ISSN 2706-6827 Vol. 3, Issue 12: 59-68, DOI: 10.25236/IJFS.2021.031209

An Empirical Study on the Innovation Performance of Regional (Enterprise) by Dual Network Embedding in E-commerce Environment

Li Zhang

School of Economics and Finance, Zhanjiang University of Science and Technology, Zhanjiang 524084, Guangdong, China
384712224@qq.com

Abstract: *With the help of the Internet technology platform and relying on the huge economic dividend of the network population, the Chinese e-commerce economy has rapidly emerged and developed. However, after experiencing the initial barbaric growth, in the face of the economic new normal e-commerce economy, there is a dilemma of rapid development, a lack of rational development rules, and a vulgarization of marketing strategies. The purpose of this paper is to analyze the influence of dual network embedding on the innovation performance of e-commerce enterprises from the two dimensions of relationship and structure. This paper takes some e-commerce companies in a city as the empirical object, and discusses the influence of e-commerce enterprise's network embedding characteristics on the innovation performance of enterprises from the perspective of social network. Through the analysis of reliability and validity, the absorption capacity is embedded in the network and the enterprise. The role of partial intermediation in innovation performance, the correlation coefficient of relationship embedding, structure embedding, absorptive capacity and innovation performance is 0.328, 0.243, 0.642, and the significance of the test is P<0.01, indicating that the significance level is 0.01. Relationship embedding, structure embedding, absorptive capacity and innovation performance are significantly positively correlated. Dual network embedding has a significant positive impact on the innovation performance of e-commerce companies.*

Keywords: *Dual Network Embedding, Absorptive Capacity, Innovation Performance, E-commerce Company*

1. Introduction

In the past ten years, the rapid rise and development of China's e-commerce economy has led to earth-shaking changes in China's economic structure. From the previous offline transactions, it has gradually transformed into online transactions, and also for people's life shopping. It also brings great convenience [1]. However, the growth rate of e-commerce is now slowing down and has entered a "new normal" different from the past. In the early stage of formation, most e-commerce platforms will be carefully packaged and truly publicized. In the meantime, the products they sell are of high quality and low price, and the promised service is in place, which is highly praised by consumers [2-4]. However, in the expansion of scale, in order to pursue more profits, many e-commerce companies have begun to enter the development model of quick success and instant benefit, and the proliferation of fakes and fraud. Due to the scale of the development of the platform, marketing and fraudulent transactions have caused consumers to complain when they encounter fraud, thus making the development of e-commerce into a bottleneck. For e-commerce companies, the Internet economy is not an enlightenment period, and it is difficult to rely on marketing methods that attract eyeballs and encourage experience [5-8]. For example, the explosive “Double Eleven” marketing campaigns of the past few years have almost erased the demographic dividend of the Internet economy. E-commerce needs to solve not only to increase the number of sales, but also to pay attention to how to maintain customer stability and form a durable, profitable sales model [9-11]. Although e-commerce has developed rapidly in China and achieved remarkable results in the world, in the course of its development, many enterprises have taken advantage of institutional defects and regulatory loopholes in market operations, embarked on a development model of quick success and instant benefit, and violated the law of development. Abandon the essence of traditional Chinese business culture. Once the market supervision system is perfect, the current development model of many e-commerce companies

ISSN 2706-6827 Vol. 3, Issue 12: 59-68, DOI: 10.25236/IJFS.2021.031209

will be difficult to maintain [12-13].

The study found that the acquisition of knowledge resources plays an important role in improving the innovation ability and competitiveness of enterprises. Embedding various knowledge networks can provide enterprises with various knowledge resources needed for development [14]. In the ever-changing market environment, the complexity of the enterprise innovation process has increased, and the innovation behavior has become a complex network behavior that interacts with many factors. The innovation network formed by the connection between different innovation entities has become an important organizational form for enterprises to carry out innovation activities [15-16]. Some companies join the innovation network under a formal institutional framework, while others are embedded in the innovation network in informal contacts, establishing contacts through formal or informal relationships and acquiring and transferring knowledge and information from them, Enterprises have limited innovation and innovation resources. They need to integrate the internal and external resources of the organization through network embedding, social interaction with the outside world in the process of innovation, and continuously improve their innovation ability and innovation performance, this is especially true for e-commerce companies [17].

Wang's team explored the two methods of classification in existing network embedding methods. The technical taxonomy focuses on the specific technology used. The representation of nodes in the learning network can benefit various analysis tasks, such as node classification, link prediction , clustering and anomaly detection, this representation learning problem is called network embedding, and has drawn great attention in recent years. And the existing network embedding method at that time was divided into two phases, namely context construction and target design. The non-technical taxonomy focuses on problem setting and classifies existing work based on whether special network attributes are retained, special network types are considered, or other inputs are combined. Finally, they summarize the main findings based on the two classifications, analyze their usefulness, and discuss the future direction of the field [18]. Peng's team classified and reviewed the network embedding methods and then pointed out its future research directions. They first summarize the motivation of network embedding, and discuss the classic graph embedding algorithm and its relationship with network embedding. They then systematically presented a comprehensive overview of a number of network embedding methods, covering structure and attribute retention network embedding methods, network embedding methods with ancillary information, and advanced information retention network embedding methods. In addition, they reviewed several evaluation methods for network embedding and some useful online resources, including network data sets and software. Finally, they discussed the framework for building effective systems using these network embedding methods and pointed out some potential future directions [19]. Zheng's team studied the problem of integrating structure and attribute information for network embedding. Since structure and attributes are two different types of information, they are preprocessed using multi-mode learning methods and help the model better capture node structure. Correlation with attribute information. They use structural proximity and attribute proximity in the loss function to preserve individual features and obtain representation by minimizing the loss function. The results of extensive experiments on four real-world datasets show that the performance of this method is significantly better than baseline in various tasks, which proves the effectiveness and universality of the method [20].

This paper studies the innovation performance of e-commerce enterprises from the perspective of the social network in which e-commerce companies are located. Most of the current e-commerce companies research on the efficiency of the whole network from a macro perspective, and the e-commerce innovations given. The measures for performance improvement lack individual pertinence. This paper introduces absorptive capacity as a mediator variable. Through the test and analysis of reliability and validity, it is concluded that absorptive capacity plays a partial intermediary role between network embedding and enterprise innovation performance. The discussion of relationships shows that there is a significant positive correlation between relationship embedding, structural embedding, absorptive capacity and innovation performance. Dual network embedding has a significant positive impact on the innovation performance of e-commerce companies. Moreover, the absorptive capacity has a significant intermediary role in the innovation performance of enterprises, and has a strong operational and guiding significance for improving the innovation performance of e-commerce enterprises.

ISSN 2706-6827 Vol. 3, Issue 12: 59-68, DOI: 10.25236/IJFS.2021.031209

2. Proposed Method

2.1. Network Embedding

Embeddedness means that economic actions and their consequences are influenced by the relationship between the actors and the entire network. The earliest and most traditional classification of network embedding is divided into relational embedding and structural embedding. The relationship embedding is mainly measured from the content, direction and reciprocity of the relationship; the structural embedding is from the network scale, density, location in the network to measure. In the process of economic theory analysis, the earliest scholars who studied embeddedness pointed out that the human economy is embedded and entangled in economic and non-economic systems. The three forms of economic activity, such as reciprocity, redistribution and exchange, are different in different institutional environments. This view emphasizes the relationship between embeddedness and the institutional environment. Since then, the theory of embeddedness has not received enough attention from the academic community. It was not until 1985 that a scholar pushed the theory of embeddedness to new heights and fields. Economic activity is determined by the interaction process within the social network, that is, economic behavior is embedded in a specific social relationship. This discourse makes embedded theory a bridge between economics, sociology, and organizational theory. In the theoretical analysis framework, embeddedness can be divided into two dimensions: structural embeddedness and relational embeddedness. Among them, structural embedding refers to the objective connection structure between people or organizations, reflecting the relative position of enterprises in the network, and is influenced by factors such as the overall culture and values of society.

As an important tool for enterprise network research, network embedding can analyze how a company is embedded in a network formed by different organizations, and then study how the relationship embedded in the network and its location and structure affect corporate behavior and Innovation performance. Embedding is divided into two types: relationship embedding and structure embedding. Relationship embedding means that actors can obtain information benefits through interconnections between nodes in the network; structure embedding refers to the difference in information advantages of different nodes in the network due to different locations, emphasizing the impact of network density and the location of the enterprise in the network.

Relational embedding means that economic actors are embedded in the network of relationships in which they are located and are influenced by the network of relationships that also determine the economic behavior of the parties. Relationship embedding represents the quality of the transaction relationship of the partners, that is, the extent to which the action party considers the needs and goals of the other party, mainly represented by trust and information sharing. According to the research and definition of relationship embedding by scholars, the relationship embedding is defined as a kind of e-commerce enterprise and customers and other related enterprises, including technology providers, suppliers, which have cooperation with enterprises. Network relationships, which attach great importance to the quality of relationships, the frequency of interactions, and the persistence of cooperation.

Structural embedding refers to the overall network structure and layout, and the way in which the distribution structure affects individual behavior. Structure embedding provides a more efficient way to transfer information between member companies. Structural embedding mainly emphasizes the analysis of the social structure reflected by the interaction and interaction between different actors from the perspective of network location. The determinants of embedding include: environmental uncertainty, frequency of transactions between firms, complexity of tasks, and asset specificity. As a kind of network structure, structure embedding mainly emphasizes the overall structure of the interconnection between network members, focusing on the network density of the network in which the enterprise is located, and the different impacts of different network locations on the behavior and innovation performance of the enterprise. The measurement of structural embedding is mainly carried out by measuring the position of the enterprise in the whole network, the scale and density of the relationship, and the variable indicators include three factors: centrality, network density and network size.

2.2. Innovation Performance

Innovative entities in the innovation network are characterized by diversity, including research institutes, universities, governments, intermediaries, and even individuals. The definition of innovation

ISSN 2706-6827 Vol. 3, Issue 12: 59-68, DOI: 10.25236/IJFS.2021.031209

performance in the existing research is mainly divided into three types. The first viewpoint focuses on the micro-level explanation of the behavior process of enterprise employees to maintain competitive advantage, to continuously acquire and share knowledge and to grow; the second view is that innovation Performance is an indicator of organizational profit and describes the extent to which profitable output targets are achieved through innovative activities. Some scholars believe that innovation performance is a description of the whole process from the generation of an innovative idea to the market output, including the initial creation of ideas, research and development, product trials and new product manufacturing links; the third view is that innovation performance it is a combination of organizational innovation activities and the innovation environment. At present, "innovation performance" is a term used to evaluate enterprise technology innovation activities. It believes that innovation performance is similar to organizational performance and financial performance. It is an evaluation of the efficiency and effectiveness of business operations, namely innovation. Performance generally refers to the evaluation of the efficiency and effectiveness of an enterprise's technological innovation activities. I believe that the source of the improvement of corporate innovation performance is not only in the internal research and development of the enterprise, but also in the absorption and utilization of external knowledge in the interaction process between enterprises.

2.3. Network Embedding and Innovation Performance Relationship

Many scholars at home and abroad have studied the relationship between network embedding and corporate innovation performance. At present, most of the relevant researchers are from the relationship dimension and structural dimension. Some scholars also consider the influence of external network heterogeneity on the innovative behavior mechanism. Some scholars have established a theoretical model of network embedding, learning ability and technological innovation performance, used learning ability as a mediator variable to verify that network relationship embedding has a direct and significant positive impact on technological innovation performance. These scholars generally believe that enterprises from the external environment the ability to acquire resources affects the innovation performance of the enterprise, so the ability to acquire valuable new knowledge from the external environment through the enterprise network is directly linked to the innovation performance of the enterprise, that is, the innovation capability of the organization and the social network within and outside the organization. closely related. Social networks are structures in which members of the network continue to acquire new information, heterogeneous resources, and extensive social support to better identify and exploit opportunities. The reason why enterprise networks promote the decision-making process of member companies is that the enterprise network expands the source of information of members and speeds up the information processing process, resulting in a reduction in bounded rationality. The size of the organizational development space depends on the location in the external social network structure in which it is located. An organization occupies a good position, and it is easier to obtain more information than other organizations, so that there is better Create opportunities and an innovative environment. Some scholars believe that a diverse network can provide a diverse source of information. Social networks can promote innovation, spread risk, provide competitive advantage, create opportunities, and facilitate information search and social support. Scholars have conducted some research on the relationship between network embedding and enterprise technology innovation performance. For example, a survey of British manufacturing companies found that companies that access resources through the network have achieved better performance than independent and innovative companies. Some scholars believe that relationship embedding can influence the knowledge acquired by enterprises in the network and affect innovation performance. Some scholars have found through research on pharmaceutical companies that the strong connection of enterprise networks can promote knowledge transfer and improve the ability of technological innovation. The longer the connection time, the more active the impact of network relationship embedding on enterprise technology innovation. Some scholars have found that the two dimensions of network embedding can influence the technological innovation of enterprises through two types of learning. The existing research shows that network embedding has an important impact on the technological innovation performance of enterprises, but most of the research is from the perspective of relationship embedding. The research on the relationship between structural embedding and performance is relatively rare, while considering the relationship embedding and structure embedding. Research on the impact of sexual interaction on the performance of technological innovation is even rarer. At the same time, in the study of relationship embedding, few scholars classify the types of networks embedded in enterprises, and there is a lack of consideration of the impact of different types of network embedding relationships on the performance of enterprise technology innovation. Therefore, it is necessary to explore the differential impact of different types of network embedded relationships

ISSN 2706-6827 Vol. 3, Issue 12: 59-68, DOI: 10.25236/IJFS.2021.031209

on the performance of enterprise technology innovation, and to study the impact of the interaction between network embedded relationship dimensions and structural dimensions on the performance of enterprise technology innovation. The characteristics embedded in the network restrict the acquisition and utilization of resources by the enterprise, which in turn affects the behavior of the enterprise. Finally, this influence will bring differences in enterprise performance and competitive advantage.

3. Experiments

3.1. Dataset Source

In this study, some e-commerce companies in a city were selected as research objects. In view of the research at the enterprise level, the corresponding data was obtained in the form of questionnaires, and the sample data was collected through a combination of field investigation and network survey.

A random sample was taken to determine whether the respondents were employees with more than 2 years of work or middle-level managers. A total of 200 questionnaires were distributed, of which 50 were field surveys, 150 were network surveys, and 173 were field surveys and network surveys. The recovery rate was 86.5%. After removing the unqualified questionnaire, 149 valid questionnaires, the effective recovery rate was 74.5%.

3.2. Research Methods

(1) Measurement variables

In order to test the impact of network embedding on the innovation performance of e-commerce enterprises, six variables that reflect the characteristics of e-commerce enterprise networks are selected. The relationship embedding is mainly measured by three variables: relationship strength, relationship persistence and relationship quality. Structural embedding is mainly measured by three variables including centrality, network density, and network size. The measurement of mediator variables is absorptive capacity. This study divides absorptive capacity into knowledge acquisition and knowledge integration. Knowledge integration is measured by both socialization ability and cooperation ability.

(2) Questionnaire design

After measuring the variables, we design the problem of reflecting the variables into a questionnaire. The problem of measuring the relationship strength is “the frequency of communication with the main business partners is very frequent”; the problem of measuring the relationship persistence is “the long time of cooperation with the main business partners the problem of measuring the quality of relationships is that “the degree of satisfaction, trust and commitment with major business partners is very high”; the measure of network centrality includes “the knowledge and technology of the enterprise is highly recognized in the network”; the measure of density includes “more than the peers in the same industry in the network, and the peers that are connected with your company”; the measurement of network scale is mainly through “a large number of competitors, suppliers and customers who exchange knowledge with enterprises” to represent. The measurement of the explanatory variables mainly includes five small items, which are the sales ratio of new products, the success rate of innovative products, the ability of technological innovation, the ability of market innovation and the ability to manage innovation. Knowledge acquisition is the measurement of technical knowledge, product development knowledge and knowledge related to enterprise management learned by the company from the cooperative enterprise. The topic of measuring socialization ability is "the rules and regulations of the company must be implemented through the joint discussion of all employees. The employees of this company have a strong sense of recognition of the company's culture. The employees of this company are willing to accept the company's existing rules and regulations and culture." The topic of cooperation ability is "the company's products need to be co-operated in many aspects to be completed. The degree of coordination between the various departments of the company is very high, and employees can get support from other departments or personnel when they need help."

(3) Reliability and validity test

The assessment of the quality of the scale is usually based on both validity and reliability. Validity is usually defined as the correctness of the measurement, or whether the gauge is capable of measuring the underlying concept it is to measure. The reliability and validity of the reliability test questionnaire data, that is, the degree of consistency of the results obtained by the measurement. The SPSS23.0 is

ISSN 2706-6827 Vol. 3, Issue 12: 59-68, DOI: 10.25236/IJFS.2021.031209

used to test the reliability of the relationship embedding, structure embedding, absorptive capacity and innovation performance.

4. Discussion

4.1. Reliability and Validity Analysis

(1) Reliability analysis

Table 1: Data reliability test results

Variables and indicators	Subject number	Cronbach'sα
Relationship embedding	V1-V3	0.782
Structure embedding	V4-V6	0.778
Network embedding	V1-V6	0.910
Knowledge acquisition	V7-V9	0.729
Knowledge integration	V10-V12	0.763
Absorptive capacity	V7-V12	0.825
Innovation performance	V13-V17	0.943

In the likert scale, the reliability test is usually evaluated by the coefficient of consistency, the "Cronbach's a" value.In the relevant research, the acceptance values adopted by most experts are above 0.7, and the reliability analysis is carried out for the seven variables of the four variables of relationship embedding, structural embedding, absorptive capacity and innovation performance, as shown in table 1 and As shown in figure 1, the independent variable network embedding, the intermediate variable absorption ability, the dependent variable enterprise innovation performance and the reliability coefficient of each measurement factor reliability are all above the acceptable level of 0.7. This shows that the data is stable and reliable, with high reliability, and can be further analyzed based on this data.

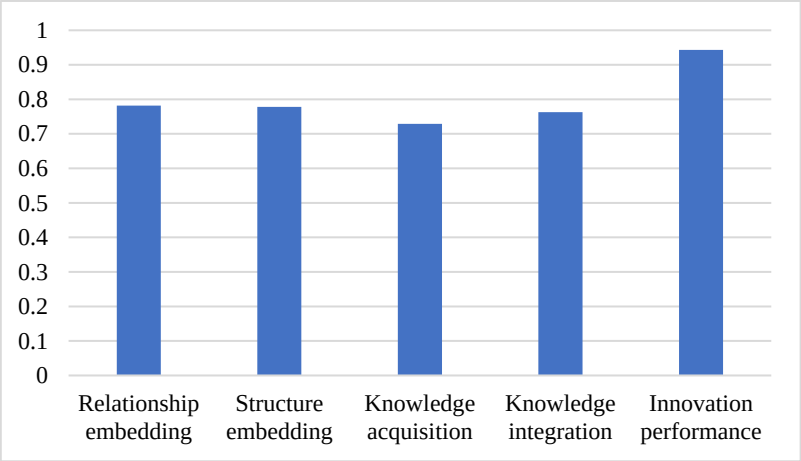

Figure 1: Data reliability Cronbach's alpha value

(2) Validity analysis

The validity of the questionnaire is mainly tested from the following two aspects. (1) In terms of content validity, the questionnaires of this study mainly come from foreign relatively mature scales. Before finalizing the questionnaire items, i revised the unreasonable content of the project by conducting pre-tests and consulting relevant experts. The project with relatively low partial load is reduced, which ensures the good content validity of the questionnaire. (2) We use confirmatory factor analysis to verify the structural validity of the measurements and test the construct validity,as shown in table 2 and figure 2, factor analysis is a common method for testing structural validity. The main principle of this method is that if the common factors can be effectively extracted from the obtained data and the extracted common factors just meet the previous theoretical framework, it can be concluded that the measurement tool has a relatively structural validity. According to the empirical judgment method, under the significance probability of the statistical value of the Bartlett sphere test is less than 5% (significance level), the following label is usually used: the KMO value is above 0.9, which means that it is very suitable; the KMO value is 0.8-0.9. Suitable; KMO value of 0.7-0.8 means suitable; KMO value of 0.6-0.7 means less suitable; KMO value of 0.5-0.6 means very reluctant; KMO

ISSN 2706-6827 Vol. 3, Issue 12: 59-68, DOI: 10.25236/IJFS.2021.031209

value of 0.5 or less means unsuitable.

Table 2: Analysis of data validity results

Variables and indicators	Item number	KMO	Factor component 1	Factor component 2
Network embedding	V1	0.834	0.778	0.254
	V2		-0.075	-0.579
	V3		0.775	0.019
	V4		-0.517	0.160
	V5		0.029	0.767
	V6		-0.141	0.603
Absorptive capacity	V7	0.782	0.027	0.524
	V8		0.889	-0.020
	V9		0.571	0.243
	V10		-0.013	0.856
	V11		-0.016	0.729
	V12		0.904	0.086
Innovation performance	V13	0.756	-0.058	0.918
	V14		0.584	0.477
	V15		0.844	0.016
	V16		0.476	0.427
	V17		0.887	0.017

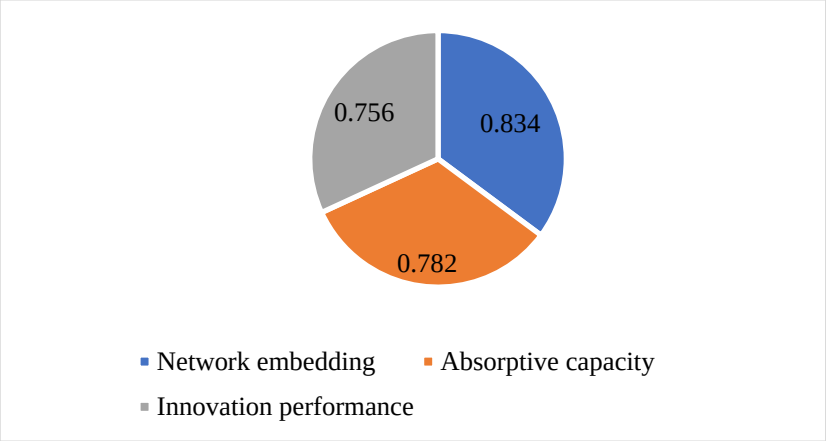

Figure 2: Data validity KMO value

Factor analysis of the six topics in the network embedded scale shows that KMO=0.834>0.7, and the statistical probability of the Bartlett sphere test is 0.000<0.05, indicating that the data is suitable for factor analysis. Taking the principal component with eigenvalue greater than 1 as the factor, according to the variance contribution rate in the overall interpretation of the variance, two factors are extracted, and the cumulative interpretation rate of the total variable is 63.197%, which is named as relationship embedding, structure embedding, and indicator setting. The variable structure is basically the same, indicating that the setting of the network embedded scale has the construct validity and passes the validity test.Factor analysis of the six questions of the Absorptive Capacity Scale shows that KMO=0.782>0.7, indicating that the data is suitable for factor analysis, and two factors are extracted. The cumulative interpretation rate of the total variables is 63.931%, which is called knowledge acquisition. Knowledge integration is basically consistent with the variable structure when setting indicators, indicating that the setting of the absorption capacity scale has construct validity and passed the validity test. Factor analysis of the five topics of the innovation performance scale shows that KMO=0.756>0.7, which indicates that the data is suitable for factor analysis, and two factors are extracted. The cumulative interpretation rate of the total variables is 66.471%, which is named as technological innovation. Management innovation is basically consistent with the variable structure when the indicator is set, indicating that the setting of the absorption capacity scale has construct validity and passes the validity test.

ISSN 2706-6827 Vol. 3, Issue 12: 59-68, DOI: 10.25236/IJFS.2021.031209

4.2. Analysis of Network Structure, Absorptive Capacity and Innovation Performance

(1) Correlation analysis of relationship embedding, structure embedding and innovation performance and absorptive capacity

In order to better complete the various analyses, the data is pre-processed, and the measurement data of the absorptive capacity is converted. Through the factor analysis, the scores of the factors and the factor load are respectively added and the new variables are added to obtain the new variables. Instead of data on knowledge acquisition and knowledge integration, innovation performance, relationship embedding, and structural embedding are handled in the same way.The purpose of Pearson correlation analysis is to check whether there is mutual influence between variables, and to reflect the possibility of interaction between variables. Through correlation analysis, it can be judged whether the hypothesis is established. The relationship embedded in the factor analysis, structure embedding, absorptive capacity, and innovation performance factor are obtained. As shown in table 3 and figure 3, the extracted common factors are analyzed by SPSS23.0.

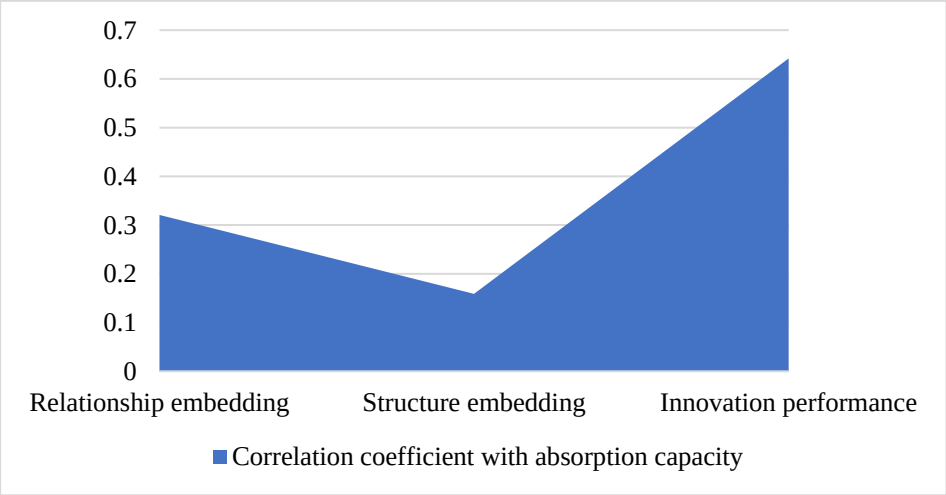

Figure 3: Correlation coefficients for relationship embedding, structural embedding, and innovation performance and absorptive capacity

Table 3: Correlation analysis results

Project		Relationship embedding	Structure embedding	Absorptive capacity	Innovation performance
Relationship embedding	Pearson	1			
	Significant (bilateral)				
	N	197			
Structure embedding	Pearson	0	1		
	Significant (bilateral)	0.852			
	N	196	196		
Absorptive capacity	Pearson	0.321	0.159	1	
	Significant (bilateral)	0	0		
	N	196	196	196	
Innovation performance	Pearson	0.328	0.243	0.642	1
	Significant (bilateral)	0	0	0	
	N	196	196	196	196

Through the correlation analysis results, the correlation coefficients of relationship embedding, structure embedding, innovation performance and absorptive capacity are 0.321, 0.159, 0.642, and the significance of the test is $P<0.01$, indicating that their correlation coefficients are significantly different. That is to say, at the level of significance of 0.01, relationship embedding, structure embedding, innovation performance and absorptive capacity are significantly positively correlated.

(2) Correlation analysis of relationship embedding, structure embedding and absorptive capacity and innovation performance

Through the correlation analysis results, the correlation coefficients of relationship embedding,

ISSN 2706-6827 Vol. 3, Issue 12: 59-68, DOI: 10.25236/IJFS.2021.031209

structure embedding, absorptive capacity and innovation performance can be 0.328, 0.243, 0.642, and the significance of the test is P<0.01. It shows that their correlation coefficient is significantly different from 0, which means that the relationship embedding, structure embedding, absorptive capacity and innovation performance are significantly positively correlated at the level of 0.01, as shown in figure 4.

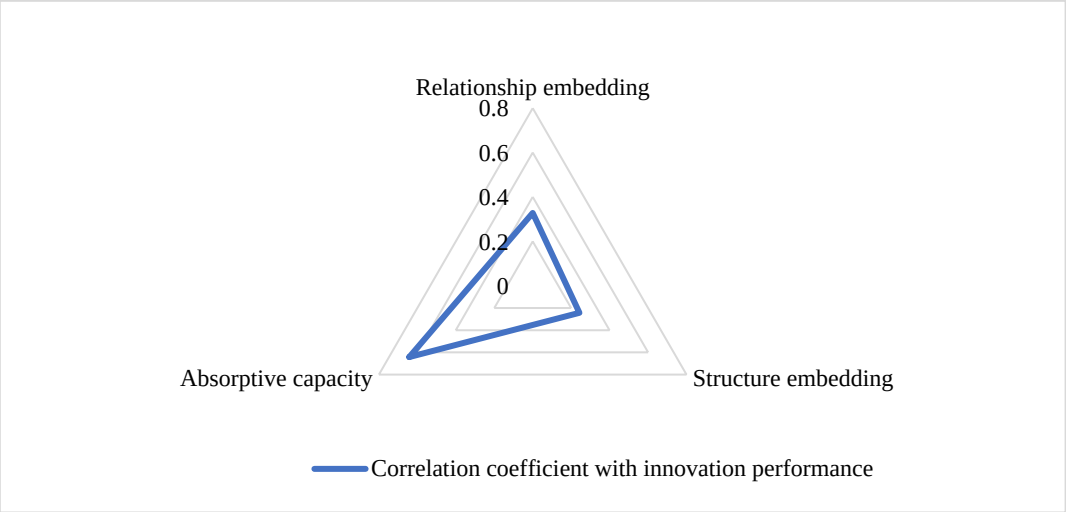

Figure 4: Correlation coefficients for relationship embedding, structural embedding, and absorptive capacity versus innovation performance

Through the analysis of the correlation coefficient, we can see that the relationship embedding has a significant positive impact on the innovation performance of e-commerce enterprises. Structural embedding has a significant positive impact on the innovation performance of e-commerce companies. Network embedding has a significant positive impact on the innovation performance of e-commerce enterprises through absorptive capacity. Absorptive capacity plays a part in mediating the influence of network embedding and innovation performance.

5. Conclusions

By exploring the relationship between dual network embedding and enterprise performance, this paper mainly draws the following conclusions: the e-commerce enterprise's network embedding characteristics promote the knowledge acquisition and knowledge integration among cooperative enterprises and improve the innovation performance of the enterprise. Relationship embedding has a significant positive impact on the innovation performance of e-commerce enterprises. Structure embedding has a significant positive impact on the innovation performance of e-commerce enterprises. Network embedding has a significant positive impact on the innovation performance of e-commerce enterprises through absorption capacity. Absorptive capacity plays an intermediary role in the impact of network embedding and innovation performance.

Through empirical analysis, we can increase the degree of trust in the network in the long-term interaction of the enterprise, and the network members can improve their trust and facilitate the dissemination of various knowledge. The higher the position of the enterprise in the network, the greater the advantage of acquiring resources, which obviously occupies the information advantage, and it is easier to obtain innovative benefits in the network, which is conducive to improving product competitiveness and market share. Enterprises with strong dynamic learning ability can identify, learn, transform and apply knowledge, respond quickly to the external market environment, which is conducive to improving the innovation performance of enterprises, making the company more widely connected and acquiring more knowledge. Helps organizations to continuously acquire and integrate knowledge.

The absorptive capacity of enterprises plays a mediating role in the process of network embedding affecting innovation performance. Network embedding affects the enterprise's innovation performance by affecting the absorption capacity of the e-commerce enterprise embedded in it. The whole process includes the network embedding affecting the enterprise's knowledge acquisition and knowledge integration, which enables the stronger-intensity enterprises to communicate between the enterprises in the central position. You can take advantage of location to gain the corresponding information

ISSN 2706-6827 Vol. 3, Issue 12: 59-68, DOI: 10.25236/IJFS.2021.031209

advantage, so as to grasp various innovative conditions and innovation opportunities to enhance your innovation performance. Therefore, we should pay attention to the intermediary role between knowledge acquisition and knowledge integration in network embedding and innovation performance. Knowledge can be transmitted between enterprises with strong relationship strength, and enterprises in the central position can use location advantage to obtain corresponding information advantages. Grasp various innovation conditions and innovation opportunities to enhance your innovation performance.

References

[1] Cong H, Zou D, Wu F. Influence mechanism of multi-network embeddedness to enterprises innovation performance based on knowledge management perspective[J]. Cluster Computing, 2017, 20(1):93-108.
[2] Zhong X, Ying W, Qiu X, et al. FlowVisor-based cost-aware VN embedding in OpenFlow networks [J]. International Journal of Network Management, 2016, 26(5):373-395.
[3] Shi H, Li M C, Guo C, et al. A region-adaptive semi-fragile dual watermarking scheme[J]. Multimedia Tools & Applications, 2016, 75(1):465-495.
[4] Thenmozhi S, Chandrasekaran M. Multilayered Secure Medical Image Transmission with High Payload Using Double Density Dual Tree Discrete Wavelet Transform[J]. Journal of Medical Imaging & Health Informatics, 2016, 6(3):822-827.
[5] Venkatesh S, Dorairangaswamy M A. Implementing Efficient Audio and Image Watermarking Using Multi-resolution Dual Wavelet and Fireflies Approach in Wireless Network[J]. Wireless Personal Communications, 2018, 102(1):1-13.
[6] Bonzom V, Dittrich B. 3D holography: from discretum to continuum[J]. Journal of High Energy Physics, 2016, 2016(3):1-50.
[7] Chowdhury S, Ahmed R, Khan M A, et al. Dedicated Protection for Survivable Virtual Network Embedding [J]. IEEE Transactions on Network & Service Management, 2016, PP(99):1-1.
[8] He L, Wang G, Hu Z. Learning Depth from Single Images with Deep Neural Network Embedding Focal Length [J]. IEEE Transactions on Image Processing A Publication of the IEEE Signal Processing Society, 2018, PP(99):1-1.
[9] Wu W, Yu Z, He J. A Semi-Supervised Deep Network Embedding Approach Based on the Neighborhood Structure [J]. Big Data Mining and Analytics, 2019, 2(3):205-216.
[10] Zhang J. Research collaboration prediction and recommendation based on network embedding in co-authorship networks [J]. Proceedings of the Association for Information Science & Technology, 2017, 54(1):847-849.
[11] Abdelwahab S, Hamdaoui B, Guizani M, et al. Efficient Virtual Network Embedding With Backtrack Avoidance for Dynamic Wireless Networks[J]. IEEE Transactions on Wireless Communications, 2016, 15(4):2669-2683.
[12] Akter S, Wamba S F. Big data analytics in E-commerce: a systematic review and agenda for future research [J]. Electronic Markets, 2016, 26(2):173-194.
[13] Yu W Y, Yan C G, Ding Z J, et al. Modeling and Validating E-Commerce Business Process Based on Petri Nets[J]. IEEE Transactions on Systems Man & Cybernetics Systems, 2017, 44(3):327-341.
[14] Ying F, Ju J, Mo X. Reputation premium and reputation management: Evidence from the largest e-commerce platform in China ☆[J]. International Journal of Industrial Organization, 2016, 46(6):63-76.
[15] Qiang Y, Shuang W, Wang L, et al. E-WOM from e-commerce websites and social media: Which will consumers adopt?[J]. Electronic Commerce Research & Applications, 2016, 17(C):62-73.
[16] Shan W, Cavusoglu H, Deng Z. Early mover advantage in e-commerce platforms with low entry barriers: The role of customer relationship management capabilities[J]. Information & Management, 2016, 53(2):197-206.
[17] Miao C, Pan S L, Newell S, et al. Strategy, Resource Orchestration and E-commerce Enabled Social Innovation in Rural China[J]. Journal of Strategic Information Systems, 2016, 26(1):3-21.
[18] Wang Y, Yao Y, Tong H, et al. A Brief Review of Network Embedding[J]. Big Data Mining and Analytics, 2019, 2(1):37-49.
[19] Peng C, Wang X, Pei J, et al. A Survey on Network Embedding[J]. IEEE Transactions on Knowledge & Data Engineering, 2017, PP(99):1-1.
[20] Zheng C, Pan L, Wu P. Multimodal Deep Network Embedding with Integrated Structure and Attribute Information [J]. 2019, PP(99):1-13.