A RESEARCH ON SERVICE INNOVATION PERFORMANCE OF PLATFORM ENTERPRISES A MODERATED MEDIATION MODEL

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Abstract

Nowadays more and more enterprises cross organizational boundaries and adopt a service innovation model with multi-participators to achieve complementary and optimal allocation of innovation resources. Based on five types of multi-participators perspectives including consumers, suppliers, enterprise employees, competitors and intermediary service agencies, according to the adjustment mechanism of Relationship learning among organizations, we constructs a moderated mediation effect model of multi-participators, service innovation, knowledge co-creation, relationship learning and service innovation performance, and explores the internal effect mechanism of multi-participators in service innovation performance of platform enterprises. Taking the platform enterprises as the target of the investigation, the results show that 1) service innovation for the platform enterprise with multi-participators has a significant positive influence on the service innovation performance; 2) service innovation for the platform enterprise with multi-participators has a significant positive impact on knowledge co-creation. 3) relationship learning plays a moderating role in the parallel mediation of knowledge co-creation on the relationship between service innovation for the platform enterprise with multi-participators and the service innovation performance. Future research will break the limitations of the industry, comprehensively explore the internal mechanism of multi-participators in service innovation.

Keywords : Multi-participators, Platform enterprises, Knowledge Co-creation, Relationship learning, Service innovation performance, Moderated mediation model

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Introduction

In the "Internet plus" era, the platform has gradually evolved from a commercial phenomenon to an economic form, providing opportunities and challenges for enterprise service innovation. With frequent service innovation activities of platform enterprises, problems such as unclear service innovation purpose, chaotic innovation process, low customer loyalty, and serious homogenization have led to the failure of service innovation of many platform enterprises.

In the current open innovation environment, service innovation is no longer an internal behavior of organizations, but a process of joint participation and creation between enterprises and actors in different fields, including suppliers, customers, research institutions, government departments and even competitors. Multi-participators in service innovation is a new type of service innovation led by enterprises, which is an innovation at the knowledge level, and help enterprises to maintain competitive advantage. Thus, the purpose of this research is to analyze the organizational characteristics of the knowledge co-creation in the process of service innovation, consummate the performance characteristics of service innovation of platform enterprises with multi-participators, and figure out the impact of knowledge co-creation, in the end to provide theoretical guidance practical support for service innovation of platform enterprises,

Literature review

Based on the existing relevant research, it can be seen that service innovation involves not only internal personnel such as managers, R&D teams, employees, but also external stakeholders such as customers, suppliers, distributors (Smith & Fischbacher.2005). Different subjects play a role in service innovation (Yi, Zhou, & Wang.2012). From the perspective of social network, the complementarity of resources will affect the probability of successful service innovation. The quality of complementary knowledge is an important factor in service innovation (Nie& Fan,2020). The necessary knowledge for formulating, integrating, disseminating, applying and storing new services has become the decisive factor for successful service innovation in the service innovation network (Tether & Tajar.2008;Lu, Zhou, Ding, Zhou, & Fen,2021). Through relationship learning, enterprises can promote the exchange of information with their suppliers and customers, develop knowledge learning of external factors, share information and develop relationship memories from specific suppliers and customers(Li, 2006; Xie, Guo& Wang, 2020), form a cooperative culture, plan the objectives of joint learning, develop relationship trust and other management means, enhance the ability of enterprise relationship learning effectively (Selnes& Sallis.2003), as a result to affect the cooperative behavior of actors, furthermore to change the results of service innovation (Dooley & O'Sullivan, 2007; Jian & Liu, 2015).

In summary, with the regard to the service innovation process of platform enterprises, the research about the internal mechanism of the scopes of participants,

knowledge co-creation and relationship learning influencing service innovation performance needs to be further explored.

Research design

1. Conceptual framework and hypotheses

The authors bring other stakeholders into the research framework. Based on the perspective of organizational learning, we discuss the influence of multi-participators, knowledge co-creation and relationship learning on service innovation performance through empirical research, thus reveal the impact mechanism of action subject participation on service innovation performance from the perspective of organizational openness, further explore the internal effect mechanism of service innovation, and expand relevant research on service innovation. Based on the existing research results, we provide the conceptual model shown in Figure 1.
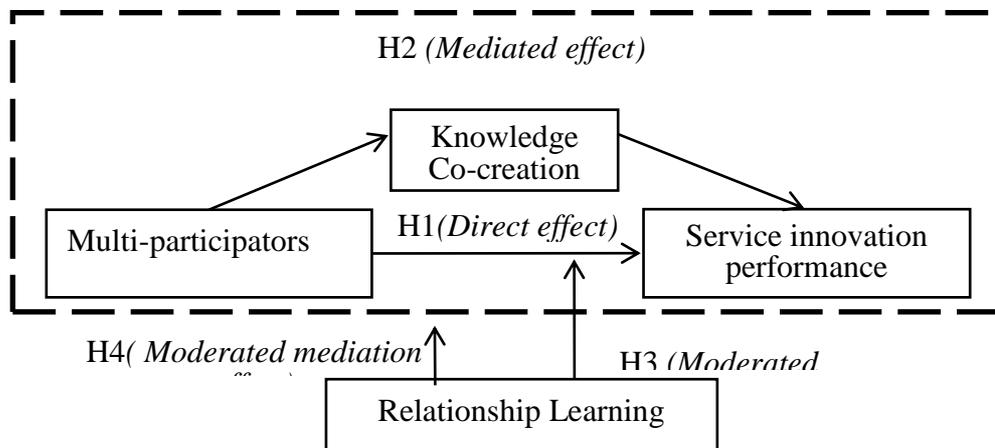

Figure 1 –Conceptual framework
(Source: made by the author)

Multi-participators in service innovation refers to managers, employees, customers, service providers and other different participants who participate in the whole process of service generation and provision, improve the service quality of enterprises, provide new services to meet customer needs, prepare innovative sources and support for enterprises to implement service innovation, and achieve service update, service quality improvement and service value-added (Thakur & Hale, 2013). Customer participation can generate more creativity, create greater value, and play a decisive role in improving customer satisfaction and behavioral intentions (Straus, Robert & Roth, 2016; Zhang, Liu & Wang, 2010); Due to the indivisibility of service production and consumption, the service level of employees in the service delivery process is an important source of new services (Sok&O'Cass, 2015); For the purpose of protecting its specific investment, suppliers can share and exchange innovation

related information with enterprises (Ji, Chen & Sun, 2015). Enterprises and competitors can collaborate in service standards to reduce the cost of service innovation, obtain complementary advantages of resources, and improve enterprise performance (Bruce & Tether, 2002; Wang, Qin & Zhou, 2015); Intermediaries can have long-team cooperation with enterprises on the basis of win-win results. They are innovation participants and direct service executors, who innovate the original services (Long, Huang & Yu, 2012). Therefore, we propose the following:

Hypothesis 1. Multi-participators in service innovation is positively correlated to service innovation performance.

With the rapid development of information technology, the external environment of enterprises is becoming increasingly complex, and the market environment and technological environment are constantly changing, leading to an increase in uncertainty factors, which poses a huge challenge to the continuous innovation activities of enterprises (Lu, Zhou, Ding, Zhou & Fen, 2021). The user innovation theory points out those external user resources can bring better development to enterprises (Von H. E., 1988). Knowledge co-creation is the result of multi agents' participation in service innovation. The knowledge difference of different agents can bring more significant co-creation effect. To identify the imparters with common foundation but different professional knowledge in the network can effectively enhance the learning ability or relative absorption ability of specific partners, and form a common goal and development plan (Dyer & Singh, 1998). Moreover, exploring learning activities based on the advantages of network behavior create and absorb new knowledge, help enterprises to upgrade service products rapidly, save the cost of enterprise innovation, improve the efficiency and benefit of service innovation, and thus promote neoteric platform innovation (He, Zou, Pan & Bu, 2021). Therefore, we propose the following:

Hypothesis2. Knowledge co-creation mediates the relationship between multi-participators and service innovation performance.

We refer to the definition of relationship learning proposed by Selnes and Sallis (2003), relationship learning is a joint activity of joint learning between enterprises, suppliers, customers and other partners. Through a good cooperative relationship between the two parties, they share information, understand information, and interpret together, and integrate information into the exclusive memory of the relationship field, thereby changing the special behavior of potential relationships and increasing mutual benefits.

Through relationship learning, enterprises can promote the exchange of information with their suppliers and customers, develop knowledge learning of external factors, share information and develop relationship memories from specific suppliers and customers (Li, 2006), update the ability to invest in science and technology for better coping with the impact of environmental uncertainty. Enterprises and their relationship learning partners collaborate to form a culture, plan the objectives of joint learning, develop relationship trust and other management tools, which can effectively enhance the ability of enterprise relationship learning (Selnes&Sallis, 2003). Efficient relationship learning helps to build a stable learning network of different subjects among organizations. Common understanding formed by mutual trust and commitment is conducive to the transmission of implicit and

explicit information, and it promotes the improvement of enterprise innovation capability (Ma H., Ma N. &Guo, 2017). Special memory points can be acquired in relational learning activities and stored at different levels of the organization (Fang et al., 2011). These special memory points help enterprises to extract key resources, promote service innovation from the knowledge system formed by specific memories, improve utilization efficiency, and then promote service innovation performance. Therefore, we propose the following:

Hypothesis 3. Relationship learning positively moderates the effect of multi-participators on service innovation performance.

With the improvement of service innovation requirements, the enterprise cannot provide all kinds of resources to fulfill the needs of service innovation, and learning from the past experience also have its limitations. The knowledge network development outside the organization is helpful for the enterprise to learn and update its knowledge. Based on the specific inter organizational learning situation, through the establishment of an open and dynamic innovation learning network, different subjects in different organizations can learn from each other in the process of multi-participators in service innovation, and ultimately achieve the win-win cooperation between network members and obtain the overall performance improvement. In the process of knowledge co-creation, relationship learning depicts the cyclic knowledge learning stages of establishment, adaptation and coordination between organization members (Han&Jiang, 2014).Relationship learning helps enterprises to obtain the required heterogeneous resources and learn new knowledge and technology at a lower cost, and ultimately achieving common improvement in performance (Kale, Singh &Perlmuter, 2000). Therefore, we propose the following:

Hypothesis 4. Relationship learning positively moderates the indirect effect of multi-participators on service innovation performance through knowledge co-creation, such effect will be stronger with higher levels of knowledge absorptive capacity.

2. Methodology and Data

Explained variable: service innovation performance (SP). Follow Storey and Kelly (2010), Thakur and Hale (2013), measure with four indicators, such as "new services improve the loyalty of existing customers, and attract a large number of consumers and suppliers".

Explanatory variable: multi-participators in service innovation (SI). This paper mainly refers to the research scale of Sok and O'Cass (2015), Kallmuenzer (2018) and Zhang, Wang and Zhao (2015), and it is measured by five indicators, including "innovative enterprises where consumers can actively participate in enterprise service products or processes".

Mediator variable: knowledge co-creation (KC). On the measurement of knowledge co-creation, this paper mainly refers to the research of Nie and Fan(2020), Shane, Kathryn and Suzana (2021), Jiang, Zhao and Wu (2016), wedesigned five measurement items for knowledge sharing, knowledge learning, knowledge combination and knowledge creation.

Moderator variable: relationship learning (RL). This paper mainly refers to Selnes and Sallis (2003)'s definition of relationship learning, and divides relationship learning into five items, such as "actively communicate with partners frequently to seek countermeasures", "frequently adjust the common understanding of business related technologic changes with partners".

The variable measurement items on the basis of the Likert 5-level scale, and the numbers 1, 2, 3, 4, and 5 respectively express different results of "strongly disagree", "disagree", "uncertain", "agree", and "strongly agree".

We send out questionnaires to experts, scholars and enterprises in the field through e-mail; Use the opportunity of field research and interview to distribute the questionnaires; Use the "Questionnaire Star" to modify the format of the questionnaires, and release the questionnaire through the network and WeChat APP. 478 questionnaires were collected through field survey, mail survey and network survey, 73 invalid questionnaires were eliminated, and 405 valid questionnaires were finally obtained.

According to the collected sample data, the basic information of sorting is shown in Table 1.

Table 1- Characteristics of the sample (Source: made by the author)

Gender	Percentage (%)	Age	Percentage (%)
Male	49.6%	18-35	32.9%
Female	50.4%	36-55	57.8%
		≥56	9.3%
Platform Type	**Percentage (%)**	**Respondents Type**	**Percentage (%)**
Network sales	21.3%	Service Provider/sellers	21.2%
Social entertainment	16.7%	Platform's Employees	24%
Living service	10.7%	Service Consumer/users	24.4%
Information	10.4%	Platform's Competitors	14.6%
financial service	9.6%	Commercial Intermediaries	15.8%
	31.4%		

3. Scale reliability and validity

In terms of construct reliability, our results (Table 2) showed that theCronbach's alphas of all the constructs were greater than 0.7, which is considered acceptable.

Table 2 - Variable reliability analysis results (Source: made by the author)

variable	Cronbach's alphas
multi-participators	0.712
knowledge co-creation	0.701
relational learning	0.710
service innovation performance	0.711

KMO and Bartlett's test of sphericity (Table 3) showed that: the results value was 0.792(P<0.01) ,which is greater than 0.6, so factor analysis can be used for validity test.

Table 3 - KMO and Bartlett's test of sphericity results (Source: made by the author)

Kaiser Meyer Olkin measurement of sampling adequacy		0.792
Bartlett's test of sphericity	Appro. Chi-Square	1594.277
	df	435
	Sig.	.000

Regarding scale validity, as can be seen in Table 4, the factor load values of 19 measurement items are greater than 0.6, indicating that they have ideal aggregation validity. The composite reliability (CR) of factor load values of 30 measurement items are greater than 0.7, indicating that the combined reliability of the scale is good.

Table 4 – Factor analysis results (Source: made by the author)

Variables	factor load	CR	Variables	factor load	CR
SI1	0.823		KC1	0. 721	
SI2	0.639		KC2	0.711	
SI3	0.630	0.783	KC3	0.723	0.706
SI4	0.816		KC4	0.702	
SI5	0.860		KC5	0.688	
RL1	0.721		SP1	0.663	
RL2	0.787		SP2	0.602	
RL3	0.670	0.826	SP3	0.657	0.723
RL4	0.609		SP4	0.614	
RL5	0.854				

Hypotheses testing

According to the hierarchical multiple regression analysis, the control variables are placed in the first layer, and then the independent variables are placed layer by layer. In the end, according to the regression coefficient of the model, it is judged whether there is a significant effect between the variables.

Table 5 - Hierarchical multiple regression results (Source: made by the author)

Variables	service innovation performance	knowledge co-creation	service innovation performance	service innovation performance	service innovation performance
	Model 1	Model 2	Model 3	Model 4	Model 5
Constant	2.110***	2.217**	1.5561***	1.535***	1.054**
Gender	0.012	0.031	0.024	0.109	0.020
Age	0.021	0.016	-0.020	0.036	-0.031
Respondents Type	-0.011	-0.030	-0.021	-0.203	0.033
Platform Type	0.022	0.034	0.017	0.021	0.192
multi-participators	0.342***	0.375**	0.253**	0.409***	0.201**
knowledge co-creation			0.317**		0.238**
relational learning				0.029	0.120
multi-participators ×relational learning				0.162**	0.135**
R^2	0.243	0.217	0.307	0.304	0.288
Adjust R^2	0.232	0.209	0.248	0.360	0.262
F-value	9.849***	8.897**	15.431**	8.596***	8.749**

Significance level: *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$

The regression results of Model 1 (Table 5) demonstrated that the regression coefficient of multi-participators in service innovation on service innovation performance is significant(β=0.342, $p<0.01$) ，H1 is supported.

The results of Model 2 and model 3 (Table 5) demonstrated that: the regression coefficient of multi-participators in service innovation to knowledge co-creation is significant (0.375, $p<0.01$). And the regression coefficients of multi-participators in service innovation and knowledge co-creation on service innovation performance are 0.253 ($p<0.05$) and 0.317 ($p<0.05$) respectively, with significant regression coefficients. On the other hand, the regression coefficients of multi-participators in service innovation are weakened, which confirmed that knowledge co-creation had a partial intermediary role in the relationship between multi-participators in service innovation and service innovation performance, H2 is supported.

According to the Bootstrapping method of Edwards and Lambert (2007),we test the direct and indirect mediated effects of intermediary variable knowledge co-creation under different values.

Table 6 – PROCESS regression results of the mediated effect test (Source: made by the author)

Mediator	Direct effect				Indirect effect			
	Index	Boot SE.	Boot 95% CI		Index	Boot SE.	Boot 95% CI	
			LLCI	ULCI			LLCI	ULCI
knowledge co-creation	0.254	0.041	0.087	0.251	0.177	0.033	0.105	0.238

Note. Bootstrap resample = 5000. SE = standard error; CI = confidence interval; LLCI = the lower limit of confidence interval; ULCI = the upper limit of confidence interval.

The analysis results in Table 6 demonstrated that the multi-participators affected service innovation performance through intermediary variable knowledge co-creation (β=0.254, 95%CI=[0.087.0.251]); Multi-participators indirectly affected service innovation performance through knowledge co-creation (β=0.177, 95%CI=[0.105, 0.238]), the confidence intervals are greater than zero, which verified that the intermediary variable knowledge co-creation played a intermediary effect between the main effects of multi-participators on service innovation performance.

The analysis results of model 4 (Table 5) demonstrated that the interaction between multi-participators in service innovation and relational learning had a significant positive impact on service innovation performance (β=0.162.p<0.05), relationship learning positively regulates the impact of multi-participators on service innovation performance, H3 is supported.

The analysis results of model 5 (Table 5) demonstrated that the regression coefficient of multi-participators in service innovation on service innovation performance is significant(β=0.201, p<0.05), the interactive regression coefficient of multi-participators and relational learning is significant(β= 0.135, p<0.05), which showed that in consideration of the intermediary effect of knowledge co-creation, the positive regulation of regulatory variable relationship learning on multi-participators is an impact effect on service innovation performance, H4 is supported.

Table 7 - PROCESS regression results of the moderating effect test (Source: made by the author)

Type	Index		Boot SE.	Boot 95% CI	
				LLCI	ULCI
Conditional indirect effect	Low：	0.107	0.030	0.070	0.269
	average：	0.137	0.031	0.103	0.301
	High：	0.168	0.033	0.137	0.357
Mediation index	0.039		0.024	0.010	0.207

Note. Bootstrap resample = 5000. SE = standard error; CI = confidence interval; LLCI = the lower limit of confidence interval; ULCI = the upper limit of confidence interval.

According to the results of the moderating effect test (Table 7).When the effect of relationship learning was relatively low, the indirect effect is significant (β=0.107, 95%CI=[0.070, 0.269]); When the relationship learning effect is high, the indirect effect is significant (β=0.168, 95%C1=[0.137, 0.357]). In addition, according to the mediated effect test (β=0.039, 95%CI=[0.010, 0.207]), the confidence interval does not contain zero, we can deduce that there is a significant mediated effect in the model, H4 is supported.

Conclusions and management recommendations

Firstly, the main effect of participation on service innovation performance is significant. Collaborative innovation involving multiple parties has improved the service innovation performance of platform enterprises, which can create more opportunities for platform enterprises to work together and benefit each other. The benefits brought by innovation achievements can effectively attract other stakeholders to participate in, and accelerate the formation of relationship networks in service innovation. Active interaction within various parties can form a good cooperation atmosphere, achieve effective allocation and full utilization of resources, reduces the cost of new service development, and to the great extend saves the innovation cost of enterprises.

Secondly, the intermediary effect of knowledge co-creation is significant. In the current dynamic environment, platform enterprises, consumers, platform merchants and other relevant organizations establish a network of relationships to generate a large amount of effective knowledge and information through information provision and interactive communication, which build a knowledge base for enterprise service innovation. The interaction of information has inspired new ideas. Innovative services are more easily accepted by the market and customers, helping organizations to obtain higher levels of service innovation performance.

Thirdly, the direct regulation effect of relationship learning is significant. Based on the process of Multi-participators in service innovation, efficient relationship learning helps to build a stable learning network of different subjects among organizations. And a stable learning network among enterprises can bring mutual trust and commitment, and thus form a common understanding and effective communication between participants, which is conducive to the common exploration, exchange and circulation of resources. Good relationship learning can form specific memories and construct knowledge systems, from which platform enterprises can draw key resources. As a result, it can promote service innovation, thereby promoting service innovation performance.

Lastly, relationship learning has a significant mediating effect through knowledge co-creation. For platform enterprises, Multi-participators in service innovation establish different learning organizations. Network relationship learning between organizations can strengthen the common understanding between organizations,so that participants with different roles and identities can form interactive memories through formal and informal organizational relationships, promote inter organizational learning and enhance the quality of learning, thus improve the innovation performance of platform enterprises.

Based on the above conclusions, in order to enhance the service innovation performance, the corresponding management recommendations is to encourage multi-participators in the service innovation activities of enterprises, improve the ability of knowledge co-creation between multi-participators, consummate and optimize the relationship management between multi-agents, and promote the service innovation efficiency of platform enterprises to enhance the service innovation performance.

Discussion

Due to subjective and objective conditions, this study has the following limitations: Firstly, there may be omissions in empirical research. The selections and modification process of indicators have personal subjectivity, and the sample selections have certain limitations. Secondly, we have not further explored the differences in the effects of different subject identities on knowledge co-creation and service innovation performance. Different identity types may have different effects on knowledge co-creation and service innovation performance.

Future research may develop from the three following aspects: First is to break the limitations of the research and to take enterprises from different industries as research objects, so that it can improve the universality of research results. Secondly, we should deeply explore the similarities and differences in the realization methods of multi agents' participation in service innovation, such as employees, customers, suppliers, intermediaries, etc., to further achieve the internal and external multi agents' participation in service innovation of enterprises. Thirdly, based on other variables which affect multi-participators in service innovation, such as dynamic capabilities (Xie, Guo&Wang,2020), cross-border search and resource pooling (Liu,Yin& Zeng, 2022), we should comprehensively explore the internal mechanism of enterprise multi-participators in service innovation.

References

Bruce, & Tether.(2002). Who co-operates for innovation and why:An empirical analysis. *Research Policy*,31(6),9417-967.

Dooley, L., & O'Sullivan, D.(2007).Managing within distributed innovation networks. *International Journal of Innovation Management,11*(3), 397-416.

Dyer, J. H.,& Singh, H. (1998). The relational view: cooperative strategy and Sources of Inter organizational competitive advantage. *Academy of Management Review*,23 (10), 660-679.

Edwards, J.R., & Lambert, L.S.,(2007).Methods for integrating moderation and mediation:A general analytical framework using moderated path analysis.*Psychological Methods ,12*(1),1-8.

Fang, S.R., Fang, S.C., Chou, C.H., Yang, S.M., & Tsai, F.S.(2011).Relationship learning and innovation:The role of relationship specific memory. *Industrial Marketing Management,* 40,743-753.

Han, B., & Jiang, Q.Y.(2014).Impact of Relationship Learning on Channel Performance: A Study Based on Sequential Bargaining Model.*Journal of Management Science, 27(1),*55-64.

He, Y. Q., Zou, B., Pan, J. Y., & Bu, Z. X.(2021). How Can Traditional Service Enterprises Achieve Platform Innovation? An Exploratory Longitudinal Case Study .*Nankai Business Review, 24(06)*, 203-214.

Hsich, J., & Hsich, Y.D.(2015).Co-creation and service innovation performance in high-tech companies. *Journal of Business Research,*68(11),2266-2271.

Ji, X. H., Chen, Z. X., & Sun, D. Y.(2015). Relationship of Supplier Involvement, Specific Investment and the Performance of New Product Development.*Management Review, 27(3),* 96-104.

Jian, Z. Q., & Liu, Y.(2015).An Empirical Study on Effects of Relational Embeddedness, Network Competence and Service Innovation Performance.*Soft Science, 29(05)*, 1-5.

Jiang, N., Zhao, S. Z., & Wu, N.(2016). An empirical research on the relationship between service offering, knowledge co-production and service innovation performance in service-embedded manufacturing enterprises. *Science Research Management, 37(6),*57-64.

Kale, P., Singh, H., & Perlmutier, H.(2000). Learning and protection of proprietary assets in strategic alliances: Building relational capital. *Strategic Management Journal,*21(3),217-237.

Kallmuenzer, A.(2018). Exploring drivers of innovation in hospitality family firms.*International Journal of Contemporary Hospitality Management,*30(3),1978-1995.

Li, L.Y.(2006). Relationship learning at trade shows: its antecedents and consequences . *Industrial Marketing Management,* 35(2),166-177.

Li, Z., &Yang, H. T.(2012).The impact of absorptive capacity, relationship learning, and knowledge integration on the enterprise innovation performance——An empirical study on technology-based SMEs.*Science Research Management, 33(1),* 79-89.

Liang, J., & Chen, G. H.(2019). A study on multiple network embeddedness, knowledge integration and knowledge creation performance.*Studies in Science of Science, 37(02),* 301-310.

Liu, B. P., Yin, S., & Zeng, J. L.(2022). Research on the Impact of Cross-Border Search on the Service Innovation Performance of Manufacturing Enterprises——Themoderated mediation effect.*Journal of University of South China(Social Science Edition), 23(01),* 46-56.

Long, J., Huang, X.J., & Yu, Z. Y.(2012). The influence of government supportive behavior on SME's innovation: the role of service intermediates.*Studies in Science of Science, 5*, 782-792.

Lu, R. Y. , Zhou, Y. , Ding, Y. W. , Zhou, D. M., & Fen, X.(2021). Enterprise Innovation Network: Tracing, Evolution and Research Prospect. *Journal of Management World, 37(01),* 217-233+14.

Ma, H. J., Ma, N., & Guo, H.(2017).Research on the relationship among relationship ouality, relational learning and ambidextrous innovation.*Studies in Science of Science, 35(6),* 917-930.

Nie, J. J., & Fan, J.(2020). A Case Study on The Process Mechanism of Enterprise-customer Online Knowledge Co-creation in New Service Development.*Jiangsu Commercial Forum, 01,* 67-73+76.

Selnes, F., & Sallis, J.(2003). Promoting relationship learning.*Journal of Marketing,* 67(3), 80-95.

Shane, C.,Kathryn,C., &Suzana, S.(2021). Knowing me knowing you:Understanding user involvement in the design process. *Procedia Computer Science,*(181),135~140.

Smith, A. M., & Fischbacher, M.(2005). New service development: a stakeholder perspective. *European Journal of Marketing,* 39(9/10),1025-1048.

Sok, P., & O'Cass, A.(2015). Achieving service quality through critical role of employee empowerment and slack resources.*Journal of Services Marketing,* 29(2),137- 119.

Storey, C., & Kelly, I. (2010).Measuring the performance of new service development activities.*Service Industries Journal,*21(2),71-90.

Straus, L., Robbert,T., & Roth, S. (2016). Customer participation in the customization of services: Effect on satisfaction and behavioral intentions.*Journal of Business Market Management,*9 (1),498-517.

Tether, B. S., & Tajar, A.(2008).The organisational co-operation mode of innovation and its prominence amongst European service firms. *Research Policy,*37(04),720-739.

Thakur, R., & Hale, D.(2013).Service innovation: A comparative study of U.S. and lndian service firms.*Journal of Business Research*,66(8),1108-1123.

Von, H.E. (1988). *The sources of innovation.* New York: Oxford University Press.

Wang, J. Z. , Qin, J., & Zhou, G. R.(2015).Customer Orientation, Competitor Orientation, Market Knowledge and New Product Development: Differences Comparative Study Based on Product Innovativeness.*Science of Science and Management of S.& T., 36(10)*, 89-99.

Xie, X. M., Guo, H. W., & Wang, H. W.(2020). How Does Service Innovation of Multi-participators Affect Firms' Service Innovation Performance?——A Moderated Mediation Model.Systems Engineering, 38(04), 33-45.

Xie, X. M., Wang, H., & Javier, S.G.(2021).How does customer involvement in service innovation motivate service innovation performance? The roles of relationship learning and knowledge absorptive capacity.*Journal of Business Research,(136)*,630-643.

Yi, J., Zhou, Y. C., & Wang,Q. D.(2012). Research on the Model of Multi-agent Participating Service Innovation Process.*Journal of Industrial Technological Economics, 31(03),* 126-131.

Zhang, R. Y., Liu, X. M.,Wang, H. Z., & Nie, K.(2010). Customer-Firm Interaction and Service Innovation Performance：A Perspective of Organizational Learning from Customers .*Chinese Journal of Management, 7(2)*, 218-224.

Zhang, W., Wang, D., & Zhao, Y.(2015).The effects of tics with service intermediaries on service and product innovations in Chinese manufacturing firms:The mediation of innovation search. *Asian Journal of Technology innovation* ,23(3),335-350.