




AI-Powered CAD Application on Emotional Interaction and Value Analysis of Cluster Enterprises With Human Resource Behavior

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Abstract. Effective interaction and value analysis among cluster firms are the basis of clusters' existence and development. Using human resource behavior, this paper in-depth studies cluster firms' three stages of affective interaction and value analysis mechanisms. In the related theory research and practice at home and abroad for reference, based on scientific achievements, mainly on theoretical research, combining qualitative research and quantitative research, the integrated use of the method of literature review, the game theory method, comparative analysis, induction, interpretation method, and other research methods, are comprehensively discussed in the article topic, around the uniqueness of the cooperation between enterprises of industrial cluster, This paper comprehensively uses resource-based theory, game theory, economics, sociology, management and other related theories as well as some qualitative description and quantitative analysis models to systematically and deeply analyze and study the mechanism of affective interaction and value analysis affecting enterprise competitive advantage among industrial cluster enterprises. The value creation mode based on sharing human resource behavior that is difficult to transfer across organizations is suitable for sharing tacit knowledge and ability. This model can mobilize cluster enterprises' emotional interaction and value analysis resources, activate internal resources, integrate internal and external resources, use their core capabilities to engage in one or more businesses and create value through economies of scale or scope. Network structure influences the value creation of shared resources by increasing member firms' cognitive capital and improving member firms' resource acquisition ability and opportunities. The affective interaction and value analysis of cluster enterprises presents a dynamic development process from individual affective interaction and value analysis of cluster enterprises to affective interaction and value analysis of cluster enterprises system.

Keywords: Human resource behavior; Affective interaction; Value analysis; Emotional interaction; AI-Powered CAD

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1 INTRODUCTION

Affective interaction and value analysis of cluster firms is the ability of an enterprise (talent, country, or individual participating in competition) to obtain a long-term competitive advantage. It is a technology or capability unique to the enterprise, can stand the test of time, has extensibility, and is difficult for competitors to imitate [4]. The affective interaction and value analysis of cluster enterprises have the following characteristics: affective interaction and value analysis of cluster enterprises are valuable; The affective interaction and value analysis of cluster enterprises are heterogeneous. The effective interaction and value analysis of cluster enterprises cannot be imitated. Emotion interaction and value analysis of cluster enterprises are complex and cannot be replaced; cluster enterprises' affective interaction and value analysis are constantly developing. Learning organization is the source of cluster enterprises' emotional interaction and value analysis. These are the functional characteristics of affective interaction and value analysis of cluster enterprises. As a system, cluster enterprises' affective interaction and value analysis have specific structures at different levels [16]. The most basic level is enterprise membership. Human resources, which considers the enterprise employee the carrier, is an essential element of enterprise capability. Employees have the knowledge and ability that can be coded or challenging to code, including professional technical ability, interpersonal skills, network, management skills, and innovative learning ability. Management ability is more important to managers, front-line operators attach more importance to professional technical skills, creative learning ability is increasingly valued with the advent of knowledge society, interpersonal skills affect the quality of information communication, and they are the source of enterprise cluster emotional interaction and value analysis.

Enterprises cluster depends on the strength of the emotional interaction and value analysis on the status of the enterprise human resources, the so-called " enterprise human resources" [11]; the enterprise human resources refer to an enterprise that is included in the employee working ability of the body, it mainly consists of the enterprise staff's labor quality, production skills, and technology level, human resources are unique resources with high initiative and fertile. Human resources are the primary active factor in production. Although human resources and means of production, capital, technology, and other factors are the same as the production factors of the enterprise, the normal operation of the whole enterprise is indispensable. However, the functions of various factors are different, among which human resources are the first and most decisive and leading factor and are the active factor. The means of production, capital, and technology are all passively used and promoted by human resources [8]. In this sense, the state of enterprise human resources determines the strength of enterprise emotional interaction and value analysis in enterprise clusters.

In recent years, the development practice of industrial clusters around the country shows that industrial clusters not only need the support of a hard environment (perfect infrastructure, convenient transportation conditions, etc.) but also need the support of a soft environment (formal and informal communication between enterprises, social and cultural environment, etc.). As an essential part of the soft environment of industrial clusters, the affective interaction and value analysis mechanism between enterprises play a vital role in developing industrial clusters. With the development of industrial clusters and the change in the economic environment, the emotional interaction and value analysis mechanism among enterprises in clusters also presents a dynamic change and an increasingly perfect trend.

2 RELATED WORK

This paper defines the connotation of emotional interaction and value analysis of cluster enterprises from different perspectives. Scholars who study organizations focus on affective interaction and value analysis of cluster firms and regard it as the organizational control mechanism. Specifically, some scholars believe that affective interaction and value analysis of cluster firms is another way besides price and authority [8]. They study affective interaction and value analysis of cluster firms as a response to the emphasis on opportunism. Some scholars regard the affective interaction and value analysis of cluster enterprises as the key elements of management philosophy and philosophy, and they consider the affective interaction and value analysis of cluster enterprises as the essential cause of the operation of organizational networks [18]. Managers believe that the affective interaction and value analysis of cluster enterprises are the key to establishing supply relationships, and the affective interaction and value analysis of cluster enterprises are the starting point for various working groups, enterprises, customers, and suppliers to enter the problem-solving stage [10]. In the existing research results of organization theory, there is no consistent understanding of affective interaction and value analysis of cluster firms. , among them, the emotional interaction and cluster enterprise value analysis as all social systems allow all forms of the root cause of the risk to existing, cluster enterprise emotional interaction and the degree of value analysis and organization of cluster enterprise emotional interaction and value analysis degree affect the organizational structure and organizational operation, according to the views of two scholars, because of the trustworthy behavior, Transaction costs are reduced [17]. This paper defines affective interaction and value analysis of cluster enterprises: affective interaction and value analysis of cluster enterprises are irrational choices individuals make in the face of an unexpected event where the expected loss is greater than the expected benefit. This definition indicates that rational actors, under the action of some mechanism, will give up a rational choice to pursue the maximization of individual utility and make other choices when the risks brought by uncertainty are difficult to measure accurately; such mechanism is the emotional interaction and value analysis of cluster enterprises. The effective interaction and value analysis mechanism of cluster enterprises makes "rational economic man" generate altruistic motivation, thus changing the efficiency of transactions between economic individuals [9]. Emotion interaction and value analysis of cluster enterprises are two mechanisms that simplify complexity, and these ideas are finally summarized as "social capital." The emotional interaction of cluster enterprises is linked with the economic prosperity of the same country through value analysis, and the former is considered one of the essential reasons for the latter [3]. The relationship between emotional interaction and value analysis of market, hierarchy, and cluster firms is studied deeply. He believes there are three organizational forms and corresponding coordination mechanisms: market/price, hierarchy/authority group/cluster affective interaction, and value analysis. Any real organization combines all three to varying degrees.

From the definition of trust by different scholars above, from the perspective of social science research, the essence of trust is a mechanism, a psychological mechanism, or a control and regulation mechanism. As for the research on the source of trust, according to the characteristics of trust generation in economic structure, he divides trust from the process, trust from characteristics, and trust from the system [12]. In the first model, trust derives from an individual's experience of repeatedly engaging in exchange, and reciprocity is at the heart of the process. The second model, trust based on features, is based on the cooperation cultivated by obligation norms and social similarity. It assumes that someone is reliable or not, often considering his family background, age, social status, race, etc. [2]. This trust model can be generalized and reinforced by ritualistic procedures and symbolic actions emphasizing universal membership and similarity. The third type of trust is institutional trust, which means that trust is closely linked to the formal social structure. It is not difficult to see that trust from the process and trust from characteristics are embedded in the broad context of social relations. They are built based on personal communication and form the basis of personal trust. The criterion for judging industrial clusters is whether the employment numbers of two kinds of economic activities are

correlated in a group of economic activities; that is, they are defined according to the degree of correlation between the employment of different economic activities [6]. When studying the industrial cluster in developing countries and its competitive advantages and development rules, it is defined as the concentration of enterprises in geography and sectors, the existence of a wide range of division of labor among enterprises, and a wide range of specialized and innovative enterprise groups necessary to participate in the competition outside the local market. An industrial cluster is a stable and sustainable collection of competitive advantages formed by many small and medium-sized enterprises and institutions in a specific industry gathering in a particular geographical range [19]. The United Nations Conference on Trade and Development (UNCTAD) classifies industrial clusters according to three standards: the overall level of technology of enterprises in clusters, the extensiveness of changes in clusters, and the degree of cooperation and networking among enterprises in clusters. Clusters are divided into informal clusters, organized clusters, innovation clusters, science and technology clusters, incubators, and export processing zones [7]. According to the inter-industrial connections within industrial clusters, industrial clusters are divided into horizontal and vertical industrial clusters. The industrial cluster is divided into four types: The first is the Marshall type industrial cluster; the Italian type industrial cluster is its variant form; The second is the wheeled industrial cluster, its regional structure around one or more significant enterprises in one or several industries; The third is satellite platform industrial cluster, which is mainly composed of branch factories of multinational companies [13]. Fourth, the country depends on the industrial area. Based on its classification, industrial clusters are divided into Italian industrial clusters, satellite industrial clusters, and wheel-axle industrial clusters, and the characteristics of different types of industrial clusters are analyzed [1].

As for industrial clusters and innovation networks, spatial economics research on the relationship between innovation and regional environment is influenced by other disciplines, such as histology and social sciences. The concepts of transaction cost, cluster, and network are introduced successively, and the relationship between innovation and spatial economic development is placed in an unprecedented position. The theory focuses on the importance of regional economic networks [5]. The enterprise network is a development community formed by many interconnected companies, enterprises, or various units to solve common problems through continuous interaction in a certain period. Borrowing Porter's cluster concept, they believe an enterprise network is several interconnected and continuously interactive organizations, such as certain similar or related enterprises, relevant government departments and agencies, other intermediaries, high-level research institutions, and universities [14]. The cooperative network relationship between SMEs is built on the mutual commitment and trust between network members, which depends on the social relationship between business owners. Therefore, the social relationship between business owners is the main force that maintains the stability of the network [15]. Based on the analysis of the meaning of enterprise cluster, this paper analyzes the unique technological innovation environment and the primary mode of enterprise technological innovation in cluster organization from three levels: macro, medium, and micro.

Improving human resource behavior is an urgent desire for enterprise development and an objective requirement for enterprise survival and development under market economy conditions. Therefore, it is necessary to comprehensively and profoundly analyze and study effective measures to improve enterprise human resource behavior. From the connotation and composition of enterprise human resource behavior and the practical experience of some successful enterprises, developing enterprise human resources comprehensively and systematically is an important measure to improve enterprise human resource behavior. Enterprise human resource development is the development of the intelligence of all employees. The specific content includes three aspects: to inspire and cultivate the intelligence of employees, such as understanding,

thinking judgment, imagination, creativity, etc. The other is to improve the skills of employees (practical operation, the ability to use innovative technology) and the level of scientific technology and cultural knowledge; third, fully mobilize the enterprise staff's work enthusiasm and initiative and cultivate their professional dedication. The first and second aspects mentioned above are the process of cultivating ability and tapping potential, and the third is the process of fully releasing all abilities. As determined by the above development content, enterprise human resource development is a three-dimensional cross-development system, including an enterprise human resource development planning system, enterprise human resource development input-output system, and enterprise human resource development evaluation system. The fundamental purpose of enterprise human resource development is to enhance the enterprise's technological innovation ability through the development of scientific and technological personnel, enhance the enterprise's response-ability, organizational management ability, and marketing ability through the development of management personnel, and enhance the enterprise's production and manufacturing ability and joint serviceability through the development of production workers. Integrating various aspects of ability enhances the enterprise's human resource behavior.

3 EFFECTIVE INTERACTION BETWEEN ENTERPRISES IN INDUSTRIAL CLUSTER BASED ON HUMAN RESOURCE BEHAVIOR

3.1 Industrial Cluster Enterprise Knowledge Framework of Human Resource Behavior

The knowledge alliance, with learning and creating knowledge as its central goal, makes the resources of knowledge form among enterprises and merge to create new value. Among them, some enterprises accumulate unique, innovative knowledge that is difficult for competitors to imitate and integrate with their capabilities to form their core capabilities. Obviously, the knowledge alliance of group enterprises can improve the core competence of enterprises in the cluster and then improve the competitiveness of the whole cluster; the cluster has a competitive advantage that similar clusters do not have. Based on the previous analysis of knowledge accumulation and competitiveness of industrial clusters, the framework of knowledge accumulation of knowledge alliance of industrial cluster enterprises is proposed to improve the competitive advantage of industrial cluster enterprises, as shown in Figure 1[12].

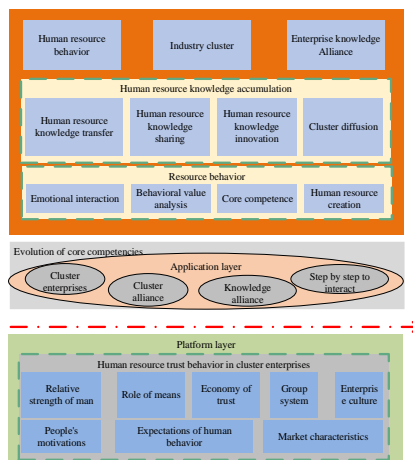


Figure 1: Knowledge accumulation framework of industrial cluster knowledge alliance based on human resource behavior.

As can be seen from Figure 1, the knowledge accumulation framework of industrial cluster enterprise knowledge alliance is divided into two parts, namely, the way of knowledge accumulation and the evolution view of the core competitiveness of enterprise alliance. The knowledge accumulation of industrial cluster enterprise knowledge alliance mainly has the following four ways: knowledge transfer, knowledge sharing, knowledge innovation, and knowledge diffusion, which interact, influence, and promote each other among levels. The total amount and quality of knowledge of alliance enterprises and the whole knowledge alliance will significantly improve through knowledge accumulation. Therefore, on the premise of adapting to the internal and external environment and based on rational application of accumulated knowledge, the industrial cluster enterprise knowledge alliance constantly improves its core competitiveness.

Trust directly affects the scale, organization mode, transaction scope, and transaction form of a social economic entity, and the level of trust between enterprises in a cluster directly determines the cluster's efficiency. According to the level of trust, we can divide economic activities into a low-trust economy and a high-trust economy. Trust affects economic development under the two levels of trust within the cluster (see Table 1).

<i>Factors affecting</i>	<i>Low trust economy</i>	<i>High-trust economy</i>
<i>Motivation of the participants</i>	<i>Economic and opportunistic</i>	<i>Economic, Social</i>
<i>Expectations of player behavior</i>	<i>Pursuing short-term interests</i>	<i>Pursue the long-term</i>
<i>Characteristics of the market</i>	<i>Cause the counterparty power status imbalance</i>	<i>Encouraging trusting behavior reduces information asymmetry</i>
<i>The relative power of the players</i>	<i>Asymmetric</i>	<i>Similar</i>
<i>Role of coercion</i>	<i>Illegal or inefficient</i>	<i>Legal system, high efficiency</i>
<i>Role of Reputation</i>	<i>No</i>	<i>There</i>
<i>The binding force of the group system</i>	<i>Weak, narrow range</i>	<i>Strong, wide range</i>
<i>Possibility of repeated transactions with the same person</i>	<i>Low</i>	<i>High</i>

Table 1: Factors associated with trust level in economic activities.

Enterprise culture construction is an essential content of modern enterprise management. Practice at home and abroad shows that successful enterprises generally have excellent corporate culture. The best predictor of corporate excellence across the board is a company's ability to attract, motivate, and retain talent. Corporate culture is the most essential tool that can be used to strengthen this critical ability. This unique corporate culture has three main points: first, make full use of the core values recognized by employees and in line with the development direction of the enterprise to form a nearly established code of conduct in the enterprise; Second, emphasizes the collaboration and team spirit, build a good interpersonal relationship and close rapport group psychological atmosphere, enhance the collective cohesion, make the staff be in a good mood to work, make the enterprise be "career advancement opportunities," "recognition" and "stay," "treatment retention ": third, emphasize people's philosophy with a level difference. People have different abilities, which leads to a different division of labor. This difference in ability and division of labor leads to other ways of income and significant differences in income. Therefore, enterprises should create an atmosphere of respect for knowledge, respect for talents, and care for talents.

3.2 Three Stages and Game Analysis of Trust Mechanism Among Enterprises in Cluster

As one of the shared resources of industrial clusters, trust among enterprises also conforms to the four characteristics of resources that can bring competitive advantages Peteraf proposed: heterogeneity, post-competition constraint, incomplete mobility, and pre-competition control. Trust among enterprises in industrial clusters is necessary for forming competitive advantages. These four aspects also reflect the form of the Peteraf model of trust satisfaction and the mechanism of influencing the competitive advantage of industrial cluster enterprises.

According to the classification of trust and the frequency of business-centered communication between enterprises in a cluster, we believe that trust in a cluster follows the development trajectory from individual trust to institutional trust. In the early stage of cluster formation, trust among enterprises in the cluster is mainly based on the understanding of personal information, and blood relationships, geography, and business relationships become the basis of trust among enterprises. Cluster is built on a trust mechanism between enterprises based on personal information due to the change in the changes of social and economic environment; in the process of rapid development of the market economy, all kinds of stable, transparent, and predictable rules and regulations, a system based on the trust can produce, and ultimately lead to the original trust between enterprises is growing. As seen from Table 2, the external hard regulation (system and law) and the internal soft regulation (morality and custom) can restrain the opportunistic behavior in the transaction, and the institution-based inter-firm trust becomes the main form of inter-firm trust within the group. In the first stage (see Table 2), any two enterprises in the cluster play a game, assuming that the strategic space of enterprise 1 is {trust, distrust} and that of enterprise 2 is {fraud, no fraud}. In a game, when Enterprise 1 adopts the trust strategy, Enterprise 2 has two methods: fraud and no fraud can be chosen. If enterprise 1 adopts the trust strategy, enterprise 2 can choose either fraud or no fraud. When firm 1 chooses the strategy of distrust, firm 2 gets 0 for cheating or not cheating. Similarly, the benefits of enterprise 1 can be analyzed, and the Nash equilibrium solution of this game can be obtained as (0, 0){distrust, fraud}. In this case, enterprises in the cluster are prone to opportunism, inter-enterprise trust belongs to low trust, and the whole cluster is in a low-efficiency state.

		<i>Enterprise 2</i>	
<i>Enterprise 1</i>		<i>Fraud</i>	<i>No fraud</i>
	<i>Trust</i>	-12,21	12,13
	<i>No Trust</i>	0,5	2,3

Table 2: Prisoner's dilemma of trust game among enterprises in the cluster.

In the third stage, if the system's role is used to guarantee the trust between enterprises in the group and regulate various behaviors of enterprises in the transaction, enterprises will spontaneously adopt non-fraudulent strategies and promote the formation of an inter-enterprise trust mechanism. A slight change to Table 2 (see Table 3), including penalties for fraud, can alter the benefits of players and thus change their strategic choices. Through government legislation or strengthened supervision, we can maintain the fight against fraud and increase the cost of fraudsters. Once the enterprises in the group commit fraud, they will be expelled from the cluster, and the price is big enough to make the enterprises in the group dare not or unwilling to commit fraud in the transaction. The stable equilibrium solution of this game is (0, 13){trust, no fraud}. Currently, the trust between enterprises in the cluster is based on the system's trust. The guarantee function of the system enables enterprises to maintain high trust with each other so that the whole cluster is in a high-efficiency state.

<i>Enterprise 2</i>			
<i>Enterprise 1</i>		<i>Fraud</i>	<i>No fraud</i>
	<i>Trust</i>	0,21	13,12
	<i>No Trust</i>	0,5	0,3

Table 3: Trust mechanism game between enterprises under institutional guarantee.

The game analysis and transfer efficiency analysis of knowledge transfer among alliance members is further studied based on analyzing the general knowledge transfer process. The general knowledge transfer process usually includes the whole process from knowledge source to knowledge collection, completed independently by the knowledge sender and receiver and connected by the intermediary carrier. As knowledge is deeply embedded in the carrier of knowledge, its transfer must be realized through mutual exchange and communication between carriers, as shown in Figure 2. At the same time, knowledge transfer is directional, generally from a high to a low location.

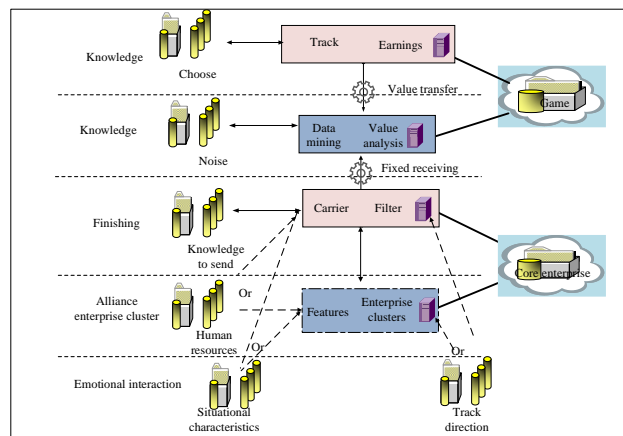


Figure 2: General process of knowledge transfer.

Through the construction of the game model c , the expected profit value of the core enterprise of the knowledge license can be expressed as

$$T_0 = c_0 a_0 t_0 + \sum a_i t_i \tag{1}$$

The expected profit value of the partners can be expressed as

$$T_i c_i a_i t_i + \sum a_i t_i - 0.8 \tag{2}$$

The total revenue R can be expressed as

$$T = d_i a_0 t_0 + 0.6 \sum a_i t_i \tag{3}$$

Given the knowledge transfer effort level of the core enterprise t , all partners will play the Kunott game to determine their effort level T and expected return. Based on this, the objective function of each partner is established, and the corresponding optimization problems are as follows:

$$\max T_i = e_i c_0 t_0 + 0.7 r_i t_i \tag{4}$$

The length of knowledge acquired by a specific knowledge subject per unit of time can be expressed as

$$d_s = n_s \left[\chi_s \sum \varepsilon_i w_i d_i \right]^n \quad (5)$$

Based on the analysis, we can see that the trust game between industrial cluster enterprises has gone beyond the "prisoner's dilemma" of the general trust game between enterprises and reached the Pareto most effective equilibrium under collective rationality, namely (trust, trust). Accordingly, we can obtain the evolutionary model of the trust game among enterprises in industrial clusters, as shown in Table 4.

<i>A/B</i>	<i>Trust</i>	<i>No Trust</i>
<i>Trust</i>	$b + \frac{10}{1-\chi}, b + \frac{10}{1-\chi}$	$2c + \frac{12}{1-\chi}, c + 15$
<i>No Trust</i>	$d + 13, 2d + \frac{12}{1-\chi}$	χ, χ

Table 4: Evolution model of the infinite repeated game of trust among enterprises in the industrial cluster.

Increase investment in human capital. Knowledge and intelligent capital refer to the capital formed by enterprises' expenditure on education and training to improve people's comprehensive quality. It gives longer-term returns than ordinary capital. People regard the investment of intellectual capital as "highly profitable" and the fundamental guarantee of future success. How can enterprises develop talents in advance so that the quality of most employees can be constantly strengthened and improved? The most realistic and fundamental way is to invest in human capital vigorously. Human capital investment, at its core, mainly refers to various expenses for improving the population's or workers' quality. Western modern economists generally believe that human capital formed by human capital investment, like physical capital, is the main factor of economic growth, and its contribution to economic growth is more significant than that of physical capital.

4 EXAMPLE VERIFICATION

Human resource development systematically develops people's abilities through various methods and approaches to achieve organizational and individual goals more effectively. Some developed countries have changed their personnel departments to human resource development departments because they realize that "people" are a kind of "resource" that can and must be developed. In the past, personnel departments only passively "manage" people, but now they realize that they must train, educate, and create "people" to improve and give full play to their potential. In the era of the knowledge economy, using humans must be combined with continuous training and development. Only by transforming human resources into human capital through development can enterprises remain prosperous and develop continuously in fierce competition.

Then, exploratory factor analysis is conducted using the measurement terms of each variable in the small sample data. Principle Component analysis of factor analysis is adopted in SPSS13.0. The rotation mode of the factor is direct rotation, i.e., the rotation mode of maximum variance. The eigenvalue greater than 1 is taken as the criterion of factor extraction. Exploratory factor analysis is used to find out whether there are some specific patterns among the terms and explore whether some of the terms can be grouped into common factors to find the variables suitable for the classification of the study.

In the small sample pre-test study, the enterprise sample was randomly selected, 80 questionnaires were sent out, 76 were recalled, and 31 valid questionnaires were screened. The variables in the model are analyzed, including information, knowledge, ability, dimension variables of network structure, enterprise competitiveness variables, and enterprise performance variables. Enterprise information, knowledge, ability, and network structure of the variable measurement results. Firstly, the reliability and validity of the variables of enterprise information, knowledge, ability, and network structure of value net are analyzed. Since the research object of this paper focuses on the information, knowledge, ability, and network structure among enterprises, the variables of previous information, knowledge, ability, and network structure are discussed to ensure the study's rigor. Factor analysis validation was performed. The following are purification and reliability analyses of the measurement terms in the streamline variables individually. The purification and exploratory factor analysis of the scale of information, knowledge, capability, and network structure among value-net enterprises are shown in Table 5.

<i>Measurement terms</i>	<i>Initial emotional interaction</i>	<i>And finally, emotional interaction</i>	<i>Value analysis coefficient after deletion</i>
<i>Product data</i>	.329	.345	.734
<i>Customer information</i>	.348	.346	.722
<i>Management process</i>	.324	.338	.693
<i>Technology patent</i>	.431	.394	.712
<i>Trick experience</i>	.379	.382	.703
<i>Researchers use</i>	.041	.373	.706
<i>Intellectual development</i>	.411	.404	.696
<i>Repeated use</i>	.553	.539	.715
<i>Technical improvement</i>	.365	.448	.694
<i>To mobilize resources</i>	.524	.513	.705
<i>To do business</i>	.320	.334	.696
<i>Cooperation of mouth</i>	.369	.383	.685
<i>Ac frequency</i>	.364	.434	.674
<i>Number of partners</i>	.348	0.346	.783

Table 5: Emotional interaction and value analysis of inter-enterprise information, knowledge, capability, and network structure scale.

The questionnaire's statistical results, arranged systematically through interview records and statistical processing, show that among the selected factors restricting the development of enterprises in Western China, lack of talent and innovation ability are the most prominent obstacles, as shown in Figure 3.

As shown in Figure 4, the main reasons restricting the innovation activities of sentiment analysis in Western cluster enterprises are the need for more R & D personnel and funds. The total index of affective interaction innovation of cluster enterprises in eastern China is far ahead, and the average innovation index in 10 provinces and cities east of China is 40.29. The innovation index of northeast and central China is in the middle. The average value of the innovation index of

the three northeast provinces is 18.57, and the average value of the innovation index of the six central provinces is 13.6.

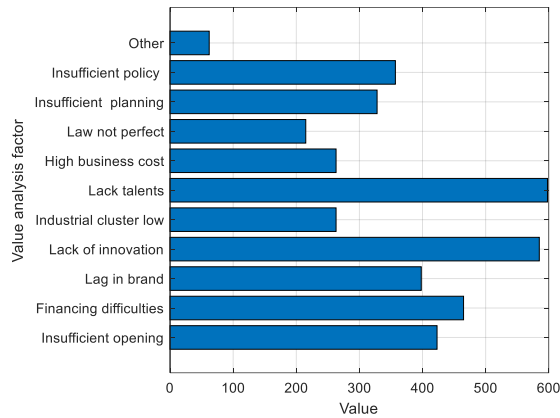


Figure 3: Main factors restricting the value analysis of Western cluster enterprises.

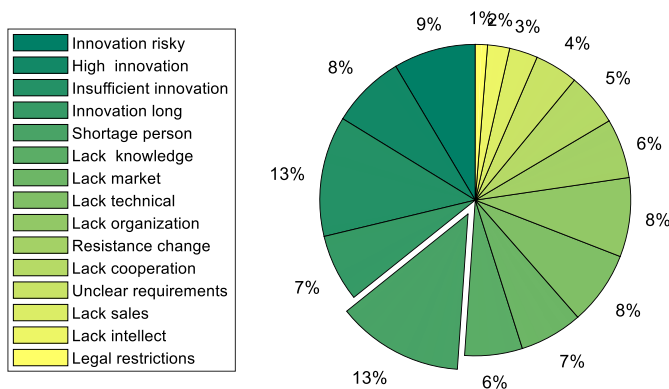


Figure 4: Reasons that restrict cluster enterprises' affective interaction innovation activities.

The effective interaction innovation index of cluster enterprises in western China is the lowest, and the average value of the total innovation index in 11 provinces and cities (without Xizang data) is only 11.3. To be more specific, the average innovation resource index, innovation input index, innovation transformation index, and innovation output index of the western Region are 5.3, 14.2, 4.8, and 18.2, all lower than those of the eastern Region, northeast Region, and central Region, as shown in Figure 5.

In the affective interaction and value analysis of cluster enterprises, R&D activity is the essential core position, and R&D expenditure is the main index to measure the investment of science and technology capital. According to the proportion of R&D in the GDP of each province in China, the proportion of R&D in the GDP of the western Region is lower than that of other regions, and the increase is slow, as shown in Figures 6 and 7.

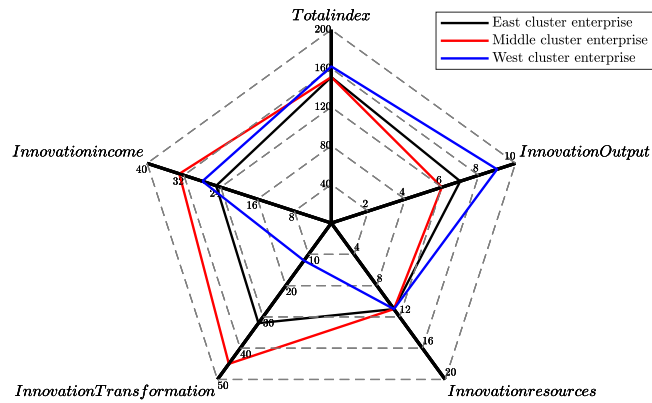


Figure 5: Index chart of affective interaction value innovation ability of cluster enterprises in four regions.

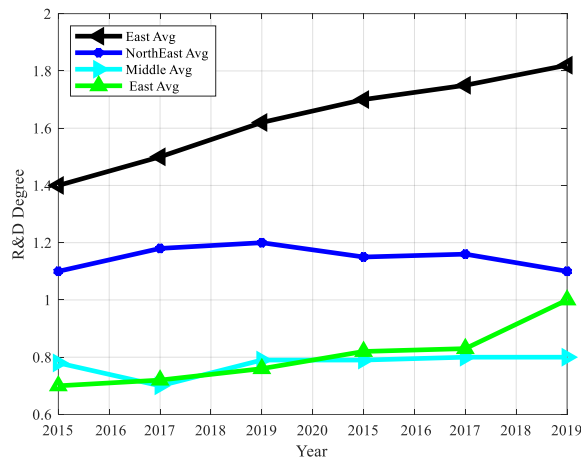


Figure 6: Proportion of affective interaction and value analysis R&D of cluster enterprises in four regions.

Evaluate the value of human capital and play the role of incentive mechanism. Enterprises bring production factors such as technology and knowledge management into income distribution and establish an effective incentive mechanism, an important measure to transform human resources into human capital. Enterprises should follow the law of talent growth, deal with the relationship between spiritual encouragement and material encouragement, and encourage talents to combine their career with the development of the enterprise organically to inspire employees to release their maximum potential. Many enterprises only treat talented workers as senior workers, and the incentive mechanism is only realized in salary. After all, these talents have created massive wealth for the enterprise with their knowledge or management ability. A simple salary

reward can easily cause psychological imbalance. For the incentive of human capital, economic incentives can be adopted.

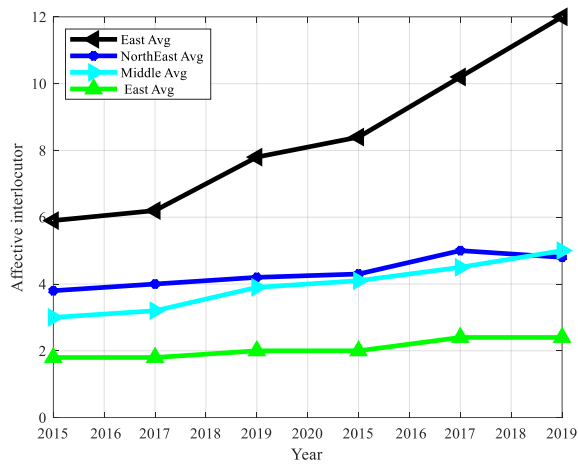


Figure 7: Average emotional interaction personnel of cluster enterprises in four regions.

5 CONCLUSIONS

The efficiency of the cluster depends on the high degree of trust among enterprises in the cluster, and the cluster's healthy development depends on the cluster's efficiency to a certain extent. The trust in the cluster shows a dynamic development process from individual to institutional trust. Industrial cluster development practice shows that with the increase of cluster companies' trading frequency, the accumulation of trading information and internal regulations, the cluster system is increasingly perfect, and the trust mechanism between enterprises present from personal trust to trust system transition process of dynamic development, the development process is the process of trust level in nature. Individual trust and institutional trust are not mutually antagonistic but mutually promoting. Personal trust is based on the static interpersonal network relationship, while institutional trust is trust that depends on the dynamic interaction between enterprises. In forming the trust mechanism of the enterprise cluster, we should strengthen the construction of laws and regulations, build a legal government with a high degree of trust, and increase the punishment for dishonest and fraudulent behavior. At the same time, we should improve the regional brand awareness through the "location brand effect" so that the trust mechanism of the cluster can be maintained. The cluster needs to obtain a lasting competitive advantage and enhance its competitive advantage trust mechanism. The next step is based on the value creation model of difficult transferable resource sharing, which is suitable for tacit knowledge and capabilities. This mode, through the mobilization of value network resources, the activation of internal capacity resources, and the integration of internal and external capacity resources, leverages their ability to engage in one or more businesses through economies of scale or economies of scope to create value to create value. Network structure influences the value creation of shared resources by increasing cognitive capital and enhancing member firms' resource acquisition ability and resource acquisition opportunities. Through the lens of emotional analysis, AI offers a nuanced understanding of the dynamics shaping teamwork, communication, and decision-making within medical research clusters. This insight empowers organizations to identify and address barriers to collaboration, enhance team cohesion, and foster environments conducive to breakthrough discoveries.

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