ISSN: 2688-9323

The Impact of Technological Innovation and Operation Management on Business Benefits of Chinese Oem Manufacturing Enterprises

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Abstract

In this paper, contract manufacturing enterprises are selected as the research object, and major sample data from 2015 to 2019 are selected for empirical analysis. Meanwhile, corresponding questionnaire design is conducted for the specific situation of contract manufacturing enterprises, and the questionnaire results are collected for statistical analysis. With the help of lean Six Sigma theory, the operation management mode is optimized, and on this basis, the corresponding impact of enterprise operating efficiency is studied. At the same time, in the specific analysis process, through the construction of a conceptual model to carry out confirmatory factor analysis, and at the same time, the intermediary effect of employee incentive management is tested. Finally, the rationality of this study is confirmed by group difference test. In terms of methods, the lean Six Sigma model and the relevant structural equation model are integrated, and the corresponding tests are carried out. LISREL8.7 software is used to analyze the structural model, and the results show that the variables in each model have good significance. Finally, according to the empirical research results, this paper puts forward four suggestions, including strengthening cost control in enterprise operation, improving enterprise technological innovation ability, improving enterprise employee incentive mechanism, and improving enterprise service level.

Keywords

Generation of Labor; Manufacturing Enterprises; Operation Mode; Operating Efficiency; Correlation.

1. Introduction

With the internationalization of Chinese manufacturing enterprises, China's degree of opening to the outside world also presents a deepening development trend, and in this process, the international manufacturing industry is also undergoing industrial transformation. In the 1990s, multinational corporations in developed countries and regions transferred the low-end production, processing and assembly links in the industrial chain to developing countries in order to obtain more benefits and the influence of factors including environmental protection. In the process of this change, China's coastal areas with better economic development environment (such as the Pearl River Delta and the Yangtze River Delta) have obtained a large number of OEM orders. In this process, while studying how to further obtain OEM orders, Chinese local enterprises began to transform and adjust some labor-intensive products with low technical level, so as to continuously improve their production technology and management level, gradually improve their competitiveness, and face more OEM orders from foreign international companies. In this transformation process of OEM enterprises, the OEM relationship between Chinese coastal production enterprises and international enterprises has been formed. Entering the international market through the international OEM mode has

ISSN: 2688-9323

become an important part and feature of the internationalization process of Chinese production enterprises.

Facing the increasingly fierce competition, China's manufacturing enterprises can not only maintain a low cost level in international activities. Although the cheap price compared with other countries and enterprises is the main condition for Chinese manufacturing enterprises to enter the international market, it can not ensure that Chinese manufacturing enterprises can win the competition in the international market and maintain a strong competitive position in the international market. In order to achieve this goal, Chinese manufacturing enterprises need to maintain low cost and continuously improve product quality. In order to win the world market competition, China's manufacturing industry should continue to improve its innovation ability, strengthen product R&D, vigorously enhance flexibility, do a good job in after-sales service, constantly improve the added value of products, enhance the value level of the industrial chain, and realize the leap from low to high. China's manufacturing industry should do a good job in the formulation, implementation, monitoring and evaluation of business strategies. Only in this way can Chinese manufacturing enterprises have a greater voice in the international market, and "made in China" can really win the world. Therefore, these need OEM manufacturing enterprises to constantly seek new management models in the future development, so as to ensure the existing social and economic market.

2. Research Design

2.1. Research Method

Literature research method: search and search through the Internet and literature platforms, such as HowNet, VIP, Wanfang, Google academic, Wiki, etc., and browse the library's books on business administration with the key words of the factors affecting the enterprise's operating efficiency. Widely collect and sort out the documents related to enterprise operation management and operating efficiencys, and sort out, summarize and summarize the documents. On the one hand, it provides support for the arguments and arguments of this paper; On the other hand, expand the research ideas, comprehensively sort out and analyze the influencing factors affecting the operating efficiency of enterprises, and analyze the relationship between enterprise operation management and operating efficiency from the internal mechanism.

Induction and summary method. Induction and summary method is the analysis method of this paper's literature and survey data, that is, on the basis of a large number of literature, summarize and summarize the managed contents of this paper's topic, find out the article arguments from the differences of various research results, and find support from the commonness of various research results. At the same time, in a large number of survey data, the sorting and analysis of data are also summarized and summarized to eliminate invalid data and retain effective data.

2.2. Research Design

Empirical research is an objective analysis of actual cases, with strict logic and objectivity. At the same time, the selected research objects should be universal, and ensure the scientificity and effectiveness of the research data and conclusions. The empirical research adopted in this paper is based on the above characteristics and requirements, including the following aspects:

First, typical research objects. This paper takes China's OEM manufacturing enterprises as the research object, and carries out data collection based on the impact of the three dimensions of enterprise operation mode, technological innovation and employee incentive on the enterprise operation effect, so as to ensure the effective scope and objective content of the data.

Second, representative empirical samples. Universality is the basic requirement of empirical research, so the selection of samples must ensure the representativeness within the industry.

ISSN: 2688-9323

The empirical samples selected in this paper are typical representatives of domestic OEM manufacturing enterprises. At the same time, the data obtained from the enterprise operation mode, technological innovation, employee incentive and business benefits meet the requirements of objectivity, and can be verified in theory and practice.

Third, collect and sort out the research data objectively. China is a large manufacturing country with many OEM manufacturing enterprises, and the products OEM by enterprises are very different. In terms of data collection, it is easy to produce data dispersion problems caused by different levels and cognition of survey objects, and inconsistent units of sample measurement variables. Therefore, avoiding systematic deviation in the process of data collection and sorting and ensuring the significance of measurement data structure are the reliability guarantee of this empirical research. On the one hand, define the measurement indicators of operation mode, technological innovation and employee incentive to ensure the unity of variable units; On the other hand, standard and unified questionnaires are customized to ensure the consistency of collected data; Finally, scientific mathematical statistical methods are used to ensure the reliability of the results.

2.3. Instrumentation

2.3.1. Study Dimension Design

Further micro mechanism analysis shows that omni-channel business model innovation has a significant impact on the market value, profitability and operation efficiency of physical retail (Ding Ning et al., 2020). Based on the theoretical analysis of literature, relevant empirical design is carried out for the research theme (see Table 1).

Table 1. Empirical design dimensions

Dimension one	Dimension two	Dimension three	Dimension four
Operating efficiency	Operation mode	technological innovation	Employee motivation

2.3.2. Development of Analytical Scales

In order to ensure the reliability and validity of the analysis scale, according to the above empirical design dimensions and relevant literature, this paper develops the analysis scale. In general, the analysis scale includes two parts.

1. Basic information measurement part of the sample

The collection of this part of data can better show the basic situation of the respondents and effectively analyze whether the questionnaire has objective randomness. Its contents include: age, gender, educational background, position, technical level, etc.

2. Data analysis part of the sample

This part is the main part of the scale in the empirical analysis and the basis of data collection and sorting. This paper makes full reference to the relevant literature and adjusts it according to the research theme to ensure the reliability and validity of the survey scale.

In the aspect of analyzing the measurement value of the scale, based on the "Likert scale method", this paper adopts the 5-point measurement method to collect and sort out the data of the measured indicators. At the same time, the respondents are required to make subjective judgment on the measured items and give scores. Among them, the higher the score of the measurement index item, the more attention it is paid to; The lower the score, the less attention, and the total score of each scale is counted in the form of average.

ISSN: 2688-9323

Table 2. Analysis scale

Dimension	Analysis index	Item type
Operating efficiency (XY)	Profitability (XY 1)	Return on net assets (XY 11)
	Solvency (XY2)	Net profit growth rate (XY 21)
	Operating capacity (XY3)	Turnover rate of current assets (xy31)
		Total asset turnover (XY 32)
	Capacity development (XY4)	Operating profit growth rate (XY 41)
		Operating revenue growth rate (XY 42)
Operation mode (MS)	Operating costs (MS1)	Labor cost (MS11)
	Operating conditions (MS2)	Resource allocation degree (MS21)
		Market adaptability (MS22)
		Market expansion capability (MS23)
	Service level (MS3)	Service diversity (MS31)
		Order processing time (MS32)
technological innovation (JS)	Decision making ability (JS 1)	Decision makers' awareness of innovation (JS 11)
	Implementation capability (JS2)	Government support (JS21)
		Technology R&D intensity (JS22)
	Implementation capability (JS 3)	Number of R&D personnel (JS 31)
		Number of new project development (JS 32)
		Information construction (js33)
Employee motivation (YG)	Salary satisfaction (YG1)	Salary satisfaction (YG11)
	Social security satisfaction (YG2)	Social security satisfaction (YG 21)
	Job satisfaction (YG3)	Job satisfaction (YG 31)
	Interpersonal satisfaction (YG4)	Interpersonal satisfaction (YG 41)
	Career planning prospects (YG5)	Career planning prospects (YG 51)

3. The Impact of OEM Manufacturing Enterprise Operation Mode on Operation Efficiency

Finally, service level. The service level of manufacturing enterprises refers to the sales portfolio provided by OEM enterprises to customer enterprises around the core value of OEM products, such as a series of product additional services such as distribution, installation, warranty and consultation. According to the content of service level, the service level of OEM manufacturing enterprises includes two categories: product service and customer service. Among them, product service refers to the traditional service-oriented mode in which enterprises take products as the guidance and provide customers with "ultimate products"; Customer service refers to the enterprise taking customer demand as the guidance and meeting customer demand as the sales goal. To sum up, there are attribute differences between products and services. Products are the core content launched by enterprises, and services are the added value provided around this core content. For example, after-sales service and extended warranty service of household appliances. Service level factor is another factor affecting the operating efficiency of OEM manufacturing enterprises. First of all, in the case of excellent products, the higher and more comprehensive the service level, the more customers will be favored, so as to form a strategic partnership and promote the stability of the Operating

ISSN: 2688-9323

efficiency of manufacturing enterprises. Secondly, the service level also represents the management concept and management strategy of manufacturing enterprises.

To sum up, a relationship model can be constructed for the impact of the operation mode of China's OEM manufacturing enterprises on the operation efficiency. In the relational model, each item in the analysis scale can be used as the antecedent of influence in the model, the operation mode as the structural variable and the economic benefit as the dependent variable. The structural model is constructed through the interaction of antecedents, operation mode and economic benefits (as shown in Figure 1).

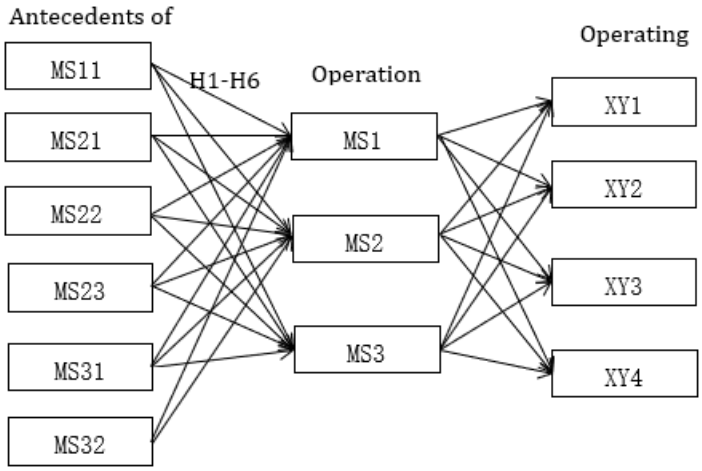

Figure 1. Structural model of operation mode and operation performance

4. Results

According to the logic of mathematical statistical analysis, the analysis process includes three steps: structural model establishment - correlation analysis - model path analysis. The structural model of operation mode and economic benefits of OEM manufacturing enterprises is shown in Figure 1. Therefore, it is necessary to make correlation analysis and model path analysis on Figure 1 to verify the hypothesis.

4.1. Correlation Analysis

Table 3. Correlation analysis of model variables

	MS11	MS21	MS22	MS23	MS31	MS32
MS11	1					
MS21	0.36**	1				
MS22	0.23**	0.14**	1			
MS23	0.59**	0.14**	0.09**	1		
MS31	0.21**	0.04**	0.14**	0.47**	1	
MS32	0.34**	0.31**	0.22**	0.18**	0.21**	1
MS1	0.18**	0.16**	0.47**	0.21**	0.26**	0.18**
MS2	0.21**	0.20**	0.09**	-0.17**	0.26**	0.34**
MS3	0.11**	0.05**	0.34**	0.31**	0.25**	0.38**
XY1	0.13**	0.51**	0.18**	0.21**	0.04**	0.31**
XY2	0.22**	0.37**	0.47**	-0.22**	0.21**	0.14**
XY3	0.36**	0.18**	0.21**	0.21**	0.31**	0.32**
XY4	0.31**	0.06**	0.34**	-0.24**	0.14**	0.17**

Note: ***P<0.001, **P<0.01, **P<0.05

ISSN: 2688-9323

According to the research content and object of this paper, the analysis data contains multiple variable elements with correlation, and the correlation analysis needs to be taken to analyze the direct relationship of each variable factor. At the same time, correlation analysis is the basis of model test. Only when correlation analysis passes the test can the test value of each variable in the model be determined. Therefore, correlation analysis is the first step of structural model test, which reflects the close relationship between various variables in the model. The results of the correlation analysis of the variable relationship between the operation mode and operation management of OEM manufacturing enterprises show that there is a good correlation between the variable relationship between the operation mode and the operation efficiency (see Table 3 continued).

4.2. Analysis of Structural Model Results

Based on LISREL8 software, this paper analyzes the structural model of operation mode and operation performance, and analyzes the path of the structural model of operation mode and operation performance according to the general provisions that the upper limit standard of RMR value and RMSEA value is 0.8, and the lower limit standard of GFI value and AGFI value is 0.9. The results show that there is a good significance between the antecedents and the operation mode, and between the operation mode and the operating efficiency (see Table 4).

Table 4. Path analysis of model

Hypothesis	Relationship	Standardized path coefficient	T value	Is it significant	Hypothesis test results
H1a	MS1←MS11	0.38***	5.42	Yes	Support
H1b	MS2←MS11	0.33***	2.38	Yes	Support
H1c	MS3←MS11	0.27***	5.01	Yes	Support
H2a	MS1←MS21	0.19**	2.17	Yes	Support
H2b	MS2←MS21	0.31***	3.14	Yes	Support
H2c	MS3←MS21	0.33***	2.89	Yes	Support
H3a	MS1←MS22	-0.24***	2.37	Yes	Support
H3b	MS2←MS22	0.35***	4.28	Yes	Support
H3c	MS3←MS22	0.50***	5.21	Yes	Support
H4a	MS1←MS23	0.41***	3.23	Yes	Support
H4b	MS2←MS23	-0.17**	2.11	Yes	Support
H4c	MS3←MS23	0.35***	5.04	Yes	Support
H5a	MS1←MS31	0.43***	5.07	Yes	Support
H5b	MS2←MS31	0.55***	4.97	Yes	Support
H5c	MS3←MS31	-0.27***	3.18	Yes	Support
H6a	MS1←MS32	0.51***	4.78	Yes	Support
H6b	MS2←MS32	0.34***	3.47	Yes	Support
H6c	MS3←MS32	0.29***	3.51	Yes	Support

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