

Impact of Entrepreneur Social Capital on Business Model Innovation: From an Organizational Learning Perspective

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Abstract: The development of globalization has broken the geographical boundaries, the emergence of Internet technology has broken the barriers of the industry. In the 21st century, enterprises are facing competition from different parts of the world and industries. Through business model innovation, companies can realize sustainable competitive advantage. Entrepreneur social capital can promote the innovation of enterprises by integrating external resources that acquired by entrepreneur social capital. However, the existing research is still controversial about whether entrepreneur social capital can promote business model innovation, and the path of influence between the two is not clear. On the base of above appoints, it mainly studies whether entrepreneur social capital promotes business model innovation, and whether organizational learning plays an intermediary role in the relationship between entrepreneur social capital and business model innovation. The main conclusions are as follows: Entrepreneur social resources is positively associated with business model innovation; Entrepreneur social capital is positively associated with organizational learning; Organizational learning has a mediating effect on the relationship between entrepreneur social capital and business model innovation.

1. Introduction

Business model has always existed in enterprises, but it was not until the 1990s, with the emergence and development of Internet enterprises, academic circles and enterprises started to pay attention to it. At the same time, globalization and the explosive growth of science and technology has broken the boundary of the industry. In order to obtain more interests, the competition among enterprises has intensified, and various difficulties force enterprises to transform their business models urgently.

At the beginning of the 21st century, many foreign companies have begun to change their business models to adapt to environmental changes. In the social context of China, the external resources of enterprises are mostly derived from social networks. Entrepreneurs are the key to acquiring external resources of enterprises, and their social capital can provide stable resources for enterprises. Existing research remains controversial about whether entrepreneurial social capital can promote business model innovation. Some scholars believe that entrepreneurs obtain reliable information from the social network, which is difficult to obtain outside the network. These information can help enterprises access external environmental information quickly, reduce information asymmetry, and make an environmentally responsive response by innovating business model. However, some scholars believe that entrepreneurs tend to rely on the capital obtained from social networks and resist other external information outside the networks. Meanwhile, it is often necessary for enterprises to make commitments that limit some of the actions as the costs of resource, thus hindering innovation. In order to explore this kind of promotion or restriction relationship, we studies the influence path of entrepreneur social capital by introducing organizational learning, and explores the relationship between entrepreneurial social capital and business model.

2. Literature Review and Theoretical Model

2.1. Entrepreneur social capital and business model innovation

Existing scholars mainly study social capital from two aspects: social network theory and resource capacity theory. Leenders (1999) pointed out that social capital is an asset that is rooted within a relationship network and can be utilized through the network^[1]. The essence of enterprise social capital is a kind of resource. The utilization of these resources can bring multiple benefits to enterprises, which are derived from other enterprises, universities and scientific research institutions, government and other organizations^[2]. Entrepreneur social capital is part of the social capital at the individual or micro level.

The concept of business models has been around for decades^[3]. Teece (2010) argued that the business model is “design or architecture of value creation, delivery and acquisition mechanisms” which has been widely recognized by the academic community^[4]. In contrast, the development of business model innovation is relatively late. For the first time, Mitchell & Coles (2003) clearly stated that managers can purposefully innovate their business models^[5]. Since then, more and more research has begun to focus on innovation in business models and has studied it from multiple perspectives. Ostenwalder et al. (2005) confirmed that business models innovation is a process that evolve from a particular business model state to a well-designed, highly anticipated new business model^[6]. Zott & Amit (2010) also elaborated on the concept of business model innovation, believing that business model innovation is to restructure existing operating systems or design new operating systems through the reorganization of resources and partners^[7].

The information and resources available to entrepreneurs can facilitate changes in business models by acquiring heterogeneity information, increasing the breadth and depth of information, reducing information asymmetry, and helping enterprises understand various changing trends. Acquire and utilize various innovative resources such as information and knowledge, learn and follow the development trend of the industry, thereby transforming business models and promoting business model innovation. External information is obtained through the entrepreneur's social network, which can help enterprises understand other organizations, markets, and technology changes. Those enterprises are more likely to take quick actions to transform and integrate resources before other enterprises, directly or indirectly promoting business model innovation^[8]. However, some scholars have shown that political resources tend to make enterprises more conservative in decision-making, and innovate in a transformation mode with less changes. This paper argues that entrepreneur social capital is the sum of information and resources. Although political resources may inhibit business model innovation, on the whole, entrepreneur social capital can still promote business model innovation. Therefore, we propose the following hypothesis.

Hypothesis 1: Entrepreneur social capital is positively associated with business model innovation.

2.2. Entrepreneurial social capital and organizational learning

Argyris & Schon (1978) proposed the concept of organizational learning, which is considered as a process of “discovering errors and correcting them by refactoring organizational application theory”. This process includes four stages of discovery, invention, promotion and implementation^[9]. Based on the perspective of knowledge and information flow, Huber (1991) divided organizational learning into four dimensions: knowledge acquisition, information dissemination, information interpretation and organizational memory^[10]. Dixon (1994) believed that organizational learning involves four stages of creation, integration, interpretation, and action, which can be internally circulated. In addition, absorptive capacity is a broader perspective of learning and has received much attention in the literature on organizational learning^[11]. The external knowledge acquired through learning needs to be processed and

re-recognized systematically, so as to accurately position the market and finally meet the customer needs.

Page (1998) pointed out that entrepreneurial social capital promotes organizational learning by providing new knowledge that is different from within the organization and facilitating the rapid transfer of knowledge within the organization^[12]. As a mechanism of knowledge integration, social capital is the sum of knowledge, information, capital, and resources acquired by entrepreneurs in social networks, which are often hidden in social networks and are not easily accessible. Entrepreneur social capital expand the stock of knowledge and information accessible to enterprises, form a new and diverse knowledge base and effectively promote organizational learning^[13]. At the same time, in order to make effective use of the information and knowledge acquired by entrepreneurs, enterprises tend to allocate the acquired resources to activities that accelerate information transformation, so as to enhance the learning ability of the members of the organization, promote the transfer and transformation of knowledge internally, and thus promote the organizational learning. Based on the above discussion, the hypothesis is proposed.

Hypothesis 2: Entrepreneur social capital is positively associated with organizational learning.

2.3. Organizational learning and business model innovation

Organizational learning, including the acquisition, dissemination and use of knowledge, is an important process to generate new ideas. Argyris (1978) proposed that in the same environment, organizational learning can enhance the innovation ability of an organization and influence the initial and implementation phases of innovation^[9]. Stinglhamber (2006) believed that organizational learning can help to share sensitive information and key knowledge among members of an organization, and improve the innovation ability of an organization through mutual communication and thought collision^[14]. Business model innovation needs to focus on value creation, enterprises learn new knowledge and information, and create new value to cope with rapid environment changes, so as to carry out business model innovation^[15].

In the process of organizational learning, members of the organization create ideas through continuous experimentation, interaction, communication and participation in decision-making, thereby enhancing the ability of business model innovation. Efficient organizational learning enables enterprises to promote technological innovation through the processing of market information, including innovations in a range of products, manufacturing processes and equipment; at the same time, they promote management innovation, including innovations in a range of policies, programs and services^[16]. These innovations can increase the efficiency of business model innovation and help business models adapt to changes in the external environment. Summarizing the above arguments, we hypothesize the following.

A large number of practices have shown that enterprises try to use social capital to obtain the information and resources needed to improve their independent innovation capabilities, but it is difficult to achieve the expected results. Organizational learning can help entrepreneurs' individual information and resources to achieve effective transformation and form the innovation ability of enterprises^[17]. Entrepreneur social capital can help enterprises to obtain information such as industry development trends, but the information is complex and its authenticity remains to be discussed. Organizational learning can process and screen the collected information, and then conduct internal transformation and utilization after absorption, so as to help enterprises realize innovation. While providing information support, the connection of entrepreneurial social capital in the social network guarantees the supply of core resources of the enterprise^[18]. On the one hand, stable resources encourage the enterprises to allocate more resources for organizational learning and enhance the organizational learning ability; on the other hand, On the other hand, through effective utilization of resources, organizational learning can output new ideas and help enterprises improve their innovation ability.

Business model innovation requires not only the direction of the leader, but also the participation of organization members. As an individual capital, entrepreneur social capital needs to be transformed through internal learning. Organizational learning enables entrepreneurs' social

capital to be no longer confined to individuals. The information and resources obtained from external networks can be effectively transferred to the enterprise, and the collective power can be used for innovation. We argue that the impact of entrepreneurial social capital on business model innovation depends to a large extent on whether organization members can fully learn and integrate the relevant information and resources brought by social capital. Based on the above discussion, the hypothesis is proposed:

Hypothesis 3. Organizational learning has a mediating effect on the relationship between entrepreneur social capital and business model innovation.

As shown in Figure 1, this study establishes the theoretical model. The model shows the main variables that this article focuses on and the relationships between them.

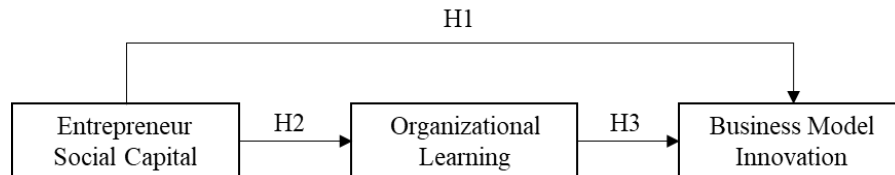


Figure 1 Theoretical model of how entrepreneur social capital affect business model innovation.

3. Research Method

3.1. Variable measurement

3.1.1. Entrepreneur social capital measurement

We hold the view that entrepreneurial social capital (ESC) is the sum of a kind of information and resources, including the social relationships between entrepreneurs and various roles in the social network, such as corporate partners, governments, and research institutions. Therefore, we draw on the scale of Collins & Clark (2003)^[19], integrate the views of other scholars. Finally, 12 questions are selected to measure the institutional, commercial and supportive social capital of entrepreneur.

3.1.2. Organizational Learning Measurement

We believe that organizational learning (OL) is a cyclical process of information, resource acquisition, dissemination, absorption, utilization, and feedback. This process involves exploratory learning through the use of information, and productive learning through the use of resources. We draw on Edmondson's (2002)^[20] measurement of organizational learning, using 8 questions to measure organizational learning.

3.1.3. Business model innovation measurement

We argue that business model innovation (BMI) is a systematic activity for enterprises to obtain value by restructuring resources and partners. In this activity, we can create new products, services, trading methods, etc., while constantly introducing new value propositions such as customers, suppliers, partners and maintaining close contact with them. Importantly, this business model is novel. Therefore, we draw on the scale of Zoot & Amit (2010)^[21], integrate other scholars' understanding of business models, and finally select 9 questions to measure the various value angles of business model innovation.

3.2. Regression Model

In this study, the ordinary least square (OLS) regression analysis is used to explore the relationship between variables. In order to test our hypotheses, the following regression models are employed in this study:

$$BMI = \alpha_1 + \beta_1 ESC + \varepsilon_1 \quad (1)$$

$$OL = \alpha_2 + \beta_2 ESC + \varepsilon_2 \quad (2)$$

$$BMI = \alpha_3 + \beta_1' ESC + \beta_3 OL + \varepsilon_3 \quad (3)$$

Where CEP stands for the corporate environmental performance, GTI stands for green technology innovation, PC indicates the degree of political connections and PP represents the level of public participation. α represents the intercept, and ε is the error term.

3.3. Data

We used the questionnaire survey method to distribute online questionnaires through the EDP center of Sichuan University Business School, and 149 valid questionnaires are retrieved. The EDP center effectively locked in the target population of the survey, and the survey subjects were mainly senior management personnel of the enterprise, which met the requirements of the questionnaire.

3.4. Reliability and validity test

We use Cronbach's α coefficient as the basis for judging the reliability, as shown in Table 1. The test standard is Cronbach's $\alpha > 0.7$. The values of the Cronbach's α coefficient of each variable met the requirements and the reliability test passed.

Table 1 Cronbach's α .

Variables	Cronbach's α
ESC	0.947
OL	0.953
BMI	0.944

The validity test is carried out by KMO and Bartlett test, as shown in Table 2. The criteria for the test were $KMO > 0.7$ and $SIG < 0.05$. The KMO and SIG values of each variable met the requirements and the validity test passed.

Table 2 KMO and SIG.

Variables	KMO	SIG
ESC	.876	.000
OL	.907	.000
BMI	.921	.000

4. Empirical analysis

4.1. Correlation analysis

The correlation analysis results are shown in Table 3. The analysis results show that the correlation coefficient between entrepreneur social capital and business model innovation is 0.487, the correlation coefficient between entrepreneur social capital and organizational learning is 0.539, and the correlation coefficient between organizational learning and business model innovation is 0.712, all of which are at $p < 0.01$. The level is significantly correlated. For further research, this paper will carry out regression analysis.

Table 3 Correlation matrix.

		SC	EL	BMI
ESC	Pearson correlation	1	.539***	.487***
OL	Pearson correlation	.539***	1	.712***
BMI	Pearson correlation	.487***	.712***	1

Note: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$; N = 149.

4.2. Regression analysis

The regression analysis of entrepreneurial social capital and business model innovation is model 1, the standard regression coefficient is $0.487 > 0$; the regression analysis of entrepreneur social capital and organizational learning is model 2, the standard regression coefficient is

0.539>0; Both of them Sig < 0.01, indicating that the above three regression relationships are significant. It is assumed that H1 and H2 are confirmed.

Once organizational learning is added in Model 3, R2 jumps to 0.522 in Model3 from 0.237 in Model 1, which indicates a stronger explanatory power from Model3. According to the mediation effect test procedure, the model of Table 5 verifies the equation: Y (business model innovation) = cX (entrepreneur social capital) + e1, where the coefficient c = 0.487, its significance SIG < 0.01, is highly significant; Model 2 validates the equation: M (organizational learning) = aX + e2, the coefficient a = 0.539. According to the procedure, the coefficient of the equation Y=c'X + bM + e3 should be verified and its significance. It can be seen that b=0.634 and the coefficient is significant, and c' is 0.145, SIG < 0.05, indicating that organizational learning plays a part in mediating, that is, the entrepreneur social capital influences business model innovation through organizational learning, assuming H3 is verified.

Table 4 Regression model of the mediating effect.

Variables	BMI Model 1 β	OL Model 2 β	BMI Model 3 β	VIF
ESC	0.487***	0.539***	0.145**	1.409
OL			0.634***	1.409
R2	0.237	0.290	0.522	
Adj R2	0.231	0.286	0.515	
F	48.582***	60.160***	79.576***	

Note: * p < 0.1, ** p < 0.05, *** p < 0.01; N = 149.

In order to further explore part of the intermediary role of organizational learning, the social capital of entrepreneurs is divided into institutional, supportive and commercial social capital for research. The analysis shows that institutional social capital does not significantly affect business model innovation, and the analysis of intermediary role is terminated. Organizational learning plays a full intermediary role in the relationship between supportive social capital and business model innovation, and plays a partial intermediary role in the relationship between entrepreneurial commercial social capital and business model innovation. Refer to Table 6 for specific data.

Table 5 Regression model of the subdivision mediating effect.

Variables	BMI Model 4 β	OL Model 5 β	BMI Model 6 β	VIF
ISC	0.107	0.144**	0.020	1.031
SSC	0.304***	0.415***	0.053	1.259
CSC	0.442***	0.378***	0.213***	1.214
OL			0.607***	1.515
R2	0.299	0.335	0.544	
Adj R2	0.285	0.322	0.531	
F	20.657***	24.394***	42.960***	

Note: * p < 0.1, ** p < 0.05, *** p < 0.01; N = 149.

5. Discussion

The accumulation of entrepreneur social capital can promote the innovation of business models. Entrepreneur social capital helps enterprises to adapt to changes in the external environment by changing external information and resources, including market information and changes in customer needs. At the same time, resources can provide a basis for innovation in business models.

Entrepreneur social capital can accumulate and improve organizational learning. The information acquired by entrepreneurs can enhance the enterprises' knowledge stock, expand the enterprise knowledge base, and promote enterprises to absorb and utilize knowledge through organizational learning. At the same time, because the knowledge acquired by entrepreneurs comes from their personal social network, the acquired knowledge is highly credible, and it has more learning value than general knowledge. It can also gain the attention of enterprises and promote the absorption of enterprises through organizational learning.

Organizational learning can promote business model innovation. Organizational learning can promote the sharing of knowledge and information within organization members, who enhance their ability to innovate and propose novel ideas in the process of communication and thought collision. By screening the applicability and environmental applicability of these viewpoints, some of the new product development, partner management and internal management can be selected for the enterprise, thereby promoting the improvement and transformation of the business model.

Organizational learning plays a partial intermediary role in the relationship between entrepreneurial social capital and business model innovation. In order to further explore the "partial" intermediary role of organizational learning, it is found in the research that institutional social capital itself does not significantly affect business model innovation, and supportive social capital promotes business model innovation through organizational learning. The commercial social capital component promotes business model innovation through organizational learning. For institutional social capital, the government may restrict the behavior of enterprises through laws and regulations, making enterprises tend to be conservative in their actions. Therefore, it cannot promote the innovation of business models. Supportive social capital comes from research institutions such as universities, and it has strong intellectual characteristics. Therefore, this knowledge needs to be fully transformed through organizational learning in order to be utilized. Commercial social capital is more widely covered. Some of the information and resources are transformed through organizational learning. However, these information and resources can be used in a wider range, and can influence business model innovation directly or through other channels.

6. Conclusion

Through research, it is confirmed that institutional social capital has no impact on business model innovation. Entrepreneurs have three types of institutional, commercial, and supportive capitals. However, in the existing research, some scholars believe that supporting social capital will constrain business model innovation. Therefore, whether entrepreneur social capital can promote business Model innovation is still controversial. This article regards entrepreneur social capital as a whole, and through research, we can prove that it can promote the innovation of business model. At the same time, we study the promotion of three types of social capital on business model innovation, and formal institutional social capital has no impact on business model innovation.

Organizational learning is used as an intermediary variable to explore the role of organizational learning in promoting the relationship between entrepreneurial social capital and business model innovation. As a kind of individual capital, how to transform entrepreneur social capital into enterprise level and use it is the key of research. Organizational learning plays a full intermediary role in the relationship between supportive social capital and business model innovation, indicating that if enterprises need to effectively use supportive social capital, they need to share knowledge through organizational learning. It is important to note that commercial social capital can influence business model innovation through other paths, and exploration is still needed in this regard.

In this paper, there are still many shortcomings in the research design. For example, most of the observation samples are located in Sichuan and Chongqing regions, and the division of organizational learning is not deep enough. In future research, the scope of research can be

expanded to enhance the applicability of research; a variety of methods are adopted to enhance the scientific nature of research. At the same time, organizational learning can be divided into multiple dimensions, and the role of exploitative learning and exploratory learning in the relationship between entrepreneurial social capital and business model innovation can be explored.

References

- [1] Leenders R T A J, Gabbay S M. Corporate Social Capital and Liability || [M]. Springer US, 1999.
- [2] Acquaah M. Social networking relationships, firm-specific managerial experience and firm performance in a transition economy: A comparative analysis of family owned and nonfamily firms [J]. Strategic Management Journal, 2012, 33(10):1215-1228.
- [3] Bellman R, Clark C E, Malcolm D G, et al. On the construction of a multi-stage, multi-person business game [J]. Operations Research, 1957, 5(4): 469-503.
- [4] Teece D J. Business models, business strategy and innovation [J]. Long range planning, 2010, 43(2-3): 172-194.
- [5] Mitchell D, Coles C. The ultimate competitive advantage of continuing business model innovation [J]. Journal of Business Strategy, 2003, 24(5): 15-21.
- [6] Ostenwalder A, Pigneur Y, Tucci C L. Clarifying Business Models: Origins [J]. Present, and Future of the Concept by, 2005.
- [7] Zott C, Amit R. Business model design: an activity system perspective [J]. Long range planning, 2010, 43(2-3): 216-226.)
- [8] Wu C H, Fang K. Improving project performance through organizational learning: an empirical study in Taiwan [J]. Technology Analysis & Strategic Management, 2010, 22(2):261-276.
- [9] Argyris C, Schon D. Organizational Learning: A theory of action approach [J]. Reading, MA: Addison Wesley, 1978.
- [10] Huber G P. Special Issue: Organizational Learning: Papers in Honor of (and by) James G. March || Organizational Learning: The Contributing Processes and the Literatures [J]. Organization Science, 1991, 2(1):88-115.
- [11] Dixon N M. The Organizational Learning Cycle: How We Can Learn Collectively, 2nd Edition (Hardback) – Routledge [J]. 1994.
- [12] Page P K L. Network Forms of Organization [J]. Annual Review of Sociology, 1998, 24:57-76.
- [13] Crossan M M, White R E, Ivey R. An Organization Learning Framework: From Intuition to Institution [J]. The Academy of Management Review, 1999, 24(3):522-537.
- [14] Stinglhamber, F. Perceived Support as a Mediator of the Relationship between Justice and Trust: A Multiple Foci Approach [J]. Group & Organization Management, 2006, 31(4):442-468.
- [15] Giesen E, Berman S J, Bell R, et al. Three ways to successfully innovate your business model [J]. Strategy & Leadership, 2007, 35(6):27-33.
- [16] Uzzi B. The Sources and Consequences of Embeddedness for the Economic Performance of Organizations: The Network Effect [J]. American Sociological Review, 1996, 61(4):6

- [17] Fernández-Mesa, Anabel, Alegre, Joaquín. Entrepreneurial orientation and export intensity: Examining the interplay of organizational learning and innovation [J]. *International Business Review*, 2015, 24(1):148-156.
- [18] Glynn M A. Innovative Genius: A Framework for Relating Individual and Organizational Intelligences to Innovation [J]. *The Academy of Management Review*, 1996, 21(4):1081-1111.
- [19] Collins C J, Clark K D. Strategic human resource practices, top management team social networks, and firm performance: The role of human resource practices in creating organizational competitive advantage [J]. *Academy of Management Journal*, 2003, 46(6):740-751.
- [20] Edmondson A C. The Local and Variegated Nature of Learning in Organizations: A Group-level Perspective [J]. *Organization Science*, 2002, 13(2) : 128—146.
- [21] Zott C, Amit R. Business Model Design and the Performance of Entrepreneurial Firms [M]. 2007.