

Identifying the effective dimensions and components on research and development strategies in domestic automobile companies

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Abstract

The aim of the current research was identifying the effective dimensions and components on research and development strategies in domestic automobile companies. This study in terms of purpose was applied and in terms of implementation method was qualitative. The research population was the managers and experts of domestic automobile companies, which according to the principle of theoretical saturation number of 20 people of them were selected as a sample with using purposive and snowball sampling methods. The research tool was a semi-structured interview, which its validity was confirmed by the triangulation method and its reliability was calculated by the agreement coefficient method between two coders 0.83. Data were analyzed by thematic analysis method in MAXQDA software. The findings showed that the effective dimensions and components on research and development strategies in domestic automotive companies had 33 sub themes in 7 main themes including business strategy, support policies, investment attraction, knowledge capital, cultural development, research and development implementation network and research and development management. . Finally, the pattern of effective main themes on research and development strategies in domestic automobile companies was drawn. The results of this study have many practical implications for the managers and officials of domestic automobile companies, and they based on the results of the identified main and sub themes in the present study can take an effective step in the direction of research and development.

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Extended Abstract

Introduction

Companies must adapt themselves to changing; evolving; unpredictable; and diverse markets, increasing global competition, and changing customer demands. Therefore, for different companies the importance of achieving to the competitive advantage in the mentioned conditions is very important and necessary (Cader et al., 2022). In the current competitive environment, producing and presenting of the products of interest to customers in the market is very important so that companies can compete with foreign and domestic competitors, which this important thing requires the selection and implementation of a suitable and valuable research and production strategy to achieve a competitive advantage (Mohaghar et al., 2021). The automotive company due to the need to obtain and maintain a sustainable competitive advantage in the national and international markets needs to update the knowledge of its employees and align with the ever-increasing changes and developments in science and technology (Imani et al., 2022). The automotive industry in different countries is considered as one of the drivers of industrial development, which has a significant impact on the economic growth of countries. In Iran, this industry has contributed to the growth of other industries, but at the same time, the situation of the automotive industry is not very satisfactory; and high prices, unsatisfactory quality, high dependence on foreign countries, and vulnerability to various sanctions and etc. are among the major problems of this industry (Fartoukzadeh & Tahmasebi, 2020).

One of the effective factors in automotive companies is research and development strategies, and research and development is a creative work that is done regularly to increase scientific reserve and technical knowledge and to use this knowledge in the invention and design of new applications. The research and development includes applying and carrying out a series of planned activities with using knowledge obtained from previous research and experience which leads to the production of new materials, new products and tools, and the exploitation of new processes or modification and improvement (Young et al., 2020). The research and development is considered the basic key to growth and technology, and nowadays most new technologies are developed by research and development organizations, and one of the important results in every economic sector is a significant increase in the productivity of production factors (Nga et al., 2022). The research and development is the totality of novel, creative, innovative, systematic and planned activities that are generally aimed at expanding the boundaries of scientific cognition and the treasure of knowledge of human and human society and the application of this knowledge in various fields to improve human life, and in short refers to the direction of innovation and creation of new products, processes, devices, tools, systems, services and methods (Guo et al., 2018). According to the mentioned materials, the purpose of the current research was identifying the effective dimensions and components on research and development strategies in domestic automobile companies.

Theoretical Framework

The automotive industry of each country is considered one of the indicators of development due to its value and special position in the production network of industry and services. This industry is usually considered as a key industry in every country, and has an important impact on the growth and prosperity of different sectors of society and other industries (Kathmann et al., 2023). The automotive industry as one of the largest, most important and biggest financial value operators in the country is of great importance and is one of the most important foundations of the country's economy (Alimoradi Afshar, 2020). In Iran, the automotive industry has a special place in the country's economy regarded to the deep links to the key sectors of the economy, which is capable of stimulating for economic growth (Aboei Mehrizi

et al., 2021). The automotive industry has been one of the largest business ecosystems in the Islamic Republic of Iran and because of its essential role in gross national product and its role in activating its previous and former production chains, it is necessary to conduct research in various aspects of the industry (Jafarnejad Chaghoshi et al., 2019). One of the most important determined factors in the business market of automakers and supplier companies is the technology development of products, services and systems based on joint collaboration (Zeinali et al., 2022).

Today, many companies have faced with challenges in the field of enhancing and increasing their competitiveness ability for survival in the business competitive environment. In this condition only companies that take advantage of key capabilities and relative advantages can achieve sustainable success and in the process of creating a competitive advantage the research and development strategies and activities play a very important role (Holtzman, 2011). Strategy is a valuable and privileged position, and a series of privileged coordinated activities that distinguish activities or perform similar activities in a distinctive way (Moore et al., 2023). Today, research and development strategies and activities account for a huge share of the costs of enterprises and companies, and the prominent role of scientific research and development in the economic growth has been emphasized by governments, enterprises and commercial companies and researchers; so that most economists attribute the increase in economic growth in developed countries to the intensity of research and development activities (Barzegar et al., 2018). The research and development strategies include the set of research and development projects needed to achieve the specified goals in the field of technology acquisition within the framework of the company's overall strategy (Jiang et al., 2012).

Research Methodology

This study was applicable in terms of purpose, and qualitative in terms of implementation method. The research population was the managers and experts of domestic automobile companies, which according to the principle of theoretical saturation; 20 people of them were selected as a sample with using purposeful and snowball sampling methods. In the purposeful sampling method, the samples are selected according to the criteria, the most important of which were included at least 10 years of work experience in the field of research and development in the automotive industry, having knowledge about research and development strategies, willingness to participate in research, and at least a bachelor's degree. Also, in the snowball sampling method, the samples sampled in the purposeful sampling method section were asked to introduce other managers and experts of automobile companies to the researchers, which after reviewing them in terms of inclusion criteria, they were also selected as samples. In addition, according to the principle of theoretical saturation; sampling and conducting research on them continues until the new samples cannot add new content and findings to the previous findings. The research tool was a semi-structured interview, whose validity was confirmed by the triangulation method, and its reliability was calculated 0.83 by the agreement coefficient method between two coders. Data were analyzed by thematic analysis method in MAXQDA software.

Research Findings

The findings showed that most of the samples of the present study were male (70 percent), and had an age of 46-50 years (40 percent), a doctorate education (70 percent), and a work experience of 26-30 years (45 percent). Also, the effective dimensions and components on research and development strategies in domestic automotive companies had 33 sub themes in 7 main themes including business strategy, support policies, investment attraction, knowledge

capital, cultural development, research and development implementation network, and research and development management. Finally, the pattern of main themes effective on research and development strategies in domestic automobile companies was drawn.

Conclusion

The results of this study have many practical implications for the managers and officials of domestic automobile companies, and they can, based on the results of the identified main and sub themes in the present study, take an effective step in the direction of research and development. For this purpose, the government, and the parliament at the head of it; by taking into account the importance of the research and development issue, while enacting supporting laws for the implementation processes of research and development, oblige the automobile companies to invest a percentage of their budget in the field of research and development annually. Also, it is suggested that in the automotive industry the important activities related to intellectual and spiritual property should be compiled and presented to the government and parliament for implementation, because respecting intellectual and spiritual property is an important factor in the realization of research and development processes in the automotive industry. The government's support of the industry sector should be done as one of the governance processes; and in this regard, it is suggested that the government, based on criteria, while determining the budget for the research and development of the automobile industry, makes its implementation dependent on the implementation of practical research, and plan its increase in the years ahead. In addition, the necessary plans for the participation of the private sector in the automobile industry should be formulated so that in line with that, the private units can take important steps in accordance with the implementation of the principle of privatization in supporting of the research and development activities. Another important suggestion is to attract investment, which the government should act quickly in this direction to formulate guarantee protocols in investment. Another suggestion is preparation for attracting and employing experts in research and development teams, and academic centers can be an environment for the initial training of these engineers, and the automobile industry should guarantee jobs and job security for people who take initial steps in the field of research and development of automobile industry. The last practical suggestion is to hold internal conferences and seminars to create and develop the culture of research and development and prepare the society to support internal research and development in order to achieve the major goals of research and development of automobile industry.