

Research on Network Orientation of Entrepreneurs under the Background of "Internet +"

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Abstract—Network orientation attracts constant attention from scholars in entrepreneurship research, but few researches focus on its dimensions and measurement under the background of "Internet +". In this paper, based on the web-oriented frontier literature, starting from the background of "Internet +", the concept of network orientation, defined theoretically, preliminarily assumes network-oriented dimensions and measurement indicators. Then, a questionnaire survey is conducted to test the entrepreneurial network-oriented measurement scale under the background of "Internet +" through quantitative research. The research finds that entrepreneurial network orientation can be divided into three basic dimensions, namely network initiative, network interdependence and network attention. It can reflect a total of 12 items with different measures. The research results show that this method of dimension division has a good explanation.

Keywords—Network orientation; Internet+; Entrepreneurs; Dimension test

I. INTRODUCTION

With the continuous development of Internet technology, social networks are showing new characteristics. At the same time, the autonomy and interaction of network relationships are enhanced in social networks. Entrepreneurs own extremely limited information, knowledge and other resources. Entrepreneurs tend to acquire the resources needed for their own development through the way of social network relations in this process. So the social network becomes the important channel for the entrepreneurs to obtain information, knowledge and other resources. This shows that social networks has great significance in the entrepreneurial entrepreneurial process.

The attitude and tendency of entrepreneurs solve real business problems and obtain corporate development resources through social network in the entrepreneurial process is called network orientation [1]. At present, the research on network orientation is still in its infancy. For the network-oriented dimension, psychology and sociology have defined and dimensioned the network orientation and developed a reference measurement scale. The concept of management-oriented introduction of network orientation is relatively late. Most of the studies are based on the measurement indicators of previous scholars. But the development of dimensions is not yet mature. Dong Baobao (2015) reviewed the previous literature and explored four categories of network orientation on the basis of content analysis methods. He also tested the

corresponding measurement indicators and developed a comparison. It conforms to the network-oriented measurement of China's development, but lacks research on specific situations. At present, the research of network orientation isn't mature. It shows as follows: 1) The interdisciplinary characteristics of network orientation are obvious. But it isn't clear definition and classification of the connotation and dimensions of network orientation on the field of management. 2) The existing literature doesn't conduct theoretical research on a specific research situation. Under different backgrounds, there may be differences in the network orientation of entrepreneurs.

Based on past research, this paper attempts to explore the connotation and dimensions of network orientation in the context of the current "Internet+". What's more, it also hopes to find out a more practical and theoretical measurement model through empirical analysis and quantitative analysis. In theory, this paper theoretically defines the connotation of network orientation, and explores a measure of network orientation under the new context of "Internet+" that can be operated, enriching the research of network orientation. In practice, the entrepreneurs' attention and knowledge of network orientation can be enhanced so as to improve the entrepreneurial ability of entrepreneurs in the new environment.

II. THEORETICAL BACKGROUND

A. The connotation and development of network orientation

In the study of the connotation of network orientation, the concept of network orientation was initially expressed as a social support orientation. For example, Mitchell (1969) defined the concept of social support orientation based on individual perspectives, arguing that this is a tendency for individuals and outsiders to build general relationships. The research of Mitchell is generally considered as the beginning of network oriented research. Tolsdorf (1976) defines the concept of network orientation from the psychological perspective for the first time, and thinks it is a belief, tendency and attitude to deal with life problems through network relations [2]. The field of sociology studies the network orientation from the perspective of social relations. Huston and Robin (1982) divide the network orientation into introverted and extroverted type based on the family perspective, and think it is a kind of cooperative and reciprocal attitude. Previous studies did not define the connotation of network orientation from the

perspective of enterprises or entrepreneurs. The field of management has filled this vacancy, and more attention has been paid to corporate managers and corporate organizations. BarNir and Smith (2002) first introduced the concept of network orientation into management research, arguing that this is an attitude and tendency of managers to build and maintain network relationships. Domestic research on this field started late. For example, Dong Baobao (2015) considers the tendency and attitude of enterprises to establish network relationships [1]. In general, different research areas have given different connotations regarding the definition of network orientation, but generally they regard network orientation as an attitude and tendency. However, the research on network orientation is still not mature. Previous studies often ignore the inquiry of research context, which is based on the traditional research background, ignoring the inquiry in the new context. Especially under the background of Internet + nowadays, with the development of information technology, network relations also present new features. It is necessary to study the network orientation of entrepreneurs under the new environment.

In view of this, based on the new environment under the "Internet+", this article attempts to define the entrepreneurial network orientation as follows: First, a tendency to reflect the attitude and willingness of entrepreneurs. Second, it is also reflected in the behavioral tendencies of entrepreneurs in dealing with network relationships. This article comprehensively describes the concept of network orientation from the perspective of attitude and behavior. It is considered that network orientation is a kind of attitude tendency and behavioral tendency of entrepreneurs to solve problems of entrepreneurship and acquire resources actively.

B. Network-oriented dimension

On the dimension of network oriented, the scholars in different fields have divided it. For example, based on the field of sociology, divided the relationship orientation into the formalization of relations, the interdependence of relations and the harmony of relations (Yang, 1981) [3]. These three dimensions better describe the characteristics of the interpersonal interaction process. This article focuses more on the division of network-oriented dimensions in the field of management. For example, Ren Ping (2011) divided the network orientation into cooperation, relationship concern and open management [4]. The main difference between other scholars is that Ren Ping particularly emphasized the state and tendency of network relations within the enterprise organization. Therefore, for the network oriented dimensions, scholars have not a standard division, and the current research is mostly focused on the research level of traditional enterprises. With the rapid development of information technology, the "Internet + Enterprise" organization has increasingly exhibited the characteristics of "decentralization, deintermediation and self-organization", which has overthrown Weber's "hierarchical theory of organizational theory". Emphasizing the internal management mode of enterprise organization again will be out of date. Therefore, it is necessary to explore the specific situation of the network oriented dimension, and combine the changes of the times to make it fit for the time and the division of the background.

III. THE HYPOTHESIS OF NETWORK ORIENTED DIMENSION

In the series of studies on network orientation, it is unavoidable to answer the question of network-oriented dimensions. Although there is no fixed standard for the dimension of network orientation, most scholars generally think that network orientation is a multi-dimensional construct. This paper studies the realistic situation Internet plus ", based on the individual characteristics of entrepreneurs, in reference to Yang and Dong Baobao's dimensions on the basis of the network orientation is divided into three aspects, namely network initiative, network interdependence and network attention.

Network initiative. The network orientation tends to show a strong relationship orientation, and is usually shown as the initiative of the network relationship and the initiative in the attitude and behavior tendency. The initiative of attitude tends to show a positive attitude towards the construction and use of network relations. At the level of individual consciousness, it often considers the use of network relations to solve the existing problems. The initiative of behavior tendency is to actively build, utilize and maintain network relationship. For example, Zhu Xiumei (2011) proposes that new enterprises adopting a network-oriented strategy can usually use network relationships effectively, while new enterprises without network-oriented strategy show relative inertia [4]. With the increasing richness of information sources and information dissemination channels, entrepreneurs' network interaction methods are no longer limited to specific time and space, and the Internet has achieved a more convenient and faster method. First in the space-time, the network relationship is no longer simply limited to the same region, the Internet has realized cross regional platform communication, and the cost of time cost of selecting, utilizing and maintaining the network relationship is also getting lower and lower. Secondly, in terms of scope, the network size of entrepreneurs is not limited to acquaintance society. The development of Internet expands the scope of social networks of entrepreneurs. Thirdly, in terms of methods, and the development of information technology provides more and more channels for the dissemination of information and resources. These changes provide greater possibilities for entrepreneurs to get resources and help through network relationships. This requires entrepreneurs to adopt a more proactive attitude and behavior in the context of "Internet+" to treat and handle network relationships.

Network interdependence. The expression of the interdependence of network relations first appeared in the field of psychology. Yang (1981) proposed that the interdependence of network relations emphasizes the reciprocity and complementarity of the dual roles of the network relationship building process [3]. The dual role of social relations is reciprocal, and each other naturally depends on each other. The interdependence of roles in interpersonal relationships will make interpersonal relationships a symbiotic system. In this symbiotic system, the relationship is complementary and not equal. In the social system, reciprocal complementarity of roles achieves an objective balance of relations. Once one side thinks that the reciprocal complementarities between the roles are not achieved, the balance may be broken. Once this balance is broken, the interdependence foundation will be lost between

the roles and the relationship between the roles will be broken. In the enterprise, it is often manifested in the breakdown of cooperation. In mutually beneficial relationships, enterprises will try to establish or maintain network relationships. In the "Internet +" background, the interdependence between the network performance is more obvious. First, the diversity of information communication channels makes the relationship between the main body of the network without boundary, the dependence of the relationship between the main body is enhanced, and any party body destroys the balance of the relationship, and it may break the relationship between the cooperation and the harmony. Second, under the Internet economy, the concept of cooperation, development and win-win in the development of enterprises is more emphasized. Entrepreneurs cannot be completely independent of network relationships. Third, as people's contacts become more and more convenient, the cooperation and exchanges between network relationships are getting closer, and entrepreneurs are increasingly relying on various resources brought by the Internet. Through the cooperation between network relationships, entrepreneurs can quickly obtain their own resources.

Network attention. The network concern is that companies tend to establish good cooperative relationships with the outside of the enterprise and pay attention to the network span and network convergence (Dong Baobao, 2016) [5]. At the same time, the degree of network attention is also reflected in the degree of attention and support given by entrepreneurs to various opinions and suggestions provided by the network relationship (Ren Ping, 2011) [6]. The higher degree of concern in network relations indicates that entrepreneurs pay more attention to the quality and relationship between network relationships. Entrepreneurs in this process often show that they easily pay attention to various opinions and suggestions of other network relations subjects, and these comments and suggestions will be valued and adopted. With the development of the "Internet Plus", the transparency of information resources and the unrestricted nature of communication subjects, the opinions and information provided by the main players in the network relationship are also enriched and enriched. Entrepreneurs should respond more actively and quickly to this process and increase their own network attention.

IV. NETWORK ORIENTED DIMENSION MEASUREMENT

A. The determination of network oriented items

Based on the theoretical analysis, this article first starts with the three dimensions of network orientation, and draws on the current scales of the domestic scholars Ren Ping (2011) and Dong Baobao (2015), and combines the actual situation of the specific situation studied. After eliminating vague, repetitive and difficult-to-understand items, 12 key questions were finally identified. The 12 items can basically cover the three dimensions of network orientation.

B. An exploratory analysis of network orientation

(1) Samples and data. In order to verify the validity of the questionnaire, we need to do exploratory research on the questionnaire first. The sample has a wide range of questionnaires in the form of online distribution. Among them, male entrepreneurs accounted for 80.6% and females accounted for 19.4%. At the educational level, undergraduates accounted for 45.8% of the total, followed by 35.2% for specialist colleges. High school and below, and graduates and above, accounted for only 15% and 4%. A total of 200 questionnaires were distributed in the survey, and 155 valid questionnaires were collected after processing. The total efficiency of the questionnaire was 77.5%. The sample basically meets the network oriented dimension analysis of this study.

(2) The exploratory analysis of the scale. In this study, the reliability of coefficient and item-to-total was tested on the original scale, and 0.4 was taken as the critical value of reliability test. The results show that each item set in this study is higher than the set threshold of 0.4, so all the items passed the significance test and no items were deleted. Then, this study uses SPSS 21 statistical analysis software to carry out exploratory factor analysis on all the items. The statistical results show that the value of KOM is 0.913 and the Bartlett's test value is less than 0.05, indicating that the scale is suitable for factor analysis. In this paper, 3 factors are formed by using the orthogonal rotation of variance maximization and the principal component factor analysis after multiple iterations. The factor load of each item and factor is further obtained by exploratory factor analysis. The higher the factor loading, the stronger the correlation between the measurement items and the factors. The factor load threshold is 0.6. The results show that all the items of the questionnaire are more than 0.6, no items were deleted. 12 items can explain the variance of 70.513%. The results of the analysis are shown in Table II.

TABLE I. EXPLORATORY FACTOR ANALYSIS OF NETWORK ORIENTED MEASURE INDEX

Items of network orientation(N)	load of factors		
	1	2	3
Network initiative(Cronbach α =0.858;AVE=0.556)			
i1 Entrepreneurs often actively seek help and resources from external networks.	0.749		
i2 Entrepreneurs often maintain close contact with external networks	0.718		
i3 Entrepreneurs are more likely to get help and resources through external networks.	0.732		
i4 Entrepreneurs often take the initiative to establish new external network relationships	0.783		
Network interdependence(Cronbach α =0.868;AVE=0.559)			
d1 Entrepreneurs often communicate with external network entities to exchange resources for each other		0.739	
d2 Entrepreneurs often achieve a win-win relationship with external networks.		0.776	
d3 Entrepreneurs maintain a very good relationship with external network entities		0.819	
d4 Entrepreneurs often help external network agents		0.645	
Network attention(Cronbach α =0.810;AVE=0.501)			
a1 Entrepreneurs attach great importance to obtaining relevant opinions and suggestions from external stakeholders.			0.640
a2 Entrepreneurs often adopt the concerns and ideas of external relations.			0.604
a3 Entrepreneurs attach great importance to the network scope of their own			0.785
a4 Entrepreneurs attach great importance to the relationship with external network subjects.			0.783
Variance explained (accumulated %)	24.693	49.134	70.513

^{a, a}N : network orientation; I : network initiative; D :network interdependence; a : network attention

(3)Reliability test. Before carrying out reliability testing. The questionnaires used in this study were measured by the Likert 5 scale, which were divided into 5 levels from "very incompatible" to "very consistent", and were sensitive to the attitude of the questionnaire respondent. Moreover, the number of items in each factor is more than 2, which is also conducive to the improvement of the sensitivity of the questionnaire. On the reliability test, this study is tested by Cronbach α . The results of Table I show that the Cronbach α of each factor are more than 0.7, so the scale has a better internal consistency. From the above exploratory factor analysis and reliability test, we can see that the measurement items of three dimensions are all converging to the corresponding factors according to expectation.

V. NETWORK ORIENTED DIMENSION TEST

In order to test the independence and utility of the revised scale, the results of this analysis were further verified by confirmatory factor analysis. Therefore, after data collection and collation, Amos 21.0 software was used to further confirm the factor analysis of the data to explore its explanatory power on the scale. The specific results are shown in Fig I the fitting indicators are shown in Table II. From the results of confirmatory factor analysis, the network-oriented measurement model in this study has a good degree of fitness.

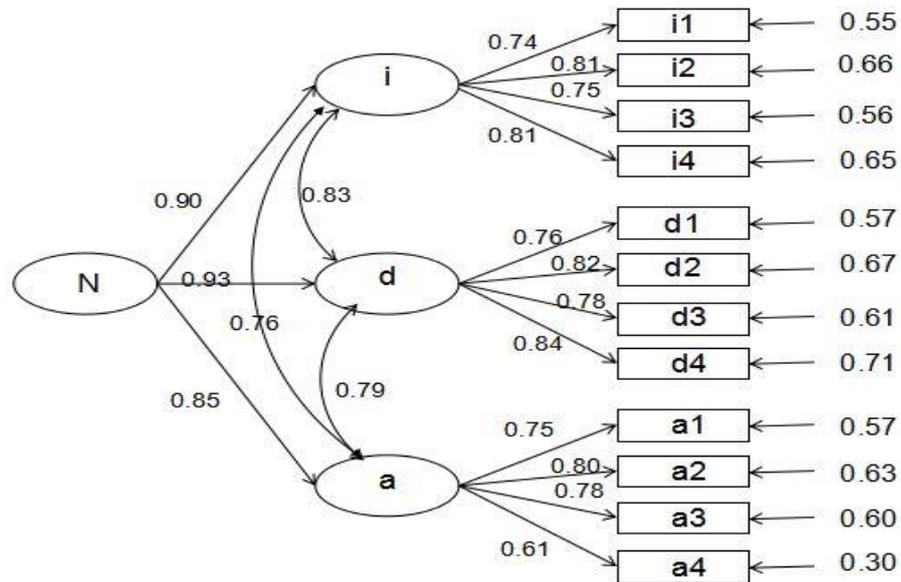


Fig. 1. Validation Factor Analysis of Network Orientation Measurement Model

TABLE II. NETWORK ORIENTED MODEL FITTING INDEX

	Fit index	Numeric values	Fitting numerical index
Absolute index	χ^2	109.434	—
	df	51	—
	GFI	0.901	> 0.90
	RMSEA	0.05	< 0.08
Relative index	IFI	0.945	> 0.90
	NFI	0.903	> 0.90
	RFI	0.901	> 0.90
	CFI	0.945	> 0.90

The discriminant validity test is performed on the scale, and this index is mainly used to measure the degree of correlation between a concept and other concepts that should be different. It is generally judged by the average extracted variation (AVE value). In the criterion, Fomell & Laicker (1981) pointed out that if the AVE value of each factor is greater than 0.5 or greater than the square of the correlation coefficient of each dimension, the measurement model is said to have discriminant validity [7]. The results show that the AVE values of the three dimensions of network orientation are all above the critical value of 0.5. The specific results are shown in Table I. Therefore, the measurement model of this study has discriminant validity. This shows that the network-oriented measurement items can cover the basic information of the measurement item to some extent, and the measurement item index has a certain explanatory power for the network-oriented variable. Finally, we use Amos 21 to further test the convergent validity of the network orientation dimension scale. Brown and Cudeck (1989) consider that the normalized factor load value and its significance in the structural equation are used to determine the convergent validity of the scale, and the value of each value should be greater than the critical value of 0.6[8]. Figure 1 shows that the load values of each item on each factor

are greater than 0.6, indicating that the scale has good convergent validity.

VI. CONCLUSION

This paper defines the connotation of entrepreneurial network oriented from the "Internet +" background, based on cutting-edge research on network oriented analysis, combined with the previous mature scale, put forward 12 indexes to measure the entrepreneurial network oriented. Through the above quantitative analysis and test, the research results show that entrepreneurial network orientation under the "Internet +"background can be divided into three aspects: network initiative, network interdependence, and network attention. These three dimensions have good reliability and validity, which can explain to some extent the entrepreneurial orientation of the Internet in this particular context. Through the network dimensions of entrepreneurial subdivision, is conducive to strengthening the entrepreneurial cognition and understanding on network oriented, it is also possible to grasp business opportunities for entrepreneurs in the new environment "Internet +", so as to guide the entrepreneurs and

entrepreneurial practice. It also provides a reference research perspective for network oriented research.

REFERENCES

- [1] Dong Baobao. Network orientation of new ventures in china: dimensions and test [J]. *Foreign Economics&Management*, 2015, 37(05):3-13.
- [2] Tolsdorf. Social networks, support, and coping: an exploratory study[J]. *Family Process*, 1976, 15(4):407.
- [3] KuoShu Yang. Social Orientation and Individual Modernity among Chinese Students in Taiwan [J]. *Journal of Social Psychology*, 1981, 113(2):159-170.
- [4] Zhu Xiu mei, Chen Chen, Cai Li. Empirical analysis on relationship among network competence resource acquisition and new firm performance [J]. *Journal of Management Sciences in China*, 2010, 13(04):44-56.
- [5] Dong Baobao, Zhou Xiaoyue, Wang Kan, Gao Fugui. Network Orientation: Concept explanation, research context and model building [J]. *Foreign Economics&Management*, 2016, 38(03):30-43.
- [6] Ren Ping. Study on the relationship among network orientation, resource intrgration and coporate performance of the new ventures [D]. Jin Lin University, 2011.
- [7] Fornell C, Larcker D F. Structural Equation Models with Unobservable Variables and Measurement Error: Algebra and Statistics [J]. *Journal of Marketing Research*, 1981, 18(3):382-388.
- [8] M.W. Browne, R. Cudeck. Single Sample Cross-Validation Indices for Covariance Structures [J]. *Multivariate Behav Res*, 1989, 24(4): 445-455.