

Research Article (July – December 2020)**Influences of interactive orientation on enterprise performance : mediating effect of break through innovation and regulating effect of market turbulence**

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Abstract

Interactive orientation, as a new-type strategic orientation, has become an importance choice for enterprises to acquire long-term competitive advantages. However, the existing studies have not disclosed that function mechanism of interactive orientation on enterprise performance yet. By integrating theories of interactive orientation, customer participation, value co-creation, and innovation, and selecting 224 sample data of Guangdong and Shandong provinces, this essay conducts empirical test on the model with multiple regression.

The results show that interactive orientation has significant positive correlation with customer-based profit performance, breakthrough innovation has partial mediating effects on interactive orientation and customer-based profit performance, and that market turbulence could regulate interactive orientation and breakthrough innovation.

Keywords: *Interactive orientation; Customer-based profit performance; Breakthrough innovation; Market turbulence*

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Introduction

As information technology rises rapidly, enterprises communicate more and more frequently with individual customers. It cannot meet the demands of current circumstances for enterprises to participate in competitions in traditional ways, such as market research, market segmentation and selection of target market. Instead, the strategy of interactive orientation has become an important choice for enterprises to acquire long-term competitive advantages. However, no relevant conclusions that strategies of interactive orientation could affect the performance mechanism of enterprises have been made by the existing research results, and further studies are still required to determine which variables exert the regulating effects between interactive orientation and breakthrough innovation. Therefore, it is necessary to explore further how interactive orientation affect enterprise performances and what are the application fields.

Thoretical basic and research framework

1. Theoretical basis

The theory of interactive orientation, developed based on market orientation, co-creation value, customer participation, service-dominant logic and other theories, is a strategic choice for enterprises to strengthen their competitive advantages, improve their adaptive capacity to environment and to realize steady sustainable development. However, current studies still lack in discussion and representation of the internal mechanism between interaction orientation and customer-based profit performance and the application scope. It is put forward in this study that interactive orientation could affect breakthrough innovation by adjusting market turbulence, which could improve significantly customer-based profit performance.

1.1. Interactive orientation

Both interactive orientation and customer participation are customer-centric and emphasize interaction with customers, but there are obvious differences in their connotations and extensions. Customer participation is a kind of activity that have the customers exert their functions in company operation from the perspective of co-creation, while interactive orientation, with co-creation value as the theoretical basis, emphasizes that the interaction between the company and the customers not only means that the customers should participate in the company's operating activities, but also that it is the behavior of creating values jointly by the company and the customers. Introduction of interactive orientation can reflect fully the dynamic orientation of the marketing of enterprises in an uncertain environment. Thus, it could be seen that interactive orientation originated in the field of marketing is related with and different from customer interaction in the field of innovation. Therefore, it is of great realistic value and practical significance to study the influencing mechanism of interactive orientation on enterprise performance by studying its application in various fields.

1.2 Breakthrough innovation

According to Benner Tushman and other scholars, breakthrough innovation refers to explore new knowledge to meet the diversified individual demands of new customers. The original intention and objective for enterprises to make breakthrough innovation is to explore and innovate new knowledge; however, demands and analysis of abundant dynamic information could also become the evidence of aggravating the managers' cognition bias or leading to decision-making logic conflicts. Therefore, the relations between interactive orientation and breakthrough innovation and performance is the focus of this study.

1.3 Market turbulence

According to scholars as Jaworski and Kohli, market oscillation refers to the adjustment of competitors' strategic measures and the changes of consumer demands, and it is an important variable to objectively evaluate the change rate of customer composition and reflect the evolution of customer demands; however, the factors of its adjusting or mediating effects still remain to be studied. So, to study the mediating effect of market turbulence under the guidance of market orientation and other relevant theories could provide important guiding significance for the company to maintain steady, sustainable and high-efficient operation.

1.4 Customer-based profit performance

Delaney et al considered that enterprise performance could be divided into management performance and market performance; while Ramani et al thought that enterprise performance could be classified into two types, i.e., customer-based relation performance and customer-based profit performance. Customer-based profit performance refers to evaluate comprehensively the company's profit level objectively from the perspective of the consumers and to judge whether the consumers could make substantial profits for the company. So, it is of great studying and practical significance to study how the enterprise's interactive orientation strategies affect customer-based profit performances.

2. Research hypothesis and theoretical framework

2.1 Interactive orientation and customer-based profit performance

According to Ramani et al (2008), interactive orientation not only can fine manage the customers that create value and revenue for the company, but also can generate more customers that create values for the company. The implementation of interaction-oriented strategy can promote the company's accurate and high-efficient identification meanwhile effectively maintaining customers who can create value and profits for the company. To sum up, the following hypothesis is obtained:

H1: Interactive orientation has significant positive influences on customer-based profit performance.

2.2 Interactive orientation and breakthrough innovation

According to Prahalad and Ramaswamy, current customers are gradually evolving into developers of product and value in transaction. Levinthal et al thought that interactive orientation shall provide convenience for the customers' demands, adjust and optimize products based on the customers' demands so as to make breakthrough innovation to meet diversified individual demands of the customers. So, interactive

orientation can enable the company to acquire a large amount of new knowledge conveniently and efficiently in operation and development, which could bring important inspiration and enlightenment for the company to make breakthrough innovation. To sum up, the following hypothesis is obtained:

H2: Interactive orientation has significant positive influences on breakthrough innovation.

2.3 Breakthrough innovation and customer-based profit performance

After research, Han et al (1998) concluded that market orientation can rely on a variety of innovative activities to improve company performance. According to Benner and Tushman, the company's breakthrough innovation activities can develop new products or push out new services to meet the demands of new customers so that more profitable new customers could be obtained. So, the company's strengthening independent innovation in operation and development not only could improve its competitive advantages but also could enhance its customer-based profit performance practically. To sum up, the following hypothesis is obtained:

H3: Breakthrough innovation has significant positive influences on customer-based profit performance.

2.4 Mediating effect of breakthrough innovation on interactive orientation and customer-based profit performance

March et al thought that the company that implements the strategy of interactive orientation could collect customer information correctly and comprehensively and search precious new knowledge while communicating with the customers, which is conducive to making breakthrough innovations. Breakthrough innovations can meet diversified individual demands of new customers by exploring new knowledge and developing new products, which is helpful to meet the latent needs of the customers. To sum up, the following hypothesis is obtained:

H4: Breakthrough innovation has mediating effects between interactive orientation and customer-based profit performance.

2.5 Regulating effect of market turbulence

According to Abernathy et al, the influences of strategic orientation on company innovation is varying, which could show corresponding differences subject to changes of the market conditions. Abernathy and Clark thought that breakthrough innovation means mainly that the company develops new products and expands new markets and the innovation basis is to study and acquire new professional knowledge. Jaworski and Kohli thought that against the background of the constantly changing market, the demands and preferences of the customers faced by the company will inevitably change accordingly. So, in case the market changes greatly, companies that implement strategies of interactive innovation tend to carry out breakthrough innovative activities; otherwise, they would lack enthusiasm to make innovations. To sum up, the following hypothesis is obtained:

H5: Market turbulence has regulating effects between interactive orientation and breakthrough innovation.

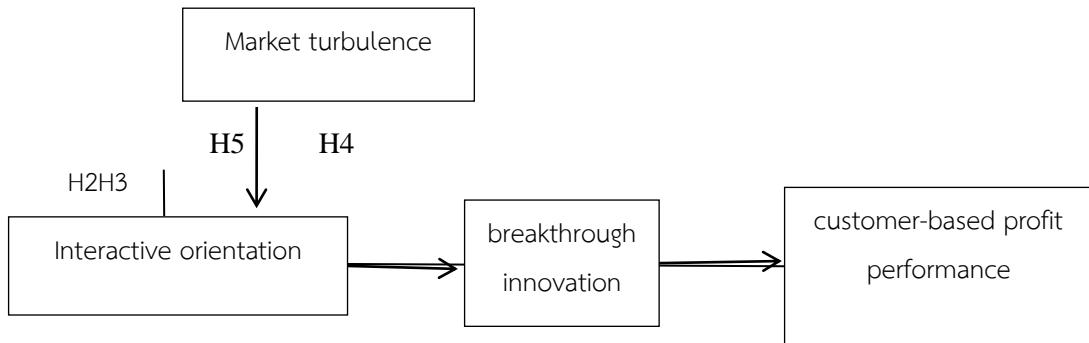


Fig. 1: The proposed theoretical model

Research Method

1. Research procedure

This study collects data by handing out questionnaires. Enterprises of Guangdong and Shandong provinces are selected, and altogether 300 questionnaires were handed out, among which 224 were recovered successfully, with the valid recovery rate of 74.6%. Among the enterprises, there are 106 state-owned enterprises, accounting for 47.32%, 49 foreign-funded companies, accounting for 21.88%, 48 private companies, accounting for 21.43%, 10 joint stock companies, accounting for 4.46% and 11 companies of other nature, which account for 4.91%. The mature scales of Ramani and other scholars (2008) are adopted in this essay. 4 variables are measured strictly with Likert's 7-point scale.

2. Measurement tools

A more mature scale developed by foreign scholars is adopted in this essay, which is translated by experts with years of researching experiences in strategic field and marketing professional research and experts with years of overseas study experiences. Statements of some problems of the scale are amended based on interviews and communications in pre-survey so that it could accord more with the actual conditions of the survey subjects.

2.1 Measurement of interactive orientation

In this study, interactive orientation is measured with the scale developed by Ramani et al. The measurement scale consists of four dimensions, for which corresponding questions are designed.

2.2 Measurement of breakthrough innovation

The scale designed by Jansen et al (2006) is adopted in this essay, which is composed of altogether 4 items.

2.3 Measurement of customer-based profit performance

The scale designed by Ramani et al (2008) is adopted in this essay for measurement, which consists of altogether 3 items.

2.4 Measurement of market turbulence

The scale designed by Jaworski, Kohili et al (1993) is adopted in this essay, which consists of altogether 5 terms.

2.5 Measurement of controlled variables

The method raised by Song and Parry (1997) and Jansen et al. (2006) is adopted in this essay, which is to measure the enterprise scale with the staff number of the enterprise.

2.6 Selection of empirical methods

This essay will conduct statistical analysis relying on SPSS software with complete functions and convenient operation and empirical test by multiple regression analysis. First, descriptive statistical analysis is conducted; second, the reliability and validity analysis is conducted on the questionnaire by confirmatory factor analysis; third, correlation analysis is conducted on the major variables which are studied with focus in this essay and multiple regression is adopted to test the mediating effect of breakthrough innovation on interactive orientation and customer-based profit performance; last, hierarchical regression method is used to test the adjusting effect of market turbulence on interactive orientation and breakthrough innovation.

Research result and analysis

1. Reliability and validity test of the scale

See Table 1, indicating that the scale has high reliability. See Table 2, respectively. Thus, it can be judged that the convergent validity is good.

Table 1 Reliability analysis of the scale

| Variable | Cronbach's α |
|-----------------------------------|---------------------|
| Interactive orientation | 0.810 |
| Customer-based profit performance | 0.675 |
| Progressive innovation | 0.658 |
| Technical fluctuation | 0.820 |

Table 2 AVE and CR values of the scales

| Scale | AVE | CR |
|-------------------------|--------|--------|
| Interactive orientation | 0.4974 | 0.9121 |
| Progressive innovation | 0.5030 | 0.8079 |
| Customer-based profit | 0.5665 | 0.702 |

| | | |
|-----------------------|--------|--------|
| performance | | |
| Technical fluctuation | 0.6371 | 0.8989 |

2. Hypothesis test

2.1 Influences of interactive orientation on customer-based profit performance

$$CBPP = \beta_0 + \beta_1 FZ + \beta_2 IO + \varepsilon \quad \dots \dots \dots \quad (II)$$

Table 3 Regression analysis of interactive orientation on customer-based profit performance

| Variables | | Model(I) | | Model(II) | |
|----------------------|-------------------------|---------------|---------|---------------|----------|
| | | β value | T value | β value | T value |
| Controlled variable | Enterprise scale | -0.081 | -0.048 | -0.006 | -0.135 |
| Independent variable | Interactive orientation | - | - | 0.445 | 7.377*** |
| | R2 | | 0.000 | | 0.210 |
| | Adjust R2 | | -0.005 | | 0.193 |
| | $\Delta R2$ | | - | | 0.210 |

Note: *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$

As shown in Table 3, in model (I), β_1 value equals -0.081, which is not significant. In model (II), β_1 value equals -0.006, which is not significant. The customer-based profit performance is not affected significantly by the controlled variable (i.e., the size of enterprise scale). β_2 in model (II) equals 0.445, which is significantly unequal to 0 ($p < 0.00$). H1 is established.

2.2 Influences of interactive orientation on breakthrough innovation

$$BRI = \beta_0 + \beta_1 FZ + \varepsilon \quad \dots \dots \dots \quad (III)$$

$$BRI = \beta_0 + \beta_1 FZ + \beta_2 IO + \varepsilon \quad \dots \dots \dots \quad (IV)$$

Table 4 Regression analysis of interactive orientation on breakthrough innovation

| Variables | | Model(III) | | Model(IV) | |
|----------------------|-------------------------|---------------|---------|---------------|----------|
| | | β value | T value | β value | T value |
| Controlled variable | Enterprise scale | 0.006 | 0.106 | 0.042 | 0.289 |
| Independent variable | Interactive orientation | - | - | 0.476 | 6.729*** |
| | R2 | | 0.000 | | 0.173 |
| | Adjust R2 | | -0.006 | | 0.163 |

| | | | | | |
|--|---------------|--|---|--|-------|
| | Δ_{R2} | | - | | 0.173 |
|--|---------------|--|---|--|-------|

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

As shown in Table 4, in model (III), β_1 value equals 0.006, which is not significant, that is, the size of the enterprise scale could not affect breakthrough innovation significantly. For model (IV), $\beta_2=0.476$, which is significantly unequal to 0 ($p<0.001$). H2 is established.

2.3 Influences of breakthrough innovation on customer-based profit

Table 5 Regression analysis of breakthrough innovation on customer-based profit performance

| Variables | | Model(V) | | Model(VI) | |
|----------------------|-------------------------|---------------|---------|---------------|----------|
| | | β value | T value | β value | T value |
| Controlled variable | Enterprise scale | -0.081 | -0.048 | -0.012 | -0.348 |
| Independent variable | Breakthrough innovation | - | - | 0.376 | 6.123*** |
| | R2 | | 0.000 | | 0.258 |
| | Adjust R2 | | -0.007 | | 0.246 |
| | $\Delta R2$ | | - | | 0.257 |

Note: *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$

As shown in Table 5, in model (V), β_1 equals -0.081, which is not significant. In model (VI), β_1 equals -0.012, which is not significant. The customer-based profit performance is not affected significantly by the controlled variable. In model (VI), $\beta_2 \geq 0.376$, which is significantly unequal to 0 ($p < 0.01$). H3 is established.

2.4 Mediating effect of breakthrough innovation

Test objectively whether customer-based profit performance could be affected by interactive orientation:

Test whether breakthrough innovation could be affected significantly by interactive orientation:

Test whether the influences of interactive orientation on customer-based profit performance is no longer significant or weakens significantly after breakthrough innovation is controlled:

Table 6 Regression analysis of mediating effect of breakthrough innovation

| Variables | | Model(VII) | Model(VIII) | Model(IX) |
|----------------------|-------------------------|-----------------------------------|-------------------------|-----------------------------------|
| | | β value | β value | β value |
| Dependent enterprise | variable | Customer-based profit performance | Breakthrough innovation | Customer-based profit performance |
| Controlled variable | Enterprise scale | 0.010 | 0.013 | 0.004 |
| Independent variable | Interactive orientation | 0.449*** | 0.476*** | 0.317*** |
| | Breakthrough innovation | - | - | 0.334*** |
| | R2 | 0.210 | 0.173 | 0.307 |
| | Adjust R2 | - | - | 0.298 |

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

As shown in Table 6, the interactive orientation in column 1 is 0.449 standardized regression coefficient, which is significantly unequal to 0 ($p < 0.001$). The interactive orientation in column 2 is 0.476 standardized regression coefficient, which is significantly unequal to 0 ($p < 0.001$). The interactive orientation in column 3 is 0.317 standardized regression coefficient, $p < 0.001$, whose influence weakens to some degree (the standardized regression coefficient decreases from 0.449 to 0.317). H4 is established.

2.5 Regulating effect of market turbulence

$$BRI = \beta_0 + \beta_1 FZ + \varepsilon \quad \dots \dots \dots \quad (X)$$

Table 7 Regression analysis of the regulating effects of market turbulence

| Variables | | Model (X) | Model (XI) | Model (XII) |
|----------------------|--------------------------------|---------------|---------------|---------------|
| | | β value | β value | β value |
| Controlled variables | Enterprise scale | 0.007 | 0.006 | |
| Main effects | Interactive orientation | - | 0.404*** | 0.438*** |
| | Market turbulence | - | 0.263*** | 0.315*** |
| Interactive | Interactive orientation*market | - | - | 0.213** |

| | | | | |
|--------|------------|--------|-------|-------|
| effect | turbulence | | | |
| | R2 | 0.000 | 0.238 | 0.248 |
| | Adjust R2 | -0.007 | 0.226 | 0.225 |
| | ΔR2 | - | - | 0.020 |

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

Table 7 shows that market turbulence and interactive orientation are significant, with p<0.001. The interactive terms between them are significant, with p<0.01. 0.213 is the standard regression coefficient. H5 is established.

Research discussion and Conclusion

1. Theoretical significance

First, the theory of innovation and the theory of interactive orientation are combined organically so that the analysis and research could be conducted from a new and unique perspective, which reveals that the theory of interactive orientation is a micro-source of innovation. Second, further recognition of interactive orientation is achieved. Third, the function mechanism of interactive orientation on customer-based profit performance of the enterprise is verified by empirical test. Fourth, market turbulence plays significant roles in interactive orientation.

2. Practical significance

First, from customer orientation to interactive orientation. Second, to provide theoretical guidance for the enterprise to cultivate breakthrough innovation abilities. Third, it is verified that it is necessary and important for enterprises to adopt interactive orientation. Fourth, the application scope of interactive orientation is defined further, which could provide theoretical guidance for the enterprise to implement interactive orientation.

3. Limitation prospects of the research

This essay has the following limitations and shortcomings: First, interactive orientation has four dimensions, but in this essay, the influences of interactive orientations on customer-based profit performance and progressive innovation are not considered fully in four dimensions; second, the research samples are limited. Since time is limited, this essay adopts mainly samples of Shandong and Guangdong provinces for analysis. In subsequent studies, it requires to expand further the sample scope to improve the representativeness of the samples and enrich further the basic data of the study so as to enhance the persuasiveness of research conclusions.

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