by information sharing rate, i.e., it is reflected by the chance of not being able to get this resource when the organization members need information resources. Definition:

$$U_x = 1 - \frac{C'_x}{C_x} \quad (14)$$

Among them:

C'_x : Number of times information resources were not obtained.

C_x : Number of times information resources were obtained.

Through the above analysis, the total resource utilization is finally obtained U :

$$U = \sum \mu_i U_i \quad (15)$$

Where:

μ_i : is the indicator weight.

U_i : is the indicator rating value.

Translated into scoring with numerical values:

$$SC_R = (U - 0.5) \times 33 + 67 \quad (16)$$

4.4. Measuring Organizational Change in Enterprise A

According to the organizational structure change evaluation index system and fuzzy hierarchical analysis evaluation model constructed above, the effect of organizational structure change of the intelligent performance management system in enterprise A is assessed. The measurement indexes include the utilization rate of human, fixed, technological, and information resources as well as the total resource utilization rate and the utilization weight. By investigating the utilization rates of human, fixed, technological, and information resources by the representative departments of Enterprise A (Sales, Production, Operations, and R&D), the utilization rate of these resources on behalf of Enterprise A is calculated, and the total resource utilization rate and score are finally calculated. According to the scoring results, the resource utilization rate is graded: greater than 80 is excellent, 70–80 is good, 60–70 is medium, and less than 60 is poor.

Figures 9 and 10 show the utilization rates and weights of human, fixed, technical, and information resources in each department, respectively. From Fig. 9, we can see that the average utilization rate of human, fixed, technical and information resources of enterprise A is 0.935, 0.865, 0.947, 0.864 respectively, while Fig. 10 shows that the corresponding average weights are 0.55, 0.126, 0.124, 0.2 respectively, and the total utilization rate of the resources calculated by the above formula is 0.913, which is transformed into the utilization score of 80.64, which is in the “good” category. This translates into a utilization score of 80.64, which is in the “excellent” category.

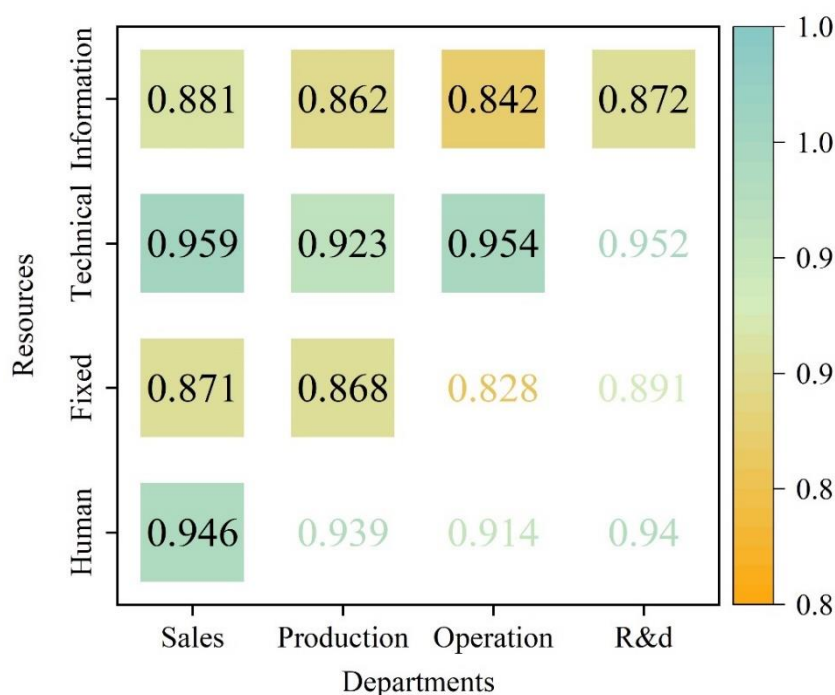


Fig. 9. The power of each department is weighted by the resources

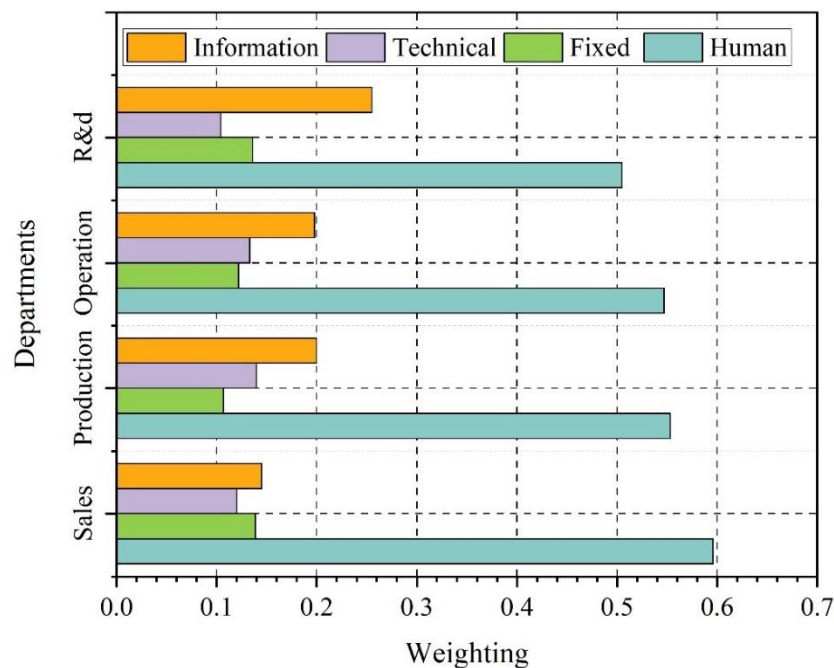


Fig. 10. The personnel of each department are weighted by the resources

5. Conclusion

This study designs an enterprise intelligent performance management system and applies it to enterprise A. The performance evaluation indexes of enterprise A are formulated through the balanced scorecard performance evaluation model, and the fuzzy algorithm is used to calculate the comprehensive score of each index. And the organizational structure change evaluation system is constructed to evaluate the changes of enterprise A.

The average recognition of the "cognition", "indicator setting", "performance appraisal and results" and "overall effect" of the intelligent management system was 4.03, 4.3, 4.21 and 4.10. The performance scores for the financial, customer, and learning and growth dimensions of Enterprise A are 0.749, 0.939, and 0.858, in that order, which is lower than the overall composite performance evaluation score of 0.957, while the teaching score for the internal process dimension is 1.03, which demonstrates the superior internal process design and execution capabilities of Enterprise A. After using the intelligent performance management system in this paper, the total resource utilization rate score of Enterprise A is 80.64, and organizational efficiency is improved.

References

- [1] Pugna, I. B., Dutescu, A., & Stanila, G. O. (2018). Performance management in the data-driven oragnisation. In *Proceedings of the International Conference on Business Excellence* (Vol. 12, No. 1, pp. 816-828).
- [2] Chaanine, J. C. (2024). Examining the influence of social media in the AI era on employees' performance management in the Lebanese context: an empirical analysis. *International Journal of Knowledge-Based Development*, 14(2), 206-225.
- [3] Varma, A., Pereira, V., & Patel, P. (2024). Artificial intelligence and performance management. *Organizational Dynamics*, 53(1), 101037.
- [4] Chukwuka, E. J., & Dibie, K. E. (2024). Strategic Role of Artificial Intelligence (AI) on Human Resource Management (HR) Employee Performance Evaluation Function. *International Journal of Entrepreneurship and Business Innovation*, 7(2), 269-282.

- [5] Rožman, M., Oreški, D., & Tominc, P. (2022). Integrating artificial intelligence into a talent management model to increase the work engagement and performance of enterprises. *Frontiers in psychology*, 13, 1014434.
- [6] Jain, D. S. (2018). Human resource management and artificial intelligence. *International Journal of Management and Social Sciences Research*, 7(3), 56-59.
- [7] Ewenstein, B., Hancock, B., & Komm, A. (2016). Ahead of the curve: The future of performance management. *The McKinsey Quarterly*, 1-10.
- [8] Visani, F., Raffoni, A., & Costa, E. (2024). The quest for business value drivers: applying machine learning to performance management. *Production Planning & Control*, 35(10), 1127-1147.
- [9] Buck, B., & Morrow, J. (2018). AI, performance management and engagement: keeping your best their best. *Strategic HR Review*, 17(5), 261-262.
- [10] Ramachandran, K. K., Mary, A. A. S., Hawladar, S., Asokk, D., Bhaskar, B., & Pitroda, J. R. (2022). Machine learning and role of artificial intelligence in optimizing work performance and employee behavior. *Materials Today: Proceedings*, 51, 2327-2331.
- [11] Bhardwaj, G., Singh, S. V., & Kumar, V. (2020, January). An empirical study of artificial intelligence and its impact on human resource functions. In *2020 International Conference on Computation, Automation and Knowledge Management (ICCAKM)* (pp. 47-51). IEEE.
- [12] CHIMA, C. C. (2022). Artificial intelligence in human resources management and human resource accounting in Nigerian public sector. *Management and Human Resource Research Journal*, 11(1), 1-16.
- [13] Olan, F., Arakpogun, E. O., Suklan, J., Nakpodia, F., Damij, N., & Jayawickrama, U. (2022). Artificial intelligence and knowledge sharing: Contributing factors to organizational performance. *Journal of Business Research*, 145, 605-615.
- [14] Tong, S., Jia, N., Luo, X., & Fang, Z. (2021). The Janus face of artificial intelligence feedback: Deployment versus disclosure effects on employee performance. *Strategic Management Journal*, 42(9), 1600-1631.
- [15] Votto, A. M., Valecha, R., Najafirad, P., & Rao, H. R. (2021). Artificial intelligence in tactical human resource management: A systematic literature review. *International Journal of Information Management Data Insights*, 1(2), 100047.
- [16] Han, L. (2024). Research on Big Data and Artificial Intelligence Driven Human Resource Management Innovation. *Frontiers in Business, Economics and Management*, 14(1), 7-10.
- [17] Faqihi, A., & Miah, S. J. (2023). Artificial intelligence-driven talent management system: Exploring the risks and options for constructing a theoretical foundation. *Journal of Risk and Financial Management*, 16(1), 31.
- [18] Fosso Wamba, S., Queiroz, M. M., Pappas, I. O., & Sullivan, Y. (2024). Artificial intelligence capability and firm performance: a sustainable development perspective by the mediating role of data-driven culture. *Information Systems Frontiers*, 1-15.
- [19] Kumar, P. N., Mohan, L. M., & Shivalini, M. S. (2024). Enhancing quality circle effectiveness: Leveraging ai-driven employee performance analytics. *International Journal of Innovation Studies*, 8(1), 583-599.
- [20] López, V., & Peralta, J. C. (2023). AI-Driven Human Resource Management: Opportunities, Challenges, and Ethical Considerations. *Journal of Contemporary Healthcare Analytics*, 7(1), 184-199.
- [21] Chakraborty, T., Sharada, V. S., & Sharma, J. (2024). Data-Driven Decisions for Employee Motivation: Strategies for Implementing Technology in Performance Reviews in a Tech Landscape. In *Employee Performance Management for Improved Workplace Motivation* (pp. 311-338). IGI Global.
- [22] Bardamova, M., Svetlakov, M., Sarin, K., Hodashinskaya, A., Shurygin, Y., & Hodashinsky, I. (2024). Population Generation Methods for Metaheuristic Algorithms Used to Construct Compact Fuzzy Classifiers of Medical Data. *Pattern Recognition and Image Analysis*, 34(3), 396-411.

- [23] Ayid, Y. M., Zakaraia, M., & Eltoukhy, M. M. (2024). An artificial bee colony optimization algorithms for solving fuzzy capacitated logistic distribution center problem. *MethodsX*, 13, 102964.
- [24] Rahman, A. A. A., Chong, P. L., San Ong, T., Teh, B. H., & Ong, T. C. (2024). Business network and balanced scorecard: an analysis of small and medium enterprises in Malaysia. *Arab Gulf Journal of Scientific Research*, 42(3), 621-635.
- [25] Jaiswal, V., & Thaker, K. (2024). Studying research in balanced scorecard over the years in performance management systems: a bibliometric analysis. *International journal of productivity and performance management*.