

# A Study on the Relationship between Innovation and Corporate Performance: In the Context of China's Fitness Service Industry

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## Abstract

Based on the current literature and practice literature, and in the new business era in which digital technology and many industries converge and lead to "consumer seizure of power", value co-creation is becoming the most competitive and creative strategic concept. The quantitatively designed study is to consider that, as a brand-new form of value creation, value co-creation subverts the traditional view that value is created by enterprises in one direction and customers are only value consumers, highlighting that value is jointly created by enterprises and customers in the interactive process. The purpose of this study is to analyze the implementation effect of value co-creation. Findings pointed out that the current academic achievements are insufficient in the internal mechanism and mechanism of value co-creation carried out by enterprises as the research object, especially the lack of strong arguments and theoretical guidance for enterprises to establish value co-creation practices with consumers. The implications are that the appropriate quantitative research is urgently needed to fully verify the role and impact of value co-creation. The joint creation of value between enterprises and consumers is the source of sustainable competitiveness for enterprises and an inevitable choice for the future development of enterprises.



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## **Introduction**

The Chinese fitness industry starts late, and the concept of bodybuilding and fitness is introduced from Europe and the United States. In the 1990s, with the development of China's economy, people's living standards improved, and health awareness gradually increased (Gao & Wen, 2020). A large number of sports clubs for mass consumption have emerged, and aerobic fitness movements are gradually accepted by people (Arvidsson et al., 2021). The Chinese government is also fully aware of the positive role of mass sports on the comprehensive quality and comprehensive national strength of the people and has made legal provisions and guarantees on the rights of national participation in physical exercise in the form of legislative forms. Entering the 21st century, with the further improvement of the living standards of urban people and the improvement of people's fitness awareness, people's awareness of health has been greatly enhanced. During this period, Tera Wellness, Nirvana, Total Fitness, IMPULSE and other large domestic clubs were established. Bally Total Fitness), internationally renowned brands such as Fitness, Kenlefelis, Baolei Hao, etc. have also begun to enter China, and China's fitness market has entered a period of rapid development. At this stage, China's fitness industry is in the stage of policy inspiration, good situation, and technology promoting the development and upgrading of the industry.

### **1.2 Problem Statement**

Since (Mikalef et al., 2021) clearly put forward that value co-creation is the most competitive and creative strategic concept and an inevitable choice for the future development of enterprises, as a new form of value creation, the research on value co-creation has attracted more and more attention at home and abroad. The concern of researchers. In terms of the number of academic achievements, 2019 was 130 times higher than that in 2006. Today, the value creation process has shifted from a "product and enterprise-centric perspective" to an emphasis on "personalized customer experience," and the interaction between enterprises and consumers is becoming the center of value creation and value extraction. In different fields, the internal logic of enterprises implementing value co-creation may be different, and the effect may also be different. Therefore, we must consider the conceptual characteristics and applicability of the theory of value co-creation (Cuevas et al., 2021).

### **1.3 research questions**

According to the problem statement, the specific questions that need to be addressed in this study are as follows: 1. Does the value co-creation of the fitness service industry have a positive impact on corporate performance? 2. Does the value co-creation of the fitness service industry have a positive impact on business model innovation?

### **1.4 Research objectives**

Value co-creation needs to build an ecological network of co-creation and sharing. From both theoretical research and practical exploration, there is still a lot of room for improvement in value co-creation research. The research of (Raju, 2021) found that with the change of consumption structure, the values of bodybuilders no longer depend on the unilateral attitude of enterprises. Previously passive consumers are now generating content, and they pay more attention to collaboration, experience, connection and exchange. The business model of gyms is also changing from fitness-centric (selling fitness as a complete package to customers) to fitness-oriented (co-creating fitness packages with customers). The real question is: In the era of consumer power, what is the top-level logic of transformation and upgrading for fitness service companies? What is the development path? How is the business effect? So far, these issues have not been covered in the field of fitness service research from a normative point of view or an empirical point of view (Younus & Raju, 2021). (1). Discuss the positive impact of

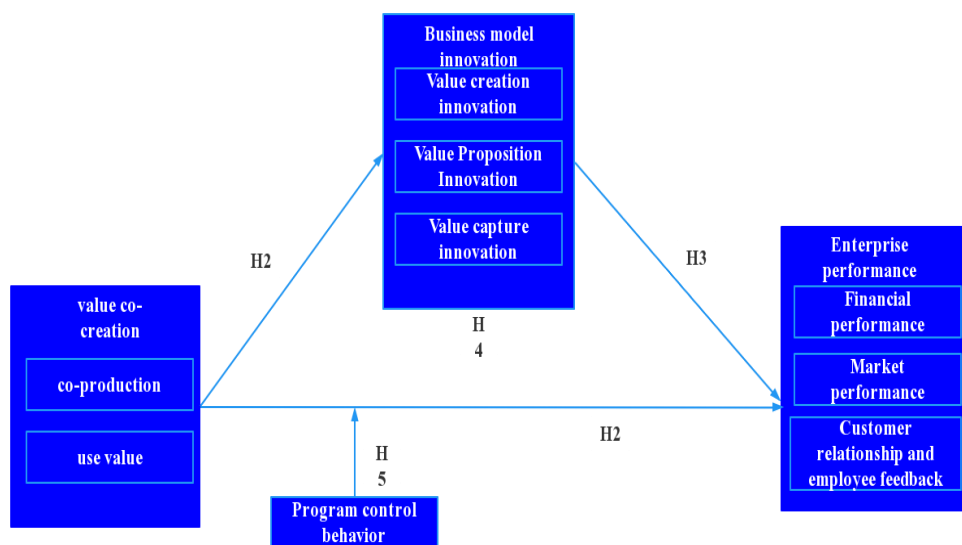
value co-creation in the fitness service industry on corporate performance, and (2). Discuss the positive impact of value co-creation in the fitness service industry on business model innovation.

**1.5 Significance of research**

At present, most of the research content on value co-creation in academic circles focuses on the consumer side (Raju & Phung, 2020). Relatively speaking, there are few studies on value co-creation in the fitness service industry. Some scholars have pointed out that the role of enterprises in value co-creation cannot be ignored, and consumers' value creation. Since deeply revealing the connotation of value co-creation, this study uses a parallel hybrid research method to explain and verify the impact and mechanism of value co-creation on enterprise performance. This achievement is a response to the current value of co-creation research on the production side proposed by scholars. The research lacks both commercial effect research and quantitative method research, which helps to enrich the content and methods of existing value co-creation production-side research (Raju & Poh, 2019). (Law et al., 2019) believe that in the background of value co-creation, existing research has identified 3 fields in which value co-creation occurs: supplier (production), the consumer and interactive integration. In the field of supplier (production), enterprises are responsible for creating value, producing resources and processes that may be integrated with consumer 'resources, to achieve successful value co-creation. Enterprises in this field play the role of value promoters. The consumer field is a personal space that creates value independently of suppliers (production) and integrates resources into consumers' social networks to create intrinsic consumer-specific value. The field is closed to suppliers. No direct interaction is allowed. In the field of interactive integration, suppliers (producers) have the opportunity to play the role of value co-creators and establish contact with consumers through direct interaction, and consumers play the role of co-producers of resources and processes (Bhaumik et al., 2019).

**Research Framework**

According to the above analysis, this study combines the research results of scholars on value co-creation, business model innovation, program control behavior and enterprise performance to construct the research framework of this paper (Figure 2.2). In this research framework,



**Figure2- 1Research Framework**

value co-creation is an independent variable, enterprise performance is a dependent variable, business model innovation is an intermediary variable, and program control behavior is a moderating variable. Value co-creation has two dimensions, namely: co-production and use value; enterprise performance has three dimensions, namely: financial performance, market performance, Customer relationship and employee feedback; business model innovation has three dimensions, namely: Value creation innovation, value proposition innovation, value acquisition innovation.

### **Research method**

Creswell (2007) pointed out that the existing research methods can be summarized as Qualitative research, Quantitative research, and mixed methods. When the research topic has never been mentioned in a sample or population, qualitative research method is suitable. When the research topic is to determine the factors affecting the results or the signs of the predicted results, quantitative research methods are applicable. But in order to avoid the use of a single method. Possible shortcomings. The mixed method based on pragmatism and various types of data collection can help to better understand the research problem (Raju & Phung, 2020). Based on the aforementioned literature research and in-depth interviews, this study continues to use a combination of qualitative research and quantitative methods to test the rationality of the multi-dimensional division of value co-creation through empirical evidence (Chetty & Phung, 2018). The KMO and Bartlett tests were carried out using SPSS24.0 software, and the results showed that the KMO value was 0.955,  $p < 0.05$ , indicating that the test index reached an ideal value, and the sample data was suitable for factor analysis. The principal component analysis method was further used to rotate and extract factors according to the principle of Eigen root greater than 1 and the maximum variance method, and a total of 6 factors were extracted, and the cumulative interpretation variance was 65.115%. Question item 14 "We will motivate customers to interact with us with their abilities (including knowledge, experience, social skills, etc.) through various reward systems" has load values in factors 2 and 3, but the load value in factor 2 is less than 0.5, so the load value of this question item in factor 3 is retained. After rotation, the factor load of each question item is greater than 0.5, indicating that the latent variable can effectively reflect each index variable. The factor load results of each question item are shown in Table 1.

Combined with literature analysis and exploratory factor analysis, it has been preliminarily determined that the value co-creation scale consists of 2 first-level dimensions and 6 second-level dimensions of co-production and use value, with a total of 23 items. The correlation test of the two dimensions of co-production and use value found that the two are highly correlated, and a factor model comparison is required to determine the specific dimension of value co-creation. In this study, two competing models are constructed. Model 1 regards value co-creation as a single-dimensional variable, and all items of co-production and use value point to the same dimension, so a single-factor model is established; Model 2 regards co-production and use value as mutually independent dimensions, each item points to its measured latent variable, thus constructing a two-factor model. Confirming factor analysis was carried out using AMOS24.0 to compare and judge the goodness of fit of different models. The results are shown in Table 2.

**Table 1 - Exploratory Factor Analysis of Value Co-creation Dimension**

Item	Factor load					
	1	2	3	4	5	6
K1	0.805					
K4	0.744					
K2	0.702					
K3	0.674					
Q4		0.782				
Q3		0.771				
Q2		0.747				
Q1		0.745				
11			0.813			
13			0.791			
12			0.776			
14			0.735			
X3				0.854		
XI				0.826		
X2				0.797		
P2					0.817	
P3					0.787	
P4					0.772	
P1					0.717	
R2						0.851
R3						0.824
R1						0.754

Note: Analyzed by the author.

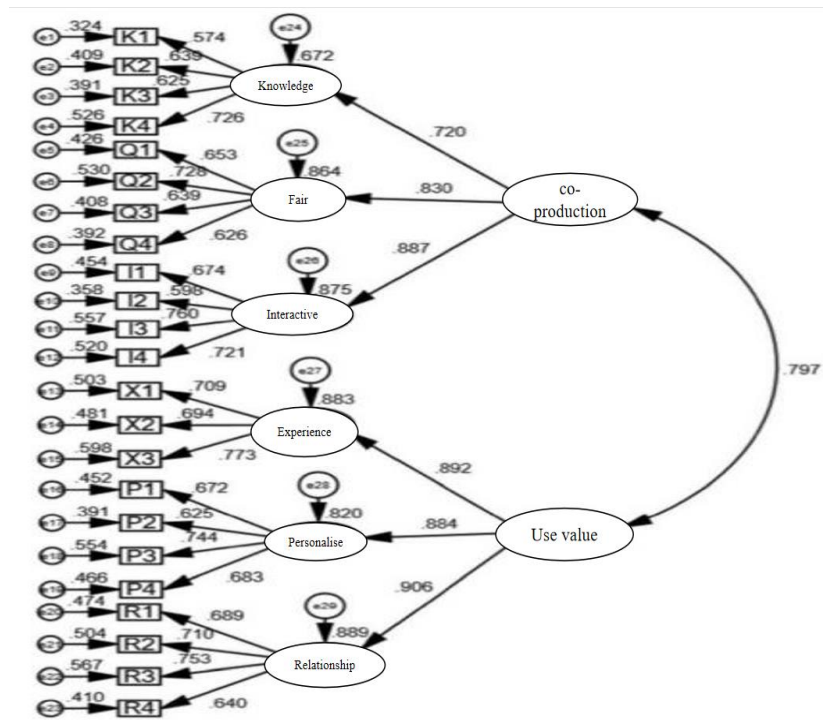
**Table 2 - Value Co-creation Model Goodness of Fit Index**

Measurement model	$\chi^2/df$	SRMR	RMSEA	GFI	AGFI	TLI	CFI
Reference value	< 3	< 0.05	< 0.080	> 0.900	> 0.900	> 0.900	> 0.900
Model 1	2.962	0,047	0.065	0.879	0.851	0.898	0.910
Model 2	2.404	0.043	0.055	0.901	0,877	0,914	0.924

Note: Analyzed by the author.

It can be seen from Table 2 that the chi-square degree of freedom ratio of model 1 is less than 3, SRMR, RMSEA, and CFI reach acceptable levels, while GFI, AGFI, and TLI do not reach acceptable levels, and the model fitting degree is poor. The chi-square degree of freedom ratio ( $\chi^2/df$ ) of model 2 is 2.404 (less than 3), indicating that the model and the sample data fit quality is good, and the second-order model is acceptable. From the perspective of the model goodness of fit index, SRMR is 0.043, less than 0.05; RMSEA is 0.055, less than 0.08; TLI and CFI are 0.901 and 0.912, respectively, both greater than 0.9. The above indicators have reached the ideal level, indicating that the model has a good degree of adaptation; GFI is 0.901, which is greater than the standard value of 0.9; AGFI is 0.877, which is slightly less than 0.9, but greater than 0.8, which can still indicate that the model has a good degree of adaptation. Overall, the two-factor model has a high level of fitting, and it is reasonable to verify that the value is co-created into two dimensions. As shown in Figure 1, the normalized path coefficients (factor loads) of the models are all greater than 0.5, and the p-values of the factor loads are all less than

0.001, indicating that the latent variables are meaningful for the interpretation of the measured variables.



**Figure 1 - Value Co-creation Confirmation Factor Analysis Model Diagram**

The results obtained after the standardized test procedure of the value co-creation scale can be considered that the various dimensions and indicators of the scale basically meet the test standards, and the concept of value co-creation can be correctly and effectively measured. The research results show that value co-creation consists of two dimensions: "co-production (knowledge, fairness and interaction) " and "use value (experience, personalization and relationship) ". The research results are consistent with the research conclusions of (Raju & Phung, 2020)2. It is also consistent with the service-led logic that value-in-use is the first component of value co-creation, and co-production is the second component of value co-creation. By integrating and applying the resources provided by the enterprise and customers, inviting customers to participate in the production or design process, motivating customers to integrate the company's products into their own lives, will the conclusion of realizing great value is consistent.

**Reliability analysis**

The reliability of 460 valid questionnaires was tested using SPSS24.0 software. It can be seen from Table 3 that the Cronbach's  $\alpha$  value of the total enterprise performance table is 0.944, indicating that the scale as a whole has high reliability. The Cronbach's  $\alpha$  values of the three dimensions of market performance, financial performance, Customer relationship and employee feedback are 0.850, 0.874 and 0.899, respectively, all greater than 0.7, indicating that each dimension of the financial performance scale has high internal consistency.

**Table 3 - Reliability Analysis and Convergence Validity Test of Enterprise Performance Scale**

	Measurement item	Factor load	Cronbach's $\alpha$	KMO	CR	AVE
	MP1	0.882	0.850	0.729	0.914	0.781
Market performance	MP2	0.883				
	MP3	0.886				
	FP1	0.883	0.874	0.739	0.923	0.799
Financial performance	FP2	0.894				
	FP3	0.905				
	CE1	0.857	0.899	0.799	0.923	0.750
Customer Relationship and Employee Feedback	CE2	0.865				
	CE3	0.864				
	CE4	0.879				
	Enterprise financial performance: Cronbach's $\alpha$ = 0.944, KMO=0.949, P=0.000, cumulative explanation variance = 66.560%					

Note: Analyzed by the author.

**Validity analysis**

In the structural validity test of the enterprise performance scale (Table 4), the KMO value of the total table is 0.944, P = 0.000 in Bartlett's test, and the cumulative interpretation variance of the scale is 66.560% (greater than 60%); KMO in each sub-dimension is greater than 0.7, and the factor load of each item is greater than 0.7, indicating that the enterprise performance scale has good structural validity, and each dimension can be effectively reflected by the measurement indicators. From the perspective of combined reliability (CR) value, the CR values of market performance, financial performance, Customer relationship and employee feedback three-dimensionality are 0.914, 0.923 and 0.923, respectively, all greater than 0.7, indicating that the internal consistency of each dimension scale is good. The average extraction variance (AVE) values of each dimension are 0.781, 0.799, and 0.750, respectively, all greater than 0.5, indicating that the discrimination between each dimension is high and the scale has good convergence validity. As shown in Table 4, the correlation coefficients between market performance, financial performance, Customer relationship and employee feedback three-dimensionality are all smaller than the square root of the respective dimensions AVE, indicating that each dimension of the module has good discriminating validity.

**Table 4 - Enterprise Performance Scale Differential Validity Test**

	Market performance	Financial performance	Customer Relationship and Employee Feedback
Market performance	0.884		
Financial performance	0.799	0.894	
Customer Relationship and Employee Feedback	0.789	0.798	0.866

Note: It is obtained by analysis and collation of the author. The diagonal bold font is the opening root value of AVE, and the lower triangle is the Pearson correlation of dimension.

**3. Total table of business model innovation**

**(1) Reliability test**

The reliability of 460 valid questionnaires was tested using SPSS24.0 software. It can be seen from Table 5 that the Cronbach's  $\alpha$  value of the total business model innovation table is 0.967, indicating that the scale as a whole has high reliability. The Cronbach's  $\alpha$  value of the value creation innovation dimension component table is 0.927, and the Cronbach's  $\alpha$  value of the dimensions of new capabilities, new technologies/equipment, new partnerships, and new processes is 0.789, 0.798, 0.786, and 0.840, respectively; the Cronbach's  $\alpha$  value of the value

proposition innovation dimension component table is 0.934, and the Cronbach's  $\alpha$  value of the dimensions of new products, new customers and markets, new channels, and new Customer relationships is 0.815, 0.839, 0.833, and 0.758, respectively; the Cronbach's  $\alpha$  value of the value acquisition innovation dimension is 0.861, new revenue model and new. The Cronbach's values of the cost structure dimension are 0.752 and 0.795, and the above values are all greater than 0.7, indicating that each dimension of the business model innovation scale has high internal consistency.

**Table 5 - Reliability Analysis and Convergence Validity Test of Business Model Innovation Scale**

Variable	Item	Factor load	Cronbach's $\alpha$ (X	KMO	CR	AVE
Value creation and innovation			0.927	0.948	0.966	0.690
New capabilities	CAP1	0.844	0.789	0.706	0.877	0.703
	CAP2	0.828				
	CAP3	0.843				
New technology/equipment	TEC1	0.812	0.798	0.698	0.882	0.713
	TEC2	0.871				
	TEC3	0.849				
New partnership	PAR1	0.713	0.786	0.735	0.862	0.611
	PAR2	0.814				
	PAR3	0.772				
	PAR4	0.822				
New process	PR01	0.822	0.840	0.716	0.904	0.759
	PR02	0.889				
	PR03	0.839				
Value proposition innovation			0.934	0.954	0.970	0.728
New product	OFF1	0.823	0.815	0.693	0.890	0.730
	OFF2	0.893				
	OFF3	0.846				
New customers and markets	MAR1	0.861	0.839	0.715	0.903	0.757
	MAR2	0.896				
	MAR3	0.852				
New channel	CHA1	0.865	0.833	0.723	0.900	0.749
	CHA2	0.876				
	CHA3	0.856				
New customer relationship	REL1	0.852	0.758	0.684	0.861	0.674
	REL2	0.814				
	REL3	0.796				
Value acquisition innovation			0.861	0.901	0.922	0.597
New income model	REV1	0.780	0.752	0.738	0.843	0.574
	REV2	0.782				
	REV3	0.758				
	REV4	0.709				
New cost structure	COS1	0.760	0.795	0.788	0.867	0.619
	COS2	0.791				
	COS3	0.828				
	COS4	0.767				

Business model innovation: Cronbach's  $\alpha$  = 0.967, KMO = 0.972, P = 0.000, cumulative interpretation variance = 73.124% Note: obtained by the author's analysis.



**Validity test**

In the structural validity test of the business model innovation scale, the KMO value of the total table is 0.972, P = 0.000 in Bartlett's test, and the cumulative interpretation variance of the scale is 73.124% (greater than 60%); in each sub-dimension, only new products and new Customer relationship The KMO is slightly less than 0.7, but still greater than 0.6, and the factor load of each item is greater than 0.5. Therefore, the business model innovation scale has good structural validity, and each dimension can be effectively reflected by the measurement index. The combined reliability CR value of the value creation innovation dimension is 0.966, and the CR values of the subordinate dimension new capabilities, new technologies/equipment, new partners, and new processes are 0.877, 0.882, 0.862, and 0.904, respectively; the CR value of the value proposition innovation dimension is 0.970, and the CR values of the subordinate dimension new products, new customers and markets, new channels, and new Customer relationships are 0.890, 0.903, 0.900, and 0.861, respectively; the CR value of the value acquisition innovation dimension is 0.922, and the CR values of the subordinate dimension new revenue model and new cost model are 0.843 and 0.867, respectively, both greater than 0.7, indicating that each dimension of business model innovation The internal consistency of the metric table is good. From the average extraction variance (AVE), the AVE values of each dimension are greater than 0.5 that is, the degree of discrimination between each dimension is high, and the scale has good convergence validity. From the perspective of discrimination validity, the correlation coefficients between new capabilities (CAP), new technology/equipment (TEC), new partners (PAR), new processes (PRO), new products (OFF), new customers and markets (MAR), new channels (CHA), new Customer relationships (REL), new revenue models (REV), and new cost structures (COS) dimensions in the Business Model Innovation Scale are all smaller than the square root of the AVE of each dimension, indicating that each dimension of the module has a good difference validity (Table 6).

**Table 6 - Business Model Innovation Scale Differential Validity Test**

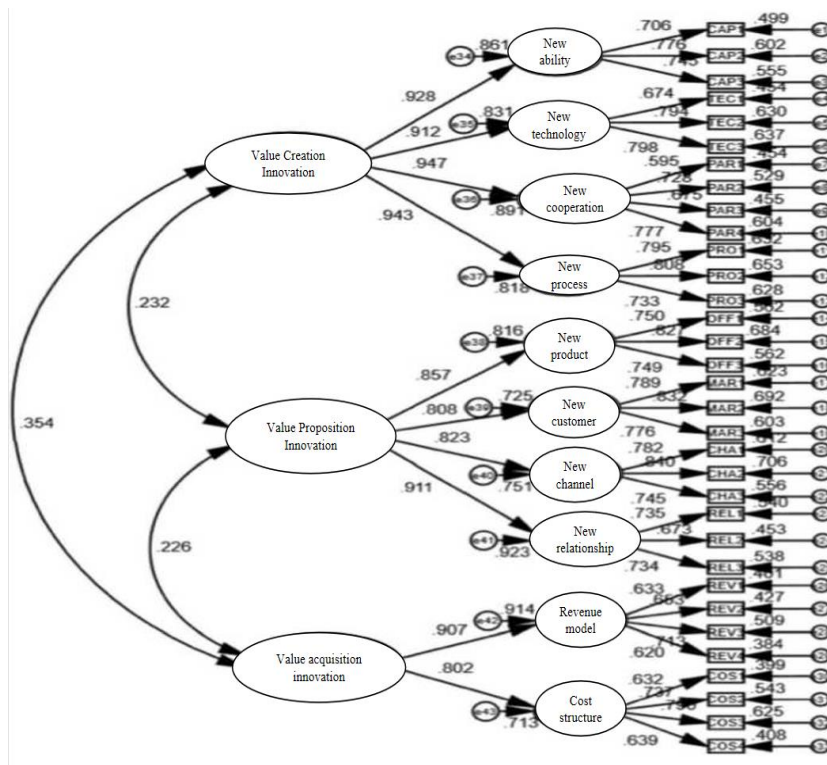
	CAP	TEC	PAR	PRO	OFF	MAR	CHA	REL	REV	COS
CAP	0.838									
TEC	0.706	0.844								
PAR	0.671	0.665	0.782							
PRO	0.705	0.715	0.744	0.871						
OFF	0.725	0.696	0.713	0.732	0.854					
MAR	0.672	0.639	0.659	0.667	0.711	0.870				
CHA	0.646	0.666	0.721	0.707	0.686	0.735	0.865			
REL	0.677	0.651	0.730	0.716	0.722	0.724	0.793	0.821		
REV	0.648	0.665	0.707	0.725	0.652	0.689	0.743	0.738	0.758	
COS	0.563	0.566	0.676	0.612	0.620	0.648	0.662	0.678	0.697	0.787

Note: It is obtained by analysis and collation of the author. The diagonal bold font is the opening root value of AVE, and the lower triangle is the Pearson correlation of dimension.

**(3) Dimensional analysis**

Confirmative factor analysis was carried out using AMOS24.0. After testing, the chi-square degree of freedom ratio ( $\chi^2/df$ ) of the model was 2.401, indicating that the second-order model was acceptable, and the fitting quality of the model and sample data was good; among the goodness of fit indicators, SRMR was 0.033, less than 0.05; RMSEA was 0.055, less than 0.08: GFI and AGFI were 0.938 and 0.908, respectively, both greater than 0.9; TLI and CFI were 0.922 and 0.928, respectively, both greater than 0.9, and the above indicators reached the ideal level, indicating that the model fit was good. As shown in Figure 2, the standardized path coefficients (factor loads) of the models are all greater than 0.5, and the p-values of the factor loads are all

less than 0.001, indicating that the latent variables are intended to explain the measured variables. Therefore, all dimensions and indicators of the business model innovation scale meet the test standards, indicating that the model and sample data fit well.



**Figure 2 - Business Model Innovation Confirmation Factor Analysis Model Diagram**

In general, after the theoretical exploration, exploratory factor analysis and confirmatory factor analysis of the three standardized scale development procedures and empirical results of the business model innovation scale, it can be considered that each dimension and index of the scale basically meets the test standard of each indicator, which can correctly and effectively measure the variable of business model innovation and lay the foundation for subsequent research. The research results show that business model innovation is a concept that includes 3 core dimensions and 33 measurement items. The three core dimensions are specifically manifested as "value creation innovation", "value proposition innovation" and "value acquisition innovation". The three core dimensions include 10 sub-concepts such as "new capabilities", "new products" and "new revenue models". The research results are consistent with Clauss (2017). It also verifies that the business model innovation proposed by scholars needs to follow the construction logic and reflect the process, behavior and systematic characteristics. Sun Chu and Zeng Jianqiu (2019) once described business model innovation from the perspective of value co-creation in four dimensions: value proposition, value creation, value transmission and value acquisition, which also reflected this procedural feature. This study believes that business model innovation is a strategic-level change behavior and systematic innovation. Enterprises interpret the concept of business model innovation from the perspectives of value creation, value proposition, and value acquisition, which can help them more comprehensively establish a value realization process. The basic essence of a sustainable business ecosystem that discovers the source of new strategic competitive advantages for enterprises.

#### 4. Scale test of program control behavior

##### (1) Reliability and analysis

The reliability test of 460 valid questionnaires was carried out using SPSS24.0 software. The reliability and validity test results of the Enterprise Program Control Behavior Scale are shown in Table 7. The Cronbach's  $\alpha$  value of the scale is 0.874, which is greater than 0.7, indicating that the internal consistency of the scale is high. In the validity test, the KMO value of the scale is 0.872, the Bartlett's test is  $P = 0.000$ , and the cumulative interpretation variance of the scale is 66.66% (greater than 60%): and the factor loads of each item are all greater than 0.7, indicating that the scale has good structural validity, and each dimension can be effectively reflected by the measurement index. The combined reliability (CR) value of the scale is 0.909, which is greater than 0.7, indicating that the internal consistency of each item is good; the average extraction variance (AVE) value is 0,666, which is greater than 0.5, indicating that the discrimination between each dimension is high, and the scale has good Convergence validity. Since only one dimension is included in the enterprise program control scale, there is no need to conduct a differential validity test.

**Table 7 - Reliability Analysis and Convergence Validity Test of Program Control Scale**

Measurement	Factor load	Cronbach's $\alpha$	KMO	Cumulative	CR	AVE
PCB1	0.765	0.874	0.872	66.66%	0.909	0.666
PCB2	0.846					
PCB3	0.826					
PCB4	0.808					
PCB5	0.832					

Note: It is obtained by analysis and collation of the author.

#### Data Analysis

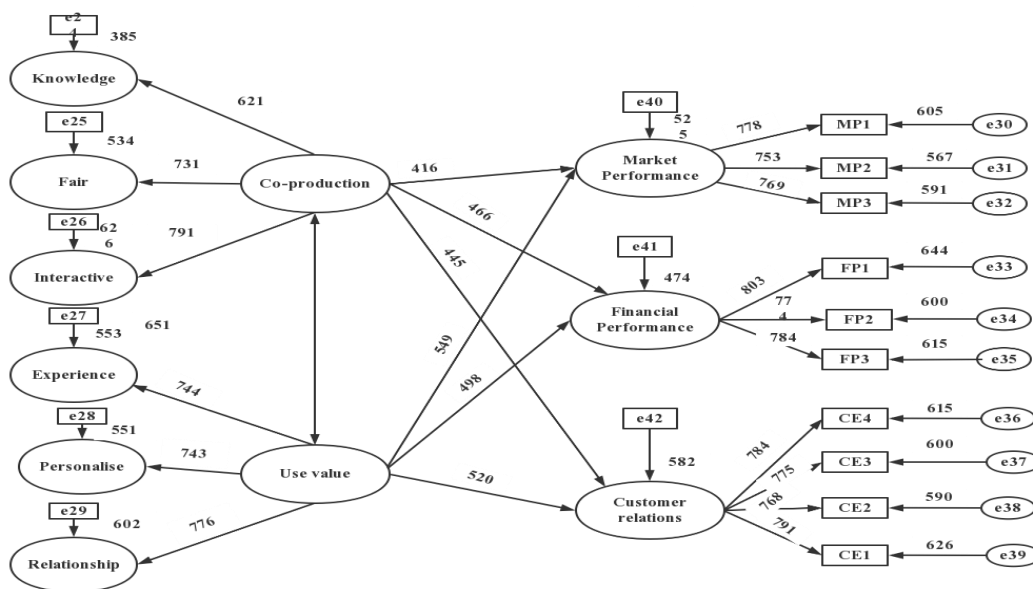
The AMOS24.0 software is used to test the hypothesis and estimate the parameters of the structural model, and determine whether the model and assumptions are supported by the standardized path coefficient, standard error, t value and significant p value in the model structure. The path analysis was carried out with the significance  $p < 0.05$  as the standard, and the hypothesis test results were obtained as shown in Table 8a. When co-production and use value jointly affect enterprise performance in the value co-creation scale of fitness service industry, the direct effect of co-production on each element of enterprise performance is significant at the level of  $p < 0.001$ , and the direct effect of use value on each element of enterprise performance is significant at the level of  $p < 0.001$ , indicating that the assumptions of the model are supported by data. Specifically, co-production positively affects corporate financial performance ( $\beta_1 = 0.466$ ,  $p < 0.001$ ), corporate market performance ( $\beta_2 = 0.416$ ,  $p < 0.001$ ), Customer relationship and employee feedback ( $\beta_3 = 0.445$ ,  $p < 0.001$ ), the hypothesis is supported; the value of use positively affects corporate financial performance ( $\beta_4 = 0.498$ ,  $p < 0.001$ ), corporate market performance ( $\beta_5 = 0.549$ ,  $p < 0.001$ ), Customer relationship and employee feedback ( $\beta_6 = 0.520$ ,  $p < 0.001$ ), the hypothesis is supported. Comparing the direct effect of the co-creation dimension of value on the performance dimension of enterprises, the effect of use value on each element of enterprise performance is stronger than that of co-production. Among them, use value has the strongest effect on market performance, while co-production has the weakest effect on enterprise market performance. The order of strength is  $\beta_5 > \beta_6 > \beta_4 > \beta_1 > \beta_3 > \beta_2$ . The analysis results of the structural model are shown in Figure 3.

**Table 8 a- Value Co-creation and Enterprise Performance Hypothesis Test Results**

Hypothetical path	Path	Standard	T value	P value	Conclusio
H1a1: Co-production → Financial	0.466	0.209	4.763	0.000***	Support
H1a2: Co-production → Market	0.416	0.184	4.217	0.000***	Support
H1a3: Co-production → Customer	0.445	0.182	4.725	0.000***	Support
H1b1: Value in Use → Financial	0.498	0.173	5.11	0.000***	Support
H1b2: Use value → market performance	0.549	0.156	5.466	0.000***	Support
H1b3: Use Value → Customer	0.520	0.152	5.491	0.000***	Support

Note: It is obtained by analysis and collation of the author. \* means  $p < 0.1$ , \*\* $p < 0.05$ , \*\*\* means  $p < 0.001$

Due to the needs of mapping, the "Customer relationship and employee feedback" of the enterprise performance dimension in the structural equation analysis diagram is abbreviated as "Customer relationship", the same below.



**Figure 3 - Value Co-creation and Enterprise Performance Structure Model Analysis Results (N = 460)**

**Summary of research**

This chapter first explores and verifies the multi-dimensional characteristics of value co-creation and clarifies that value co-creation consists of two dimensions: "co-production" and "use value". Among them, "co-production" includes three sub-concepts of knowledge, fairness and interaction, and "use value" includes three sub-concepts of experience, personalization and relationship. The research results respond to scholars' assertion that value co-creation is a continuous process, including a series of open interactive behaviors including co-production, knowledge sharing, relationship co-construction, and in-depth experience. Second, this study explores the relationship between value co-creation and firm performance (Table 8b). Through empirical tests, it is found that both co-production and use value significantly and positively affect three dimensions of firm performance (financial performance, market performance, Customer relationship and employee feedback), and the positive effect of use value is stronger than that of co-production. Specifically: in the impact path of co-production on firm performance, the direct effect of "co-production-financial performance" is the strongest; in the impact path of use value on firm performance, the direct effect of "use value-market performance" is the strongest.

**Table 8 b - The Action Mechanism of Value Co-creation on Enterprise Performance  
Summary of Hypothesis Test Results**

Hypothesis	Conclusion
H1: Value co-creation has a significant positive impact on enterprise performance.	Supported
H1a: Co-production has a significant positive impact on enterprise performance.	Supported
H1a1: Co-production has a significant positive impact on financial performance;	Supported
H1a2: Co-production has a significant positive impact on market performance;	Supported
H1a3: Co-production has a significant positive impact on customer relationship and employee feedback	Supported
H1b: Use value has a significant positive impact on enterprise performance.	Supported
H1b1: Use value has a significant positive impact on financial performance;	Supported
H1b2: Use value has a significant positive impact on market performance;	Supported
H1b3: Use value has a significant positive impact on customer relationship and employee feedback.	Supported

Note: Analyzed by the author

## Conclusion

This study explores the relationship between value co-creation and business model innovation (Table 4-4). Through empirical tests, it is found that both co-production and use value significantly and positively affect the three dimensions of business model innovation (value creation innovation, value proposition innovation, value acquisition innovation). This study explores the relationship between value co-creation and business model innovation (Table 4-4). Through empirical tests, it is found that both co-production and use value significantly and positively affect the three dimensions of business model innovation (value creation innovation, value proposition innovation, value acquisition innovation). This study also demonstrates the scientificity of the researchers' concept of constructing and measuring value co-creation "coco-production" use value "through theoretical analysis and empirical testing, and explores the connotation of value co - creation and its impact on enterprise performance from a deep level through the three sub-constructs" co - production " : knowledge, fairness and interaction and the three sub - constructs of" use value " : experience, personalization and relationship. Secondly, based on empirical tests, it is found that the two dimensions of co-production and use value of value co-creation have a significant positive impact on the three dimensions of enterprise performance: financial performance, market performance, customer relationship and employee feedback. From the effect point of view, the influence of use value on all dimensions of enterprise performance is stronger than that of co-production, among which "use value-market performance" has the strongest influence (Arvidsson et al. 2021; Cuevas et al. 2021).

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