RESEARCH ON BUSINESS MODEL INNOVATION OF E-COMMERCE ENTERPRISES IN CHINA

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Abstract

The rapid development of Chinese commerce and the maturity of e-commerce, the convenience and experience of consumers' shopping have been improved. Internet technology has improved the consumption environment in less developed regions and gradually filled the consumption gap between different regions. At the same time, commercial enterprises in China still have the problems of rising rent cost, logistics cost and labor cost. The problems of unbalanced layout, excessive structure and imperfect supporting facilities directly or indirectly restrict the development of enterprises. The development pattern of data-driven business decision-making has not yet been formed, and the market equity order needs to be further optimized. The business environment of commercial enterprises poses new challenges to the business model innovation of commercial enterprises. Based on the e-commerce environment formed by the development and application of Internet technology, this paper reviews the literature related to innovation management. According to the literature review results, it is found that the research on business model innovation at home and abroad began at the end of the 1990s. Although the research on business model innovation has been deepened in recent years, the research on business model innovation is far from perfect so far, mainly as follows: first, innovation management what is the relationship between knowledge management and e-commerce enterprise performance? Secondly, what are the main factors that affect the business performance of Chinese e-commerce enterprises? On the basis of analyzing the path of business model innovation, this paper carries out research and provides theoretical support for business model innovation management, with a view to providing practical and feasible operation plans for e-commerce enterprises to carry out business model innovation. Based on the theories of innovation management, knowledge management and organization management, this paper takes a systematic sampling method and draws 289 quantitative research samples. According to the research of relevant literature, the sample size of qualitative research was determined to be 15. It also uses mathematical statistical analysis and structural equation model (SEM) to study the business model innovation management based on e-commerce environment, and finally achieves the goal of improving the market competitiveness of e-commerce enterprises, expanding market share and consolidating the industry position. Specifically including the following two points: first, clarify the relationship between innovation management, knowledge management, organizational management, innovation capacity, customer value and the performance of Chinese e-commerce enterprises; second, find out the main factors that affect the business performance of Chinese e-commerce enterprises.

Keywords: E-Commerce Enterprise; Business Model Innovation; Innovation Management; Enterprise Performance.

INTRODUCTION

Since the reform and opening up, China's commerce has developed rapidly. With China's entry into WTO, the restrictions on foreign business group capital in terms of equity, quantity and region have been cancelled since December 2004, and the comprehensive opening up to

foreign-funded enterprises has been implemented. Powerful multinational giants have entered the Chinese market by means of direct investment, merger and reorganization and joint venture. Chinese commercial enterprises are booming under the joint action of multinational enterprises and local enterprises. In July 2019, the development report of China's retail industry (2018 / 2019) released by the Ministry of Commerce showed that by the end of 2018, there were 20.8 million business units in China's retail industry, with a year-on-year increase of 7.8% and a growth rate of 0.9% over the previous year.

The annual retail sales reached 33.8 trillion yuan, a year-on-year increase of 8.9%. While the commercial market is booming, the competition is also increasing. From 2020 to 2021, the total retail sales of goods in China increased by 10.7% over the same period. However, the reform and development of China's retail industry still faces some problems and difficulties. Operating costs continue to rise, labor, rent and financing costs are high, enterprise transformation and upgrading and technology iteration have high equipment transformation costs and technical difficulties, and the old commercial supporting facilities impose certain restrictions on the development of retail enterprises, The regulatory mechanisms such as Internet integrity problems brought by the development of online and offline retail still need to be improved, and the training of retail professionals needs to be strengthened.

The development of e-commerce has become mature, and it has developed rapidly in recent years. The 9 points of view of the Internet plus traditional industries, pointed out by the Ali Research Institute, has brought convenience to consumers and improved the quality of life of consumers. In particular, it has provided great help to the improvement of consumption environment in underdeveloped areas and the reduction of interregional consumption level. According to the statistics of Ali Research Institute, in China's consumption data, the retail growth rate in the central and western regions is faster than that in the eastern region, the retail sales growth rate of core shopping malls in the central and western regions is 13%, the retail sales growth rate of first tier cities such as Beijing, Shanghai and Hangzhou is less than 10%, and the growth rate of some eastern provinces is less than 5%.

It shows that e-commerce affects the consumption potential of the demand side. The development of emerging information service industries such as AI technology, big data, cloud computing, mobile Internet, social networks and GPS based location has led to explosive growth in the amount of global data. At the same time, the behavior characteristics and browsing trajectory of customers in cyberspace, as data records, also play an important role in depicting users' consumption habits - portrait. The development of e-commerce is changing the business environment.

Fierce market competition and a large number of foreign capital inflow make China's commercial enterprises urgently need to deal with the changeable market environment through business model innovation. With the rapid development of e-commerce, many commercial enterprises apply e-commerce to daily operation, gradually deepening the Internet transformation of all links in commercial enterprises.

LITERATURE REVIEW

Scholars' research on the connotation of innovation

Scholars' research on the connotation of innovation is carried out around the research of technological innovation, so this kind of scholars are also known as the school of technological innovation. Schumpeter (1991; 1937) first studied the concept and connotation of innovation, and then domestic and foreign scholars expounded its research from different angles. Austrian economist Joseph Schumpeter (hereinafter referred to as "Schumpeter") is regarded as the founder of innovation economics because of his series of pioneering research.

Schumpeter (1946; 1947) published the theory of economic development, and then published two monographs, economic cycle and capitalism, socialism and democracy in 1913 and 1914 respectively. In the above works, Schumpeter proposed that "innovation is the change of production function and the core and driving force of modern economic growth", and first defined the basic connotation of innovation (Schumpeter, 1943a; 1943b) (quoted from research on performance evaluation of innovative enterprises). After Schumpeter, the research on innovation has developed rapidly and gradually formed a theoretical system.

Li Wanjun et al. (2019) studied the connotation of innovation. Taking the research direction of enterprise technological innovation performance as the starting point, they divided it into two dimensions: innovation quantity and innovation quality. On the basis of fully considering the heterogeneity of policy, organization and market, they empirically analyzed the impact of government support on the technological innovation performance of Seed Enterprises. Economists Kaman, Schwartz and others study innovation from the perspective of the relationship between technological innovation and market structure.

They believe that innovation is the activity or process of recombining advanced technology, production factors and production conditions into the production system, so as to form the final product into the market and obtain potential profits. Mansfield, an American economist, has studied the technology promotion in technological innovation, the relationship between technological innovation and technological imitation, and the change speed of them, and put forward that innovation is technological innovation.

Influencing factors of customer value

Feng Ru (2015) believes that: "Brand is the first principle to create customer value. It is the brand that enables enterprises to create value for internal customers, external customers and investors. At the same time, providing customers with more information can increase their value. Usually, customers fail to recognize the options available to them. If customers get this information, they can make choices based on their knowledge, which can make them more comfortable in making decisions.

Gronroos (1997); Qin Yuanjian (2006) believes that customer value not only comes from core products and additional services, but also includes efforts to maintain relationships. Value can be created by developing good and sustained customer relationships. The benefits and costs related to relationships are the determinants of customer perceived value.   Because the

relationship is a long-term process, customer value will appear in a long time. Gronroos calls this the value process.

Wenjun (2003); Ruekert (1985) pointed out: "put the product aside first, carefully study the needs and desires of customers, don't sell the products you can make, but sell the products customers want to buy, forget the pricing, channel and promotion strategies for the time being, understand the needs of customers first, and create cost value for customers". The core customer value will shape the core competitiveness of the enterprise, which requires the enterprise to analyze the customer value and build a long-term competitive strategy around the customer value. To analyze and identify the customer value, it is necessary to study the influencing factors of the customer value. Therefore, in the field of customer value research, in addition to discussing its concepts and characteristics, many scholars have also conducted a lot of research on the influencing factors of customer value. (Kerdpitak, 2022a: 2022b; Wenjun, 2003); Ruekert, 1985)

Many scholars, such as Bolton and James, have mentioned the quality and price factors when they study the influencing factors of customer value. Quality is the interest that customers want to pursue, and price is the monetary expression of the price that customers pay. The trade-off between the two naturally becomes the basis for customers to make purchase decisions. Parasuraman also regards quality as one of the influencing factors of customer value.

Kotler's customer delivered value theory attributes the factors affecting customer value to product value, service value, personnel value and image value. The so-called customer delivered value refers to the difference between the total customer value and the total customer cost. He believes that the premise of customer research is that customers will buy products from enterprises that they believe can provide the highest customer delivered value. (Kotler, 1999; Yuan, 2003).

In the study of the influencing factors of customer value, in addition to the above-mentioned factors such as quality, price, brand and information, convenience is also mentioned in the study of James. Convenience is also one of the reasons that customers pursue and influence their purchase decisions. When buying goods, it often saves customers time, energy and physical strength, and becomes one of the factors driving customer value

Summary of customer value theory

Through literature review and summary, we can know that in the field of customer value research, although scholars have achieved fruitful results, there are still many problems in this research field that have not been successfully solved or that need to be further studied. The research on customer value is still at the exploratory stage. This paper verifies the impact of customer value on business model innovation by studying the relationship between customer value and business performance. (Kotler, 1999; Yuan, 2003).

METHODOLOGY

The development of e-commerce environment provides great opportunities for business model innovation of business enterprises. The development of commercial enterprises depends on continuous business model innovation. The reason why commercial enterprises can continue to innovate business model is not only triggered by external factors such as e-commerce environment, external market and product iteration, but also promoted by effective innovation management.

Based on the research of innovation economics theory, innovation management theory, business model innovation theory and innovation ability evaluation at home and abroad, this paper studies the business model innovation management against the background of the development of e-commerce environment, analyzes the business model innovation mechanism under this background, The efficient and orderly implementation of business model innovation provides management methods and technical support, and ultimately achieves the goal of improving the market competitiveness of commercial enterprises, expanding the market share of commercial enterprises and consolidating the industry position. This survey mainly adopts the systematic sampling method. Because the population sampled this time contains more individuals, it is more scientific to adopt systematic sampling.

From the total sample with a capacity of 2894, the sample with a capacity of 289 is selected by systematic sampling method. The researchers collected data through in-depth interviews. Researchers visited relevant enterprises to conduct targeted sampling in-depth interviews with middle and senior managers to obtain the results of field visits, analyze and establish a causal factor model for the relationship between innovation management, knowledge management, organizational management, innovation capability and customer value, as well as the impact on business performance, to confirm whether variables and factors are appropriate and consistent. The research tool is questionnaire (including interview). This sampling survey collected the necessary data of 289 employees and 15 interviewees of typical domestic e-commerce enterprises. The collected data is analyzed by SEM modeling, the data is analyzed by path modeling, and the causal relationship of the model is determined by software.

RESULTS

4.1 Descriptive analysis

Table 4.1 Description Statistical Analysis

	Mean	Std. Deviation	N
IM	3.4091	0.73774	499
KM	3.6559	0.70142	499
OM	3.7770	0.65551	499
IA	3.3866	0.81443	499
CV	2.9078	0.87419	499
BP	3.7679	0.71331	499

Descriptive statistical analysis typically measures the indicator level of each variable through mean and standard deviation. The higher the average value, the higher the average level of the sample towards this indicator. The discrete trend is used to describe the degree of data dispersion in the data distribution, such as the standard deviation representing the size of differences between different samples on the same indicator. The higher the score of this survey questionnaire on dimension observation, the higher the degree of agreement.

From Table 4.5, it can be seen that the average value of IM is 3.4091, the average value of KM is 3.6559, the average value of OM is 3.7770, the average value of IA is 3.3866, and the average value of BP is 3.7679. The average value of most aspects is relatively high, indicating that the subjects are relatively satisfied with this, and currently perform well and need to continue to maintain it. The average score of CV is 2.9078, which is relatively low and needs improvement. In other words, the performance of CV is poor and further optimization is needed.

4.2 Correlation analysis

Table 4.2 Correlation Analysis

	IM	KM	OM	IA	CV	BP
IM	1					
KM	0.291**	1				
OM	0.110*	0.154**	1			
IA	0.348**	0.394**	0.208**	1		
CV	0.376**	0.380**	0.238**	0.279**	1	
BP	0.338**	0.316**	0.229**	0.307**	0.386**	1

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Correlation analysis refers to the process of describing and analyzing the properties and degree of correlation between two or more variables. Mark the * sign in the upper right corner of the correlation coefficient to indicate a relationship; On the contrary, it doesn't matter. When the correlation coefficient is greater than 0, it indicates a positive correlation between two variables, and when it is less than 0, it indicates a negative correlation between two variables.

From Table 4.2 above, it can be seen that:

1) The correlation coefficient between IM and IA is 0.348 and shows a significant level of 0.01, indicating a significant positive correlation between IM and IA. The correlation coefficient between IM and CV is 0.376 and shows a significant level of 0.01, indicating a significant positive correlation between IM and CV.

2) The correlation coefficient between KM and IA is 0.394 and shows a significant level of 0.01, indicating a significant positive correlation between KM and IA. The correlation coefficient between KM and CV is 0.380 and shows a significant level of 0.01, indicating a significant positive correlation between KM and CV.

3) The correlation coefficient between OM and IA is 0.208 and shows a significant level of 0.01, indicating a significant positive correlation between OM and IA. The correlation coefficient between OM and CV is 0.238 and shows a significant level of 0.01, indicating a significant positive correlation between OM and CV.

4) The correlation coefficient between IA and BP is 0.307 and shows a significant level of 0.01, indicating a significant positive correlation between IA and BP.

5) The correlation coefficient between CA and BP is 0.386 and shows a significant level of 0.01, indicating a significant positive correlation between CA and BP.

4.3 Analysis of Structural Equation Results

4.3.1 Path analysis

Structural equation models can simultaneously handle multiple dependent variables, namely endogenous variables. In traditional regression models, the regression coefficients and path coefficients in path analysis are calculated individually for each dependent variable, ignoring the influence of other dependent variables. In the structural equation, the existence of other factors will be fully considered, which means that the structure within each factor will be adjusted and changed taking into account other coexisting variables. Therefore, not only will the relationship between factors change, but the internal structure of factors also change.

Using analyze software to build a structural equation model to test hypotheses (SEM), when conducting path analysis, it is necessary to consider two aspects simultaneously, namely the overall model fitness index and the internal structure fitness index of the model.

The judgment criteria for the overall model fitness test are mainly based on model fitting indicators, including adjusted chi square values (DF), fitness index (GFI), comparative fit index (CFI), normalized fit index (NFI), and root mean square error (RMSEA).

Based on the model and assumptions, a structural equation model was constructed using Amos 21.0 as follows:
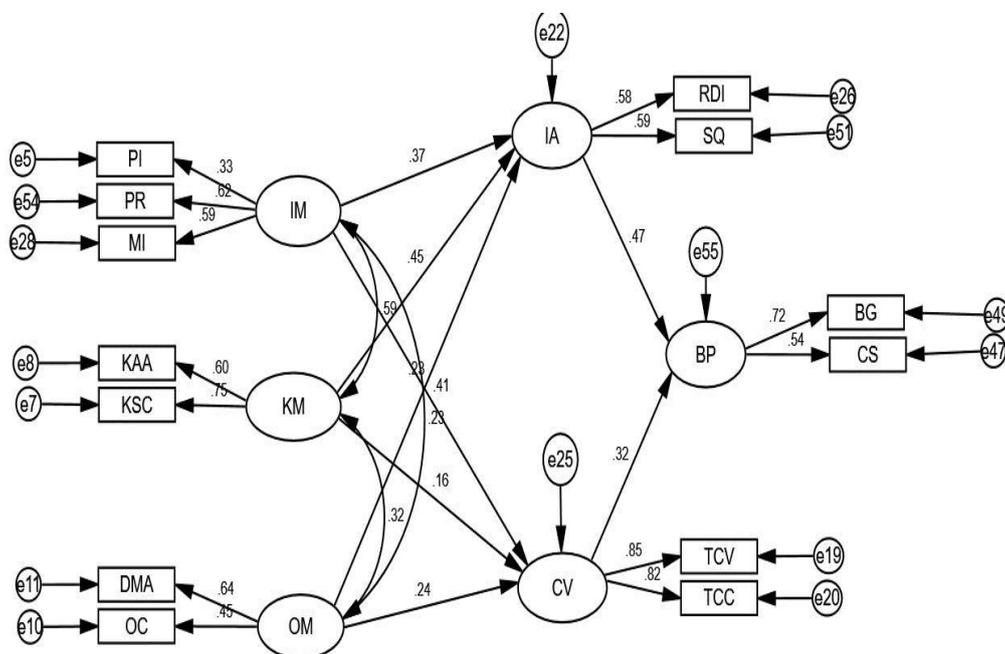

Figure 4.1 SEM diagram

Table 4.3 Model Fitting Indicator

index	χ^2/df	RMSEA	GFI	NFI	TLI	CFI
Judgment standard	<3	<0.08	>0.9	>0.9	>0.9	>0.9
value	1.302	0.025	0.979	0.946	0.981	0.987

From Figure 4.1, it can be seen that the factor loads for each dimension are as follows: PI is. 33, PR is. 62, MI is. 59, KAA is. 60, KSC is. 75, DMA is. 64, OC is. 45, RDI is. 58, SQ is. 59, KSC is. 75, DMA is. 64, OC is. 45, TCV is. 85, TCC is. 82, BG is. 72, CS is. 54.

If the chi square degree of freedom ratio is less than 3, it means that the model is over-fitted better. If the RMSEA is usually less than 0.08, which means that the overall fit of the model is good. If GFI is less than 0.9, it means that the model has better adaptability; if the NFI is less than 0.9, it means it meets the general standard. If the TLI is less than 0.9, it means that the data fits the model completely, and if the CFI is less than 0.9, it means that the data completely

fits the model. From Table 4.7, it can be seen that the chi square degree of freedom ratio is less than 3, the RMSEA value is less than 0.08, and the values of various indicators such as GFI, NFI, TLI, and CFI are all greater than 0.9. All indicators of the structural equation model meet the excellent standard, indicating that the data can fit the model well.

Table 4.4 the Path Coefficients of Structural Equation Models Test

X		Y	Standard Estimate	Unstandard Estimate	S.E.	C.R.	P
IM	--->	IA	0.371	0.335	0.101	3.303	***
IM	--->	CV	0.415	0.496	0.119	4.173	***
KM	--->	CV	0.162	0.257	0.146	1.755	0.079
OM	--->	CV	0.237	0.503	0.166	3.026	0.002
KM	--->	IA	0.454	0.543	0.141	3.853	***
OM	--->	IA	0.229	0.366	0.143	2.558	0.011
CV	--->	BP	0.323	0.182	0.047	3.894	***
IA	--->	BP	0.475	0.355	0.076	4.646	***

Main effect hypotheses testing:

The above table shows the regression coefficients. Usually, only the p-value and the standardized path coefficient need to be observed to determine whether the path (X—>Y) has a direct linear impact. Analyze whether there is an impact relationship between model variables based on significance testing. If there is significance (P value less than 0.05), it indicates that there is an influence relationship between variables. The standardized path coefficient can be used to conduct in-depth analysis on the efficiency variables.

1) The standardized path coefficient of IM on IA is 0.371, with a P-value less than 0.05, indicating a significant positive impact relationship. The hypothesis is valid.

2) The standardized path coefficient of IM on CV is 0.415, with a P-value less than 0.05, indicating a significant positive impact relationship. The hypothesis is valid.

3) The standardized path coefficient of KM on IA is 0.454, with a P-value less than 0.05, indicating a significant positive impact relationship. The hypothesis is valid.

4) The standardized path coefficient of KM on CV is 0.162, and the P-value is greater than 0.05, indicating that there is negative effect and the hypothesis is not valid.

5) The standardized path coefficient of OM on IA is 0.229, and the P-value is less than 0.05, indicating a significant positive impact relationship. The hypothesis is valid.

6) The standardized path coefficient of OM on CV is 0.237, with a P-value less than 0.05, indicating a significant positive impact relationship. The hypothesis is valid.

7) The standardized path coefficient of IA on BP is 0.475, and the P-value is less than 0.05, indicating a significant positive impact relationship. The hypothesis is valid.

8) The standardized path coefficient of CV on BP is 0.323, and the P-value is less than 0.05, indicating a significant positive impact relationship. The hypothesis is valid.

CONCLUSION

This study determined the relationship between Innovation management (IM), knowledge management (KM), organizational management (OM), innovation capability (IA), customer value (CV) and business performance (BP) of Chinese e-commerce enterprises. From Table 4.9, it can be seen that there is a significant positive correlation between IM and IA, a significant positive correlation between IM and CV, a significant positive correlation between KM and IA, a negative correlation between KM and CV, a significant positive correlation between OM and IA, a significant positive correlation between OM and CV, a significant positive correlation between IA and BP, and a significant positive correlation between CV and BP. In addition, this study identified factors such as innovation ability (IA) and customer value (CV) that affect the business performance of Chinese e-commerce enterprises.

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