

# Research on Adaptability of Organizational Performance Information Structure Based on Block Chain Technology

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## Abstract

**With the development of information technology, the maturity of block chain technology has brought a new organization information structure model. In this paper, three information structures, three information association modes and five information structure subjects are used to adapt three performance information structures in different organizational types, so as to improve the efficiency of organizational performance information and reduce information cost.**

## Keywords

**Block chain technology, information structure, performance structure, organizational form, selection mechanism.**

## 1. Introduction

With the rapid development of society and the acceleration of economic globalization, organizations are facing unprecedented pressure and challenges. As a combination of information, in the face of social development, information technology improvement and economic globalization, information efficiency has become the core competitiveness of organizations. Whether it is information lag, information distortion or information black hole, the organization information efficiency is too low, will seriously interfere with the normal operation of the organization. How to improve the efficiency of organizational information is an important topic that all organizations and academia are committed to studying together, and also the most urgent theoretical requirements of this era.

The information economy is full of distributive and creative behaviors, and the roles of managers (allocating resources) and employees (creating resources) often overlap. Traditional role recognition and information management theories focus on static changes, while in the era of information economy, we should not only focus on the final state, but also pay attention to the endless dynamic evolution process, and constantly study possible actions and corresponding consequences in such a dynamic process. Information, as the protagonist, is the dynamic process of information transmission among different subjects, whose decisions under the joint action of different information and their influence on other subjects within the organization are the information structure of the organization.

As a collection of information, an organization's business activities represent the process of information transmission and transformation. Under the influence of goals, tasks, environment and other factors brought by different organizational forms, no single information structure can maintain absolute advantages over other information structures. As the core structure of the whole organization, information structure needs to be adapted according to the organizational form and different information characteristics. In addition, the information subject in the organization is mainly employees, and there are various information classification standards in the organization, among which performance information is of great significance to the information subject. Organizational performance information efficiency

directly affects organizational efficiency. At the same time, as the most complex and important information classification, performance information contains not only structural information such as production information and financial information, but also unstructured information such as man-machine and interpersonal information.

This paper focuses on the analysis of the relationship between different information structures and information efficiency of each information subject in an organization under different organizational forms when faced with performance information with complex characteristics. By comparing the multi-level characteristics of information structure and combining the characteristics of organizational form and performance information, precise adaptation is realized to improve the information structure of organizational performance and maximize the efficiency of performance information.

## 2. Literature References

Since Arrow [1] and Masahiko Aoki [3] put forward the concept of information structure in academia, information structure has been formally incorporated into the core of organizational research. Information structure refers to the problem of who observes, what kind of information is observed and how information is transmitted [1]. Generally, information structure is brought into the economic structure or organizational structure for discussion, and is considered to represent the efficiency boundary of the organization's use of information [2]. In the early organization, the horizontal performance information structure mode and the vertical performance information structure mode were mainly adopted, and the vertical performance information structure mode was mainly hierarchical, and the horizontal structure was established among departments and employees connected by work [3]. In the field of human resources, the vertical performance information structure model is suitable for exclusive human capital, while the horizontal performance information structure model is suitable for universal human capital [4]. With the development of the organization, the information structure expands to four types, that is, centralized, horizontal, vertical and decentralized [5]. Through the discussion on the efficiency of the above four structures, the organizational efficiency can be further improved [6]. Based on the discussion of the information structure model, the evolution model and mechanism of the organizational information structure were specifically discussed in terms of township enterprises and enterprise clusters in the South Jiangsu model [7]. Research focuses on the organization of information structure and organization structure, decision of the structure of the match, at the same time need to be specified in the information technology is not developed, inefficient information structure attached to the organizational structure and decision structure, with the development of information technology, information structure gradually showed its own characteristics, and gradually from the organizational structure. In addition, the adaptation of information structure is not only influenced by the organizational structure and decision-making structure, but also by the characteristics of information within the organization.

Whether information can be fully used is an important indicator of organizational ability. The organization information structure should select the most important and important information within the organization for adaptation. With the deepening of specialization and the further promotion of the status of human resources in the organization, performance information, as an important carrier of organizational performance, behavior and motivation, has irreplaceable strategic value and significance for the organization. As the most important and complex information in an organization, the efficiency of performance information directly reflects the level of the organization. At the same time, the use of performance information is also an important area of performance management research. The use of performance information refers to the collection, transmission and analysis of performance information

within the organization to effectively motivate individuals and groups within the organization to achieve organizational goals. The research on the use of performance information makes the results-only theory of organizational performance management shake. In the process of using performance information, the decision-making behavior as the subject of performance information greatly affects the efficiency of performance information. The use level of performance information not only directly reflects the level of organizational performance management, but also indicates the strength of organizational information ability.

At present, the low utilization rate of performance information in the organization has become the biggest shackle restricting the development of the organization and the development of talents. The authenticity of performance information in an organization directly affects the cost and efficiency of the organization's operation. How to collect performance information objectively, impartially and accurately, reduce the loss in the process of transmission, and reduce the credit cost between performance information transmission within the organization is a major problem to be solved urgently at present. For example, performance information distortion is prevalent in government [11], enterprises [12], universities [13] and other types of organizations. Factors leading to low efficiency of performance information utilization mainly include mutual game [14] and excessive subjective interference [15]. At present, the solutions to the problem of performance information mainly focus on improving the quality of employees, strengthening supervision and quantifying performance indicators [16]. But performance information itself structured multidimensional factors, led to the performance information of quick, short, difficult to storage, hard to quantify, and many other problems, and the present study focuses on regulatory constraints in the process of performance evaluation, to solve the performance by the third party supervision information distortion problems, not involving the fundamental to the point of view of information to solve the problem of performance information.

As a new science and technology with information as the main body, the breakthrough development of information technology provides solutions to various problems existing in the use of traditional performance information. In recent years, the rapid rise of cloud computing, big data, mobile Internet and artificial intelligence makes many theories of traditional economics and management face bigger questions, difficulties and challenges than before. With the breakthrough of information technology, the traditional information structure is difficult to support the huge amount of information, new information transmission channels, information certification reform and other major changes faced by organizations. The development of big data, artificial intelligence, cloud computing, block chain and other new information technologies has greatly changed the way organizations use information. Of big data, artificial intelligence and cloud computing using computer to calculate force beyond the artificial utilization efficiency of information block chain technology through the work mechanism, Internet consensus, intelligent contract mechanism, Internet transparent mechanism to solve the problem of mutual trust between the organization of information [17], laid the foundation for new information from the underlying structure. The information structure of performance information in the organization designed in the past is based on the defects of technology, which cannot guarantee the security of performance information. In the process of performance information transmission in the organization, a great deal of energy and cost are required to ensure the security and loss of performance information. The emergence of block chain technology enables organizations to "de-trust" performance information transmission through technical means, that is, performance information is fidelity in the transmission process, fundamentally eliminating the distortion of performance information. On this basis, the block chain technology is used to build the corresponding information system for human resource management, and technical solutions are proposed. [18] at present, the research of block chain technology focuses on the actual implementation, such as network information security [19],

intelligent fire protection [20], supply chain [21], etc. For the change of theoretical information structure and the emergence of new information structure, there is a lack of relevant in-depth research.

To sum up, the adaptation of information structure can improve the efficiency of the use of performance information within the organization. Therefore, based on the information characteristics and usage characteristics of performance information within the organization, and combining with the type of organizational structure and incentive mode, the adaptation of information structure at all levels can effectively improve the utilization degree of performance information of the organization. This structure is called the organizational performance information structure, which is the combination of each level of adaptive information structure of organizational performance information. Based on the transformation of information structure brought by block chain technology, this paper focuses on analyzing the adaptation of information structure in different types of organizations. Meanwhile, combining with the structural characteristics of performance information, this paper further builds subtle information subjects to improve the entire organization's performance information structure and provides Suggestions for improving the utilization rate of performance information.

### 3. Organizational Performance Information Structure

According to the traditional information structure research, the organization information structure mainly describes who observes the information, the direction of information transmission and who USES the information to make decisions, and then discusses the efficiency by combining the organization power structure and decision-making structure. However, in the actual business activities of organizations, the generation and transmission of information is ubiquitous, so a single expression cannot completely describe the organization's information structure. Among them, the performance information with complex structure puts forward higher requirements for the information structure. When facing the performance information, the organizational information structure should not only consider the environmental impact and performance information subject capacity, but also adapt to the performance information according to the characteristics of each type. Therefore, the information structure of organizational performance needs to be studied and analyzed from the perspective of the organization as a whole. At the same time, the partial performance information structure based on departments will affect the efficiency of organizational performance information as an integral part of organizational performance information structure. In addition, as the bottom of the performance information structure, the direct interaction of performance information between performance information subjects directly affects the efficiency of organizational performance information.

Based on the above analysis, the organizational performance information structure in this paper (as shown in figure 1) is composed of the whole to the part, and then involves subtle performance information interaction patterns from the part. The overall perspective is the organizational performance information structure model, the local subject is composed of the performance information structure model, and the subtle information interaction model is called the performance information association model.

#### 3.1. Organizational Performance Information Correlation Model

As a collection of information, an organization's business activities can be regarded as the observation, transmission and processing of performance information. Based on the research content of masahiko aoki, the internal performance information subject of an organization is simplified into two parts. The subject responsible for management is called T1, which has incentive right, and the subject responsible for actual business operation is called T2, which receives incentive. Meanwhile, T2 can be further decomposed into two small bodies, namely

T2a and T2b. Within the organization that performance information main body in the face of performance information can be divided into two main categories: category refers to the environmental information, namely the subjects of the performance information of itself as the center to observe the surrounding performance information, environmental information and because performance information subject right lead to observe different scope is divided into public environmental information and the local environmental information, relationship between doesn't contain and cross; The other kind refers to the trait information, that is, the performance information transmitted to the information subject after the transformation. The above performance information subjects are faced with various types of performance information in the organization, so the correlation mode between performance information and each performance information subject constitutes the organizational performance information correlation mode. On the basis of performance Information between different subjects in the observation, the different characteristics of the transmission and processing can be divided into three kinds of performance Information correlation patterns: Hierarchical Decomposition, Information Assimilation, Information Encapsulation.

In the hierarchical decomposition (HD), T1, as the main observer of performance information, observes and exchanges with the environment information, and adjusts its behavior mode accordingly. On this basis, T1 passes the performance information to each T2 through processing, and T2 only passively accepts the performance information for processing and transformation under this mode.

In information assimilation (IA), T1 and T2 observe and transmit environmental information respectively. Subjects of T1 and T2 can observe environmental information and form assimilation cognition in the process of observation. Assimilation cognition is formed through the digital information sharing way (IA[d]) by observing structured performance information, and the intentional information sharing of empirical performance information (IA[t]).

Information package (IE) in T1 and T2 can be to look at the environment information, but the T1 and T2 because of the limitation of its own performance information of the observation point and obtain the performance information of different qualities, make the information main body for the performance of information exist error, namely the T1 and T2 respectively by itself need performance information of the parcel, and does not take the initiative or inability to obtain other performance information.

### **3.2. Organizational Performance Information Structure Unit**

The different combinations of the above three performance information association patterns constitute five organizational performance information structure subjects.

#### **3.2.1. Functional Hierarchy**

The performance information structure unit consists of hierarchical decomposition (HD) and information package (IE). T1 is responsible for receiving and responding to public environment information. T1 distributes the observed public environment information to T2 after corresponding transformation. There is a certain amount of noise in the transmission process, and the noise is independent of each other. Meanwhile, T2 independently observes the local public environment information and special environment information at the same level, and decides the next step of T2 based on the observed performance information.

#### **3.2.2. Network Integration Function Hierarchy**

The performance information structure unit consists of hierarchical decomposition and information assimilation (digital). T1 is responsible for designing and maintaining a formal network communication channel that allows T2 to share local public environment information. In the communication network, the interrelated work modules are combined and delivered to a single subject for management through statistics. The corresponding T1 can selectively

optimize the scope of local public environment information and reduce the original information intermediary. The types of T2-level Shared performance information are obtained from the internal statistics of the organization, and the business direction of the work module is restricted by the standardized performance information of the organization.

### **3.2.3. Hierarchical Team**

The performance information structure unit consists of hierarchical decomposition and information assimilation (tacit knowledge). The vertical relationship between T1 and T2 is hierarchical decomposition mode, and T2 is information assimilation mode for local public environment information in the same level. Information assimilation between T2 refers to the information assimilation conducted by the executing subjects in T2 through informal channels.

### **3.2.4. Horizontal Hierarchy**

The performance information structure unit consists of hierarchical decomposition and information assimilation. There is information assimilation about environmental information between the T1 and T2 levels of the vertical relationship. At the same time, T2 shares its local environment information with the business entities that have work associations in the same hierarchy. There is information assimilation of vertical relationship in the body of this information structure, so the decision of T1 will be affected by the level of T2, forming consensus-based and collective action strategy.

### **3.2.5. Participatory Hierarchical System**

The performance information structure unit mainly consists of hierarchical decomposition and information package mode, and at the same time, there is a certain degree of information assimilation mode. The functional hierarchy system focuses on tasks and highlights the characteristics of task specialization. On the basis of the functional hierarchy, the participating hierarchy breaks through the boundary limit and realizes the information sharing across the boundary. Under this structure, T2 has strong information capacity, which can process information efficiently and transmit it to T1. Since T2 has more subjects than T1 nodes, information can be collected and processed more efficiently. In addition, complementarity between T2 requires information sharing between T2 subjects. Therefore, in the main body of the information structure, there are some information assimilation patterns in the horizontal and vertical directions based on the hierarchy of functions.

## **3.3. Organizational Performance Information Structure Unit**

Who observes, what signals are observed, and how they are transmitted constitute the performance information structure pattern within the enterprise. Different performance information association modes combine to construct the organizational performance information structure mode at the vertical and horizontal levels, which is usually divided into vertical performance information structure mode and horizontal performance information structure mode, among which the performance information association mode is the basic performance information module. Because information technology development limited, performance information level is limited, lead to both longitudinal performance information structure model and lateral performance information structure model requires information center as performance information transfer node, in today's information age on the performance of information transmission efficiency and quality of information caused serious influence. Block chain technology to work mechanism, Internet consensus, intelligent contract mechanism, the technical features of the Internet transparent mechanism for organization brought new performance information structure model, distributed performance information structure model, and on the basis of block chain technology characteristics of traditional organization performance information structure model for further optimization.

### **3.3.1. Vertical Performance Information Structure Model**

Vertical performance information structure model is a combination of three information association models in vertical direction. The vertical performance information structure model relies on the hierarchical structure system of the organization. In this structure, the scope of performance information observation by performance information observers is partial environmental information, and there is little ability and opportunity for cross-regional observation. In the vertical performance information structure model, performance information transmission is mainly from bottom to top to submit various kinds of performance information, and at the same time, decision-making performance information is transmitted from top to bottom. Longitudinal structure mode by all kinds of performance information, information center, a node as the performance information processing and transformation, in the upper performance information observer understand the status of performance information processed by information center, at the same time all kinds of T1 as secondary information center performance information, that is to say, the longitudinal performance information structure model of information transmission nodes information center as the basic performance, the structure of the different subjects are conducted by various types of information center of performance information.

### **3.3.2. Horizontal Performance Information Structure Model**

Horizontal performance information structure pattern is the information combination of three information association patterns in the horizontal direction. In the horizontal performance information structure model, the performance information observer is the same as the vertical performance information structure model. The observation scope extends from part of the environmental information to the environmental information before and after the same process, that is, the environmental information of other observers at the same level can be observed to a certain extent. In the horizontal performance information structure model, the information transfer nodes include both the information center and the information subject, that is, the information subject at the same level can carry out the information transfer, and the cross-level information transfer can be carried out through the information center.

### **3.3.3. Distributed Performance Information Structure Model**

In the distributed performance information structure model, the observer is every network subject, that is, the observation field is the same in the region, and all people can observe all the environmental information at the same time. In the distributed performance information structure model, information transmission can be directly transmitted between two subjects, while there is no cross-level performance information transmission. All subjects are based on the same level, and there is no need for indirect transmission through the third party information center. The function of the information center is transformed from the performance information transmission center to the performance information processing center, which is only used as the performance information processing and transformation center. All observers of the performance information can observe the original information as well as the processed and transformed performance information.

## **4. The Influence of Block Chain Technology on Organizational Performance Information Structure**

With the development and breakthrough of information technology, the information environment faced by organizations has undergone great changes. The use of performance information in an organization is influenced by many factors. The efficiency of performance information transmission in traditional organizations is low, and the loss of information in the process of transmission is huge. In order to solve relevant problems and improve the efficiency

of performance information, the organization adopts the methods of building a more complex supervision system, introducing third-party supervision agencies, setting up multiple levels, and identifying responsibilities within the organization. A large number of labor, capital and time costs have been spent, but the effect is still not good, and the improvement of organizational performance information efficiency is not obvious. Faced with such information problems, the maturity of block chain technology ensures the authenticity and reliability of information through the workload proof mechanism, and solves the distortion, fraud and loss of performance information. The Internet consensus mechanism can decentralize the organization and reduce the cost of trust. The intelligent contract mechanism replaces the manual execution of the contract agreement to solve the problem of human subjective factors and improve the efficiency of performance information transformation and transmission; The interactive scoring mechanism of social network provides a new incentive model to improve people's subjective initiative; The Internet transparency mechanism makes the process of performance information utilization of the subject in the network open and transparent while the subject is anonymous, which provides a solution to the defects of the traditional performance information structure.

In addition, the proposed distributed performance information structure is based on an idealized information environment, which can only be realized in a trusted network. The underlying mechanism of the block chain technology makes the performance information network within the whole organization become a truly decentralized and trustless trusted network, which makes the distributed performance information structure pattern universally applicable.

#### **4.1. The Influence of Workload Proof Mechanism and Internet Transparency Mechanism on Information Structure**

Under the mechanism of workload proof and Internet transparency, the problems of performance information distortion, fraud and wastage are solved, and the third-party supervision cost is eliminated. Under the traditional performance information structure, performance information is transmitted through the information center, and each performance information subject can only passively receive the performance information provided by the information center. At the same time, the performance information provided by the information subject can only be converted into the recognized performance information after the approval of the information center. Therefore, the authenticity and integrity of performance information in the process of transmission are issued by the information center. For the information subject, the transmission and transformation of performance information can be regarded as a black box. For example, an employee's work certificate will only be accepted by a third party if it is provided by the organization, while the employee's own work certificate lacks credibility. In the traditional performance information structure, the third party supervision is usually used to improve the quality of performance information, and the horizontal performance information structure mode is supplemented by the mutual verification of the same level of performance information. The distributed performance information structure model is based on the workload proof mechanism, and the performance information cannot be tampered with to ensure the authenticity and reliability of the performance information in the process of transmission. At the same time, the process of performance information transmission is open and transparent throughout the network, without the intervention of third-party supervision.

#### **4.2. The Influence of Internet Consensus Mechanism and Workload Proof Mechanism on Information Structure**

Under the Internet consensus mechanism and workload proof mechanism, the problem of mutual trust cost among the information subjects during the transmission of performance information within the organization is eliminated. In the traditional organizational

performance information structure, the vertical performance information structure model solves the trust problem through the certification of the information center and the guarantee of authority by the department director. In addition to the above methods in the horizontal performance information structure model, employees can reduce the cost of trust to a certain extent through a complete and scientific process design. The distributed performance information structure model is based on the Internet consensus mechanism. After all nodes reach a consensus, the performance information is certified, that is, all nodes have no objection to the performance information. In addition, the workload proof mechanism ensures that performance information is inherently reliable unless more than 51% of the force is modified.

#### **4.3. The Influence of Intelligent Contract Mechanism and Interactive Scoring Mechanism of Social Network on Information Structure**

Under the intelligent contract mechanism and the interactive scoring mechanism of social network, the information ability of each subject is reduced and the information efficiency of organizational performance is improved. In the traditional performance information structure, due to the existence of the information center, the information ability of the information subject is less required. In addition, the information ability requirements of the information subject are mostly concentrated in the professional field, and the information center bears the transformation pressure of general information. However, at the same time, both the information subject and the information center have to face various performance information with different levels of structure. The distributed performance information structure model is based on the intelligent contract mechanism, and the structured performance information can be transformed into the intelligent contract automatically under the consensus reached by both parties, so that the information subject can concentrate on processing the unstructured performance information. In addition, the motivation of performance information flow within the organization comes from the incentive granted by the organization, but such incentive is latent and integrated into the overall incentive. The information subject cannot perceive the specific incentive behavior in time, but usually feels that the behavior is coerced by the right, which will not only fail to achieve the purpose of positive incentive, but also cause negative impact. Under the mechanism of social network, organizations can release incentive rules to a limited extent and combine with the mechanism of intelligent contract, so that performance information can be timely stimulated in the process of observation, transmission and transformation. The automatic execution of intelligent contract avoids the problem of performance incentive disputes, solves the human factors in the process of performance information observation, and ensures that it cannot be changed, while ensuring the privacy and security of employee performance information.

### **5. Adaptation Mechanism of Organizational Performance Information Structure Model**

#### **5.1. Organizational Form and Performance Information Characteristics**

##### **5.1.1. Organization Form**

In the study of modern management, there are two distinct management modes. The two management modes have different theoretical origins and different practical methods. The two management modes are control-oriented high control management mode and participation-oriented high participation management mode. With the further development of the research, there is a balanced management mode between the high-control management mode and the high-participation management mode. Under the high-control management mode, the organization follows the principle of top-down, strict division of labor and hierarchical structure, which is usually represented by the government, public institutions and

organizations with strict and strong power control mode. Under the high-participation management mode, the most ideal is decentralized governance organization, which is characterized by team autonomy, information sharing, authorization and other characteristics. Currently, there are meta-organization, virtual team and other organizational forms. Balanced management mode combines the characteristics of high-control and high-participation management mode, which has both a top-down hierarchical structure and a project-oriented matrix structure. It not only combines the cost advantage of a control-oriented organizational structure, but also improves the innovation and organizational response speed to some extent. At present, most performance oriented enterprises adopt balanced management mode.

### **5.1.2. Performance Information Characteristics**

The structure of performance information can be described as structured, semi-structured and unstructured. Structured performance information refers to the information that can be divided into specific parts, and there is a clear hierarchical structure between the parts. It usually refers to the performance result information of quantifiable indicators, that is, the outcome information generated in the performance management process, such as performance, results and other information. Unstructured performance information refers to all kinds of information related to performance improvement that cannot be obtained directly through indicators. Such information needs to be judged artificially, such as: work environment, organizational information, work engagement, personal effort, personal moral level, etc., usually based on other people's feedback. Semi-structured performance information somewhere in between, need quantitative standard and the combination of human judgment, usually refers to employees or organization in the working process of the critical behavior of the information, in which employees work performance outstanding behavior information, which can prove that the performance outstanding good behavior, also the key to prove the existence of performance problems. These include the composition of performance, milestones achieved, creativity at work, and personal leadership, often with a combination of data recording and specific observations.

## **5.2. Organizational Form and Performance Information Characteristics**

### **5.2.1. Adaptation Of Highly Controlled Organizational Information Structure**

A high-control organization is a typical centralized organization, which is usually a hierarchical management structure with top-down power and clear division of labor. The planning function in the organization is controlled by the management level, and the executive function is controlled by the employees. As the information subject, the grass-roots employees in the organization are weak in information ability. Employees are proficient in the knowledge of the field they are responsible for, and the information exchange between departments and posts is weak. The direction of information flow in an organization is vertical. After the occurrence of information, the information subject reports the information to the information subject at a higher level. Finally, the information is collected in the information center, which is under unified management. Information centers (usually human resources departments) are responsible for the standardization and transformation of information. At the same time, high-control organizations are mainly institutionalized and have a strict management system. In a high-control organization, various performance information serves as the basis and evidence for all the work in the organization, which has a high standard and demand. According to the structural characteristics of high-control organizations, the information structure model of vertical performance information structure should be chosen.

### **5.2.2. Highly Controlled -- Structured Performance Information Structure Adaptation**

In a high-control organization, employee workflow is standardized, and each information subject only carries out information exchange according to the set workflow, that is, T2 and T1

carry out information exchange independently. Information body T2 is weak in information capacity, unable to convert and store information. The vertical performance information structure pattern in an organization determines that there are many levels of information transmission, and the characteristic of clear hierarchy of structured performance information enables information to be transmitted in the process of multi-level transmission to minimize the loss of information and the impact of environmental noise. Structured performance information in highly controlled organizations with a serious degree of centralization is identified and stored by the information center and then transmitted to each information subject. As long as the information subject knows its specific results, the right to use structured performance information is concentrated on the upper right holders.

To sum up, the information structure facing structured information in high-control organizations should choose the hierarchical decomposition information association mode. The hierarchical decomposition information association mode has a low requirement on the ability of the information subject. T1 bears the pressure of information transformation and storage, and the information subject can directly receive the information. Meanwhile, T1 can efficiently and accurately provide the required structured performance information for T2 after processing the information through transformation.

### **5.2.3. Highly Controlled -- Semi-Structured Performance Information Structure Adaptation**

Semi-structured performance information such as the composition of each employee's business performance and contribution to the achievement of phased results is usually generated in business activities. According to the business scope and business cycle, this type of performance information belongs to dynamic information, and department heads need to identify and improve such unstructured performance information in a timely manner. In a high-control organization, each information subject has weak information capability and is difficult to process this kind of information, so it is necessary to identify and transform the information of the high-level information subject. At the same time, each information subject needs to improve its own business level through identifying and improving the key behavior information so as to improve the performance level.

In addition, semi-structured performance information has a certain degree of structural characteristics, so it is appropriate to choose the information structure based on "information assimilation (data type)" information association mode. Head (T1) using its high information ability to identify employees (T2) in actual business activities of all kinds of key behavior, through the analysis of the indicators and experience judgment will be conducive to performance improvement of key information feedback to employees (T2), to help employees to improve the level of individual performance, and deepen the link between individual performance and organizational performance.

### **5.2.4. Highly Controlled -- Unstructured Performance Information Structure Adaptation**

Unstructured information exists in every link of business activities, usually in the form of employees' working environment, working attitude and moral level. Unstructured performance information will not directly or temporarily affect the change of performance level, but in the long run it will have a very important impact on the steady improvement of performance and the further development of employee potential. In addition, this kind of information needs to be recognized, transformed and stored dynamically, and it is difficult to do so. Employees (T2) in high-control organizations have weak information capabilities and are unable to process such information. The department head (T1) has some processing capacity, but needs further analysis and storage in the information center.

Therefore, this type of performance information is suitable for the information structure dominated by "information assimilation (tacit)" information association mode in high-control organizations. The supervisor of the direct department (T1) can timely find the unstructured performance information generated by employees (T2) in the business process, and at the same time, through rich experience and employees (T2), carry out information transmission in an intentional way to ensure the minimum loss of information in the transmission process. Then, the unstructured performance information is transferred to the information center through the transformation of the department head (T1) for further transformation and storage, and the performance level is further optimized based on it.

#### **5.2.5. Balanced Organization Information Structure Adaptation**

Balanced organization belongs to centralized organization, but the degree of centralization is lower than that of high-control organization. The hierarchical structure of the organization is further flattened. Different from the traditional hierarchical functional model, the balanced organization is more of a matrix and divisional organizational structure, which needs to face the changeable and complex external environment. In a balanced organization, when the department head observes environmental information, employees also need to observe environmental information independently in the process of business activities, which greatly improves the information capability of the information end. At the same time, the interrelated process arrangement makes the relevant information transfer between employees. In the decision-making process, employees have the right to participate in the decision-making as well as the words of their superiors. Under such circumstances, this type of organization is suitable for the organizational information structure based on the horizontal performance information structure pattern, which enables timely information observation and transmission in the changing environment. Horizontal information transfer among employees can ensure that business activities can cope with the changing external environment and improve organizational agility.

#### **5.2.6. Balanced -- Structured Performance Information Structure Adaptation**

In a balanced organization, both employees (T2) and department heads (T1) have the ability to observe information. Due to the expansion of the organization scale and the change of organizational structure, the information center cannot directly contact and process all information. Therefore, department heads (T1) assume certain information center functions, namely secondary information centers. Structured performance information can be transmitted with less loss in a long hierarchy. Meanwhile, the use of this kind of information mainly focuses on the department director's recognition of employee performance and the information center's formulation of the next step plan based on the performance level. Therefore, hierarchical decomposition should be chosen in the vertical direction to ensure the efficiency of information transmission. In addition, employees will observe their own performance level to help them make decisions, so the information structure dominated by "functional hierarchy" should be selected for the balanced organizational structured performance information.

In a balanced organization, the key behaviors of employees that affect performance in business activities are usually determined by the department heads through quantitative analysis based on experience and information center. Employees optimize business activities to improve performance through key behaviors identified by department heads and information centers. In this process, employees need to help each other, i.e. In this case, the organization should choose the information structure based on "functional hierarchy of network integration + information assimilation". T1 level USES information technology to establish a network platform to transmit information after identifying information and transforming it together with the information center. T2 level grants authority to receive corresponding semi-structured

performance information through statistical analysis. After receiving the information, employees (T2) improve their performance through self-improvement and mutual communication to reach a consensus, namely, information assimilation at T2 level.

#### **5.2.7. Balanced -- Unstructured Performance Information Structure Adaptation**

Unstructured organizational performance information is difficult to observe and transmit the characteristics of the department director to rely on experience and multi-party collection to obtain comprehensive and accurate information. At the same time, the transmission of unstructured performance information is a dynamic process. While observing, the department head will be limited by his own experience, energy and preference, resulting in distortion in the process of information collection and transmission. When employees receive the distorted information, they will show resistance psychology, which will affect the performance level.

Therefore, in the face of unstructured performance information organizations should adopt the information structure based on the "level hierarchy". In a horizontal hierarchical system, the department head (T1) USES experience and authority to actively observe and collect information, while the employees (T2) also observe relevant information independently. On this basis, unstructured performance information can be collected comprehensively and accurately, and information distortion caused by individuals can be avoided to the greatest extent. In addition, information assimilation at all levels of employees (T2) and supervisors (T1) can effectively improve the social relations between them and improve the coordination degree within the organization.

#### **5.2.8. Adaptation of Highly Participatory Organizational Information Structure**

The degree of centralization of high-participation organizations is the weakest, and the information ability of each information subject is the strongest. In the organization, power is delegated, and the rights of each subject are basically limited to their own professional field. The organization is project-oriented, and the employees themselves can be regarded as an independent project. The connections between different employees are only based on mutual achievements to promote the overall project progress. Employee relationships in highly participatory organizations are arguably the loosest of the three. The organization gradually fades away in the objective and practical space boundary, and at present, it mainly focuses on the virtual team and meta-organization type. Further development may lead to a completely decentralized self-governance organization form. Each information subject in this type of organization has certain characteristics of information center. The original information center node becomes similar to the information subject, focusing on information transformation and information distribution and storage in each information subject. This type of organization should adopt the distributed performance information structure mode based on the strong information ability of each subject and the close information connection among the subjects.

#### **5.2.9. Highly Participatory -- Structured Performance Information Structure Adaptation**

The improvement of individual professional skills brings about the increase of information capability in their professional fields. The improvement of information technology enables information between information subjects to be transmitted in a timely and accurate manner under the limitation of large space distance. Structured performance information on the one hand represents the employee's own ability, on the other hand represents the employee's performance for the organization. Employees in highly participatory organizations tend to be far apart, and building trust between them often requires time and third-party supervision. During this period, whether employees need to be recognized for their own past performance, or they need to be encouraged to trust after their performance, they need to spend a lot of costs. The information center usually confirms the authenticity and integrity of the information.

Based on this, the information structure of highly participatory organization should be mainly "information package". Building information transmission channel based on block chain technology can avoid the cost waste of information verification. In addition, employees have enough information ability to observe all kinds of information in the environment and make decisions based on the observed information. The information package structure maximizes the application of employees' information ability and eliminates the cost of information authentication.

#### **5.2.10. Highly Participatory -- Semi-Structured Performance Information Structure Adaptation**

Semi-structured performance information here can be divided into two types were analyzed, and the partial structural part because it can be quantified, with distinctive characteristics of the information can be reference to structured information adapter information structure, and the partial unstructured part because employees far distance between interval, to observe each other, at the same time, head also find it difficult to get enough information across time and space limit, so you need employees to disclose, on the basis of the disclosure by the logic of information related to validate.

Therefore, the information structure of semi-structured performance information in highly participatory organizations should be "participation hierarchy + horizontal hierarchy". That is, employees disclose information to the network by themselves in the organization; information with structural characteristics is directly used by all information subjects; information with unstructured characteristics is judged by the department head and the information center and then released to the network with specific conclusions.

#### **5.2.11. Highly Participatory -- Unstructured Organizational Performance Information Structure Adaptation**

Unstructured performance information cannot be directly observed in a highly participatory organization, and can only be analyzed through information flow in the network to obtain potential results. Due to the fact that employees work independently, as long as enough information can be obtained at a specified time point, the project can be promoted smoothly. For employees of highly participatory organizations, unstructured performance information, such as work attitude and moral level, which are difficult to observe directly, takes up a relatively low proportion in their performance evaluation. At the same time, based on the introduction of consensus mechanism and smart contract in the block chain technology, information technology takes over the functions of personal capacity identification and timely launch of work results undertaken by unstructured performance information. The consensus mechanism allows employees to trust the information they receive without having to think about it, and smart contracts ensure that results are delivered on time.

Therefore, the non-structured performance information in highly participatory organizations should adopt the information structure dominated by "hierarchical control". After analyzing and transforming the information in the network, the department director and the information center obtain the unstructured information and pass it to each information subject, and at the same time make each information subject have a certain degree of information assimilation to the unstructured information.

To sum up, the choice of organizational performance information structure is determined by the organizational type and the performance information type. Among them, the organization types are divided into three types: high control type, balanced type and high participation type, and the structural characteristics of performance information are divided into three types: structured, semi-structured and unstructured. On this basis, the information structure adaptation results of the three levels are shown in table 10. Appropriate information structure of each type of organizational performance information can effectively improve the efficiency

and quality of organizational performance information transmission and reduce the cost of organizational performance information.

## 6. Conclusion

As a general term for information observation, transmission and storage in an organization, adaptive information structure can greatly improve the organization's information efficiency and reduce costs. The information structure, the subject of the information structure and the information association mode of the organization operate independently and interdependent in the organization, forming a dynamic development, circular operation and open and inclusive structure mode. In this structure, due to the uncertainties of information observers, users, transmission channels and information storage, performance information in the organization will have distortion, loss, delay and other problems that affect information efficiency.

The adaptation of information structure is not extensive and direct application, but one by one from the whole to the part. The adaptation should be decided by combining organizational type and performance information structure. Different organizational types and performance information structures have distinct characteristics in information transmission mechanism, operation mechanism and information environment. Only by combining corresponding characteristics and adapting the information structure can the information capacity of each information subject be utilized to the maximum extent, and the information efficiency of the organization can be improved on the basis of ensuring information quality at the minimum cost. Therefore, according to different information users' information ability, information transfer mode, information transfer channel and information transformation type, appropriate information association mode is selected as the basic information structure. The combination of information association mode as the middle information structure can meet the performance under different levels of structure to undertake different information function maximization. Then, based on the characteristics of the organization's power, degree of centralization, and information flow mode, and combining with the information environment faced by employees of different types of organizations as the distinguishing standard, the information structure of the organization is adapted from the macro level. Multi-level and multi-dimensional jointly build organizational performance information structure, such as: high controlling organization as a whole is given priority to with longitudinal performance information structure model, the structural performance information structure is given priority to with the hierarchical decomposition, semi-structured is given priority to with information assimilation (data type), unstructured is given priority to with "information assimilation (sense)"; The balanced organization mainly adopts the horizontal performance information structure mode, in which the structural performance information structure is mainly based on the "functional hierarchy", the semi-structure is mainly based on the "network integration functional hierarchy + information assimilation (tacit)", and the non-structure is mainly based on the "horizontal hierarchy". The overall pattern of highly participatory organizations is mainly distributed performance information structure, in which the structured performance information structure is mainly "information package", the semi-structured structure is mainly "participation level + level hierarchy", and the unstructured organization is mainly "participation level + hierarchy control". Thus, a complete and adaptive organizational performance information structure is constructed to maximize the efficiency of organizational performance information.

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