The Effects of Science and Technology Parks on Marketing Model

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Abstract

Science and technology parks are economic development organizations and it is essential to maintain their alignment with and attention to economic development plans of hosting regions. To achieve objectives in raising funds and development of knowledge-based companies at the park as well as encouragement of innovation in pre-defined locations, these organizations undertake heavy costs of establishment and operation to enhance formation and maintenance of underlying knowledge-based companies and resolve lack of economic justification. This issue necessitates attention of park managers to strategic planning of marketing. Even if scientific parks possess location merit and necessary motivating factors, lack of effective marketing management leads to their instability and low survival probability in competition over location. On the other hand, due to features of products in location of scientific parks, mere reference to marketing theories and experiences of private and non-profit companies is ineffectual in effective marketing of parks.

In present paper, authors endeavor to use previous experiences of location-based marketing management and review perceptions and critiques of designers and experts of scientific parks of Iran to introduce a model of location-based marketing management of scientific parks.

Keywords: Science and Technology Park, Location-based Management, Regional Economic Development, Knowledge-based Economic Development

Statement of Hypotheses

Main Hypothesis

There is a significant association between marketing models and structures of technology parks.

Secondary Hypotheses

H1: There is a significant and positive association between science and technology parks and structural elements of market.
H2: There is a significant and direct association between science and technology parks and factors of monetary policies of market.

H3: There is a significant and positive association between science and technology parks and achievement of desired market.

H4: There is a significant and positive association between science and technology parks and innovation to develop economic infrastructure of market.

H5: There is a significant and positive association between science and technology parks and motivation to maintain demand market.

Introduction

Significant changes in distribution of economic power of countries since 1990s has drawn the attention of scientists to local and regional economic development. In new approaches of economic development, “Innovation” and “Knowledge” are regarded as strategic factors of development based on competitive advantage. Therefore, three factors of new investment, entrepreneurship and innovation and development of companies are paid attention to in local development of locations, regions and cities. Development of science and technology parks is one of the important ways of reinforcement of the above factors.

Scientific parks provide scientific and technological science for entrepreneurs and firms through a large-scale form of distribution to generate wealth in the society (i.e. knowledge transfer). Therefore, they should have necessary qualifications to connect to science and technology sources as well as entrepreneurs and firms that are capable to use knowledge in economic development. As a result, scientific parks endeavor to design policies, secondary structures and activities which generate value and provide necessary connections. In this regard, one of the common methods used in scientific parks is provision of locations of proper infrastructure and services of high value-added to attract and establish knowledge-based and technological companies and institutes in park near to each other. Due to high costs of creation of science and technology parks, lack of effective marketing management, lack of attention to park market, lack of sufficient attraction of such locations and selection of unsuitable activity model of parks can lead to absence of economic justification for founding such companies and failure in achieving objectives (Farjadi and Riahi .2007).

Even if scientific parks possess “location benefits” and “required attractions”, they might lose their stability and advantage to survival in competition over location. In majority of associated studies, failure rate of scientific parks are globally high (Amirahmadi et.al, 1993; Luger Goldstein, 1991). Marketing is essential in scientific parks.
Unfortunately despite of fifty years of background of scientific parks in the world, there are few studies of marketing management in scientific parks the reason of which might be features of products in parks which challenges application of marketing experiences of companies and non-profit institutes. In the present study, the authors endeavor to investigate product marketing management in science and technology parks.

Marketing Management in Science and Technology Parks

Innovative knowledge-based products demand distinctive endeavors to pass from initial market (i.e. composed of innovation-seeking individuals) to stable market. Science and technology parks pass through the same trend. They usually have similar start and attract a group of initial occupants but most of them fail to access an active, efficient and sufficiently large market so as to obtain stability (MSRD, 2001).

Review of Literature

Ancarani and Valdani (2006) regard location-based products to have two meanings:

- A geographical region which refers to infrastructures, activities, weather, and any other tangible and symbolic factor
- Features of a product, the services it provides and operation-specific structures

Katler et.al (2002) believed that a mixture of soft and hard concepts can’t get their maximum level of efficiency but a proper mixture of them is essential for locations. Competition over locations is unlike competition over business companies. The objective is to increase the attraction of locations for targeted markets. Raising funds, obtaining expert human resources, advanced technology, innovative activities and systems, enhancement of living quality and attraction of business visitors are competitive objectives of locations.

They regard process of location-based marketing management as constituted by four stages of location-based auditing, setting objectives and strategy, action plant and implementation and control. Process of marketing management in companies includes similar stages but location-based marketing is more difficult due to distinctive nature of product.

Rothschield (1979) considered intangibility of non-profit product, non-financial cost of order, lack of repetition of an order, lack of behavioral motivators, marketing in a heterogeneous market and high level of complexity as the characteristics of a location-based product. In
addition, companies of private section have a definite and measurable objective (i.e. profitability) but location is a public socially-available product and the society is a mixture of different groups (public and private) each of which seek to realize action plants and competitive strategies to their benefit.

**Analysis and Discussion of Findings**

A latent and significant presupposition in present study is similarity of park product and location-based product in literature of marketing. A support of this presupposition was introduced by participants of statistical population of present study in using concepts, theories and business of “Location-based Marketing” instead of “Real estate Marketing” in marketing management of parks. This hypothesis was tested in the present study and participants confirmed the fact that scientific park is a place which focuses on knowledge-based economic development.

Science of marketing is surficial in management community of Iran and this issue creates problem regarding conducting marketing in governmental organizations including science and technology parks. Despite of emphasis of participants on necessity of a strategic approach to management of parks, most of them didn’t regard marketing management in the sense of marketing strategic planning.

Inclusion of R&D costs as one of the indicators of development motivates policy makers to increase this indicator through governmental means and methods.

Science and technology parks are in their initial stages of development and this fact causes limitations for present study. Insufficiency of documents and secondary data regarding marketing activities of parks is among such limitations which influences the present study. There is no evaluation of effectiveness of science and technology parks of Iran on their surrounding areas. If process of strategic management and other aspects of marketing are analyzed in scientific parks of Iran, one might find hypotheses regarding different methods of marketing management of science and technology parks as well as their effects on development. lack of generalization of results in present study can be named as one of the most important limitation of qualitative methodology of present study.

**Findings**

Science and technology parks are organizations of economic development and it is essential to generate alignment between them and economic development plans in surrounding area. To
achieve their objectives, these organizations endeavor to raise investment funds to establish knowledge-based companies in park location and encourage innovation in these sites. Due to high costs of establishment and operation of these organizations, inability to attract and maintain knowledge-based companies make scientific parks to lose their scientific justification. This necessitates attention of park managers to strategic planning of marketing even if scientific parks possess location merit and attractiveness. In the case of ineffective management, marketing loses its stability to survive in such places. On the other hand, product features of scientific parks, mere application of marketing theories and experiences of private and non-profit companies in marketing of parks loses essential effectiveness.

The objective present study is to analyze the effect of main variable (i.e. effects of science and technology parks and their performance) on marketing models.

To determine the effects of parks on performance of marketing models and their aspects, they were analyzed in different level. The most important organizational, individual and process-based factors were tested in 16 questions.

To respond the questions of present study, non-parametric test based on level of measurement and Kendall statistical method were used. Analysis of findings based on method and results of inferential statistics showed that all four hypotheses were supported. In regard to results of hypotheses, one could state that attention to science and technology parks, underlying structural aspects, monetary policy of the market, achievement of proper market, development of market infrastructure and motivation to maintain the market are influential factors.

Suggestions

1- Business strategy positively modifies the association between marketing power and business performance.

In a research (Merlo, 2009) on effect of marketing from viewpoint of power in a statistical population of top managers of medium and large manufacturing companies, the influence of marketing ability within a company and possible effect of market fluctuations were studies. The result of this study highlighted the way which marketing can obtain or recover its dominating position by adopting a powerful approach.

2- Business strategy positively modifies the association between unsymmetrical status of power and business performance.
Business strategy positively modifies the association between marketing and business performance.

Business strategy positively modifies the association between market orientation and business performance.

Marketing ability positively affects business performance.

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