INVESTIGATING THE MARKET ORIENTATION IN SMALL AND MEDIUM-SIZED ENTERPRISES IN EAST AZERBAIJAN PROVINCE SCIENCE AND TECHNOLOGY PARK, IRAN

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Abstract:

The current research was conducted to investigate market orientation in small and medium-sized enterprises in East Azerbaijan Province Science and Technology Park. Given the main objective and secondary objectives, main question, and secondary questions, main hypothesis, and sub-hypotheses and the target population, market orientation model of Kohli and Jaworski, developed based on three key variables of information generation, information distribution, and responsiveness to market information, was selected to measure market orientation in enterprises established in Science and Technology Park. Kohli and Jaworski have defined market orientation as generation of information in organization with regard to current and future needs of the customer, distribution of this information among different departments of the organization, and global responsiveness to that information. By 1396, 147 small and medium-sized enterprises were operating under the East Azerbaijan Province Science and Technology Park. In each enterprise, data were collected through the management of the factor or one of the levels of management, using the questionnaire. The questionnaire was developed based on the 5-point Likert scale (1=very 2=low 3=moderate 4=high 5= very high), which 27 questions assessed the three main variables of market orientation: information generation, information distribution, and responsiveness. The research results found by using two methods (sign test and Wilcoxon test) on the main hypothesis and sub-hypotheses indicated that market orientation and its three main variables, including information generation, information distribution, and responsiveness in small and medium-sized enterprises in East Azerbaijan Province Science and Technology Park was high and acceptable. Finally, recommendations were provided for science and technology parks, growth centers, and enterprises established in Science and Technology Park.

Keywords: market orientation, information generation in market, information distribution, responsiveness to market information, science and technology parks, technology growth centers, small and medium-sized enterprises

1. Introduction

In human history, man has found out that he can increase his average life to 75 years, but a few enterprises could achieve this life, so that the average life of all Japanese and American enterprises and many European countries' enterprises is 12.5 years. The goal of development of science and technology parks is to teach the principles and rules of agility for managers and business experts in order to enhance their average industry life cycle (Office of Growth Centers of Ministry of Science, Research and Technology, 2017). This is due to the fact that small and medium-sized enterprises play crucial role in economic prosperity, technology development, and entrepreneurship. The development of such enterprises depends on development of necessary infrastructure for reducing their potential risk during their development and growth. One of the most important infrastructures is growth centers of technology units. The growth centers of technology units provide essential information and advices and appropriate services and equipment for entrepreneurs and small and medium-sized enterprises, relying on science and technology for more than several years, and prepare them for independent and effective presence in the Iran's technology arena. Studies have indicated that most small and medium-sized enterprises face with bankruptcy in the first three or five years of their establishment. The two main reasons for these failures are "lack of adequate experience in management" and "inadequate capital" (Institute of Commerce Studies, Tehran, 2016), but about 87% of small enterprises, supported by a growth center, have had more than five years. Thus, one of the vital elements of the success and survival of such enterprises is the capability in marketing of the products and services, which market orientation can be very useful in orienting their goals, strategies, and programs (Office of Growth Centers of the Ministry of Science, Research and technology, 2017). Enterprises established in science and technology parks should find their financial and structural capability to survive in a professional business environment during their operation in these centers. Thus, the current research was conducted to evaluate the market orientation of small medium-sized enterprises established in East Azerbaijan Science and Technology Park. The main research question is as follows: what is the level of market orientation small medium-sized enterprises established in East Azerbaijan Science and Technology Park.

1.1 Research questions

A. The main question:

- What is the level of market orientation in small and medium-sized enterprises established in science and technology parks?

B. The Secondary questions:

- What is the level of market information generation in small and medium-sized enterprises established in growth centers?
- What is the level of distribution of market information in different departments of small and medium -sized enterprises established in growth centers?
- What is the level of responsiveness of small and medium-sized enterprises established growth centers to market information?

2. Theoretical framework of research

In recent years, researchers have conducted many academic and practical efforts on the concept of market orientation. Several views have been presented in this regard, which can be categorized into six groups:

1. Decision-making perspective (Shapiro 1980,120)
2. Market intelligence perspective (Kohli & Jaworski 1990,6)
3. Behavioral perspective based on market orientation culture (Narver & Slater 1990,21)
4. Strategic marketing perspective (Ruekert 1992,228)
5. Customer-oriented perspective (Deshpande & Etal, 1993, 27)
6. Combined market orientation perspective (Lafferty & Hult, 2001, 108)

We examine the second perspective, that is, market intelligence perspective of Kohli & Jaworski).

2.1 Market intelligence perspective

Market orientation is a type of extensive organizational information generation, related to the recognition of current and future needs of customers and the distribution of this type of information among all members of the organization and extensive responsiveness of the organization to meet current and future needs of customers (Kohli & Jaworski 1990, 6) Kohli and Jaworski presented a formal definition for market orientation in 1990, which includes three key elements:1- information generation in the market 2- information distribution; 3- responsiveness.

Kohli and Jaworski developed marketing concept in the form of operational market orientation with a focus on specific marketing activities. Studies of these two

researchers were widely used by other researchers. Based on Kohli and Jaworski theory, the starting point for market orientation is the generation of information on the market, that is, the needs and demands of the customers should be identified compared to their competitors. Thus, market intelligence includes an accurate investigation of the actions of competitors and identification of their actions in recognizing the needs of customers and investigating the external environment, such as public laws, regulations, technology, etc. Kohli and Jaworski do not view the market intelligence only recognizing the current needs of customers, but also they pay attention to their future needs. Accordingly, organizations need to recognize the customers' needs and desires first, and then, produce the products to meet these needs.

2.2 Analytical model of research

Kohli and Jaworski developed the concept of marketing in the form of operational market orientation with a focus on marketing specific activities. In general, their definition of market orientation is based on the three main variables presented in Figure 1. As shown in this figure, "senior management, which includes risk aversion and emphasis, and intersectional dynamics, which include conflict and relevance and organizational systems, which include formalism, concentration, segmentation, and reward systems, market orientation inputs and employees, including organizational commitment and group work spirit, and environments, which include turbulence, intensity of competition, technological turbulence, as well as business performance, indicating the market ordination outputs, indicate their relation and effect on market orientation.
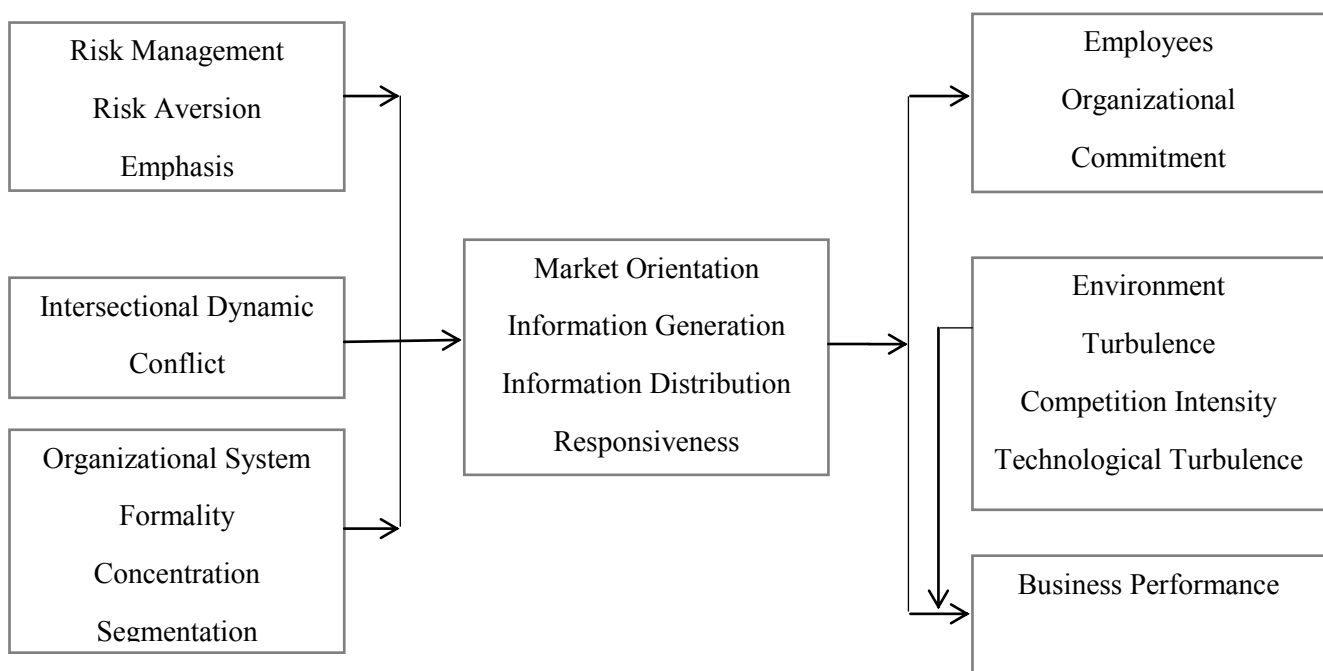
Source: Kohli & Jaworsk 1993, 55

In fact, market orientation mean generation of information in the organization with regard to the current and future needs of the customer, the dissemination and distribution of information among the organizational departments, and responsiveness and global response to that intelligence. Based on these three main variables in market orientation, it could be said that all these results show the important role of information in each organization. However, market information is completely related to the organization and it is appropriate to it. It should be noted that the generation and creation of information is not the exclusive task of the marketing sector, but information should be generated collectively by individuals and departments throughout the organization. Thus, appropriate mechanisms are required to ensure that the information generated in one place is efficiently transmitted to other departments of an organization. However, investigations suggest that it is necessary for the internal departments of the organization to obtain valuable information on the relevant business.

In addition, organizations' problem is not merely the lack information, but the problem is the way of distributing information within the enterprise and in different departments. Thus, by using internal marketing, this problem would be solved, since this method is the only formal method of distributing information, which can develop required commitment in employee to provide information to other departments. Responsiveness refers to a set of activities undertaken by the enterprise to respond to market information, created in the organization and distributed in internal departments of the organization. Responsiveness might involve various forms of marketing planning to combined strategies of marketing, implementing marketing strategies and control and feedback. Responsiveness to market information as marketing activities of an enterprise is a complex issue, which requires strategic decisions and paying attention to internal strengths and weaknesses and external threats and opportunities. Responsiveness involves making the right decision at the right time by adopting a flexible approach, in which market needs are met with right combination of strategy, planning, and operational programs (Dalgic, 1988, 58).

2.3 Research objectives
The main objective: to evaluate the level of market orientation in small and medium-sized enterprises established in science and technology parks.

2.4 Secondary objectives
Investigating the level of generation of market information in small and medium-sized enterprises established in growth centers.

Investigating the level of distribution of market information in various departments of small and medium-sized enterprises established in growth centers.investigating the level of responsiveness of small and medium-sized enterprises established in growth centers to market information.

2.5 Research hypotheses

According to the considered model of research, the researcher's scientific expectation to answer the research questions is stated in the form of the following hypotheses:

2.5.1 Main hypothesis

The level of market orientation for small and medium-sized enterprises is low in the small and medium-sized enterprises established in science and technology park of East Azerbaijan province.

2.5.2 Sub-hypotheses

The level of generation of market information in small and medium-sized enterprises established in the growth centers of the East Azerbaijan province is low. Distribution and dissemination level of market information in small and medium-sized enterprises established in the growth centers of the East Azerbaijan province is low.The level of responsiveness to market information in small and medium-sized enterprises established in the growth centers of the East Azerbaijan province is low.

2.6 Research variables and their operationalizing

Despite the importance of the concept of marketing, little attention has been paid to its implementation. Marketing is in fact a business philosophy. The business philosophy is different from what reflected in the implementation of this concept in the form of activities and behaviors in an organization. We use the term "market orientation" at the sense of implementation of the concept of marketing. Thus, a market-oriented organization is an organization, which its activities are consistent with the concept of marketing (Kohl & Jaworski, 1990, 8).In various definitions of marketing, the three main aspects have been emphasized by organizations, including 1. Focus on the customer, 2. Coordinated marketing, and 3. Profitability Despite providing various definitions, most of them have emphasized on the philosophical aspect of the concept, and less attention has been paid on the operational and practical definition of marketing. Thus, a market-oriented organization can be viewed as an organization, in which the following three variables have been operationalized:

The first variable is generation market information, which is the level of understanding of requirement and market information by the organization departments to produce and deliver better services or products, which aim to achieve the following cases:

- Investigating the view of customers with regard to goods and services.
- Regularly examination of the effect of changes of market environment on customers.
- Obtaining initial information of customer.
- Finding the change in consumer preferences.

  The second variable is distribution of information, which is the level of dissemination and distribution of information obtained from the market in different departments of the organization, which aim to achieve the following cases:

- Investigating the market trend in joint meetings among the departments.
- Debate of the marketing and sales department with other departments on customer needs.
- Distribution of information related to customer satisfaction throughout the organization.
- Disseminating the information of competitors across the departments.

  The third variable:

Responsiveness to market information, which is a set of activities performed by the enterprise to respond to market information, created in the organization distributed in internal departments of the organization.

- Appropriate reaction of the enterprise to changes in the price of competitors.
- Considering the customer's tendencies in changing the goods and services.
- Coordinating the departments with each other.
- Considering the customer's suggestions and complaints.
- Performing the corrective actions and measures.

2.7 Data collection tools

In this research, data were collected by survey method and by using a questionnaire. In performing any research, two types of data can be used: primary data and secondary data.

2.7.1 Primary data

In this research, the questionnaire method was used to collect primary data.

2.7.2 Secondary data

In this research, to collect the data related to theoretical principles of the research and design of the model, library studies and reviewing of Iranian documents, books, papers, reports, and internet searches were used.

2.8 Research population and sampling method

As stated above, to investigate the level of using market orientation, small and medium-sized enterprises established in the science and technology park of East Azerbaijan were used. By 2017, 147 small and medium-sized enterprises were operating in Science and Technology Park of East Azerbaijan. To collect the data in each enterprise, CEO would answer for the questions or one of the management levels, selected by CEO, including: deputy of sales and marketing, deputy of production and exploitation, administrative and financial deputy, board member can answer the questions. As the number of considered research population (small and medium-sized enterprises established in the science and technology park of East Azerbaijan province) is limited and includes only 147 enterprises, "census" method was used. It should be noted that the results of this research could be generalized to all enterprises established in the science and technology parks of Iran.

2.9 The method to measure model variables and test the hypotheses

Given the qualitative nature of the research and the variables considered in the model, each question is measured using the 5-point Likert scale: 1 = very low, 2 = low, 3 = moderate, 4 = high, and 5 = very high. Moreover, each question has a qualitative nature, so the index of the main variables of the model is calculated based on the "median index". Thus, each variable is calculated as follows:

Generation of information on the market: median of questions from 1 to 10 in questionnaires Distribution of information among the organization departments: Median of questions from 11 to 16 in questionnaire.

Responsiveness to market information: median of questions from 17 to 27 in questionnaire.

Accordingly, total factor of market orientation is calculated using the median of all 27 questions of the questionnaire. Moreover, to test the research hypotheses based on the qualitative nature of the questionnaire questions and the model variables, Wilcoxon and sign tests were used (Behbudian, 2001, 40-55). In addition, a significant level of 95% was considered for all statistical tests in this research, which in this mode, hypotheses are tested with the first type error of less than 5%.

2.10 Validity and reliability of measurement tool

Considering the fact that

1. The questions asked in the questionnaire are exactly consistent with the approved model in the research (The model of market orientation from the perspective of Kohli and Jaworski)

2. This questionnaire is one of the well-known questionnaires in market orientation area, used in many papers, books, theses, and dissertations

3. This questionnaire has been developed in accordance with Iranian culture and culture dominating on enterprises established in science and technology parks and it has been localized

4. Before that the questionnaire to be provided for all senior managers of enterprises established in the science and technology park, 20 managers randomly completed the questionnaire and it was found that respondents had no problem to answer the questions and the questionnaire can be distributed to all managers of enterprises in Science and Technology Park

5. This questionnaire has been examined by honorable professors and experts of enterprises and honorable experts in science and Technology Park. By Appling some revisions, it was approved by the experts

Thus, the validity of this question can be considered at high level. As the questionnaire was examined and revised at several stages by university and industry experts and professors, respondents faced with no problem to answer the questionnaire questions. In addition, in order to determine the internal consistency or match of the variables, or the reliability of the tool, the three methods of 1) Cronbach's alpha 2) split-half; 3) Gutman index were used and their values were obtained to be 0.79, 0.824, and 0.821, respectively.

Thus, the reliability of the measurement tool is considered acceptable. The results of testing the research hypotheses:

$$\begin{cases} H_0 : \tilde{m}_{Bazar\ geraee} \geq 3 \\ H_1 : \tilde{m}_{Bazar\ geraee} < 3 \end{cases}$$

The results of testing the hypotheses are as follows:

The main hypothesis: The level of market orientation is low for small and medium-sized enterprises established in the Science and Technology Park in East Azerbaijan Province.

2.11 Result of the statistical test

Table 1: Result of the statistical test of market orientation factor			
Wilcoxon test		**Sign test**	
276	Wilcoxon statistic	(0-18-23)	Sign indices (smaller-equal, larger)
3.5	Estimated median	4	Median
1	Probability value	1	Probability value
Null hypothesis is accepted	Test result	Null hypothesis is accepted	Test result

2.11.1 Conclusion

In this section, as seen, null hypothesis H0 is approved in both tests. Thus, it could be concluded that H1 hypothesis is not confirmed and the market orientation of enterprises established in the science and technology park is not low and has a high level.

2.12 The first sub-hypothesis

The level of generation of market information is low for small and medium-sized enterprises established in growth centers of the East Azerbaijan province.

Result of statistical test:

$$\begin{cases} H_0 : \tilde{m}_{Ijad\ hooshmandi} \geq 3 \\ H_1 : \tilde{m}_{Ijad\ hooshmandi} < 3 \end{cases}$$

Table 2: Result of the statistical test of information generation in market			
Wilcoxon test		**Sign test**	
435	Wilcoxon statistic	(0-12-29)	Sign indices (smaller-equal, larger)
3.5	Estimated median	3.5	Median
1	Probability value	1	Probability value
Null hypothesis is accepted	Test result	Null hypothesis is accepted	Test result

2.12.1 Conclusion

In this section, the null hypothesis H0 is approved. Thus, it could be concluded that the level of information generation for enterprises established in the science and technology park in the East Azerbaijan province is not low and has a high level.

2.13 The second sub-hypothesis

Distribution and dissemination of market information for enterprises established in the growth centers of East Azerbaijan province is low.

$$\begin{cases} H_0 : \tilde{m}_{Tozee\ hooshmandi} \geq 3 \\ H_1 : \tilde{m}_{Tozee\ hooshmandi} < 3 \end{cases}$$

2.14 Result of statistical test

Table 3: Result of the statistical test of information distribution			
Wilcoxon test		**Sign test**	
630	Wilcoxon statistic	(0-6-35)	Sign indices (smaller-equal, larger)
3.75	Estimated median	4	Median
1	Probability value	1	Probability value
Null hypothesis is accepted	Test result	Null hypothesis is accepted	Test result

2.14.1 Conclusion

In this section, the null hypothesis H0 is approved. Thus, it could be stated that the level of information distribution for enterprises established in the science and technology park in the East Azerbaijan province is not low and has a high level.

2.15 The third sub-hypothesis

The level of responsiveness to market information for small and medium-sized enterprises established in the growth centers of East Azerbaijan province is low.

$$\begin{cases} H_0 : \tilde{m}_{Pasokhgooee} \geq 3 \\ H_1 : \tilde{m}_{Pasokhgooee} < 3 \end{cases}$$

2.16 Result of statistical test

Table 4: Result of the statistical test of responsiveness to market information			
Wilcoxon test		**Sign test**	
630	Wilcoxon statistic	(0-6-35)	Sign indices (smaller-equal, larger)
3.75	Estimated median	4	Median
1	Probability value	1	Probability value
Null hypothesis is accepted	Test result	Null hypothesis is accepted	Test result

2.16.1 Conclusion

In this section, the null hypothesis H0 is approved. Thus, it could be stated that the level of responsiveness of enterprises established in the science and technology park in the East Azerbaijan province is not low and has a high level.

3. Final conclusion

The analysis performed in this research was based on the data collected from the views of senior managers of 147 enterprises established in four growth centers of Science and Technology Park of East Azerbaijan Province, presented in the form of a questionnaire and in the form of a Likert scale. The questions of the questionnaire assessed the market orientation in three levels of information generation, information distribution, and responsiveness to market information. As seen, the main hypothesis and sub-hypotheses of the research, tested by using two sign and Wilcoxon tests, were not accepted. It means that information generation, information distribution, and responsiveness to market information in enterprises established in Science and Technology Park of East Azerbaijan is high, so the market orientation of such enterprises is high.

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