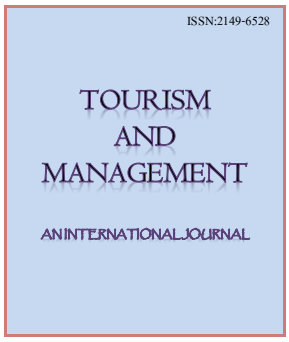

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The Effect of Global and Corporate Innovation Strategies on Research&Development Processes: A Model Suggestion

Abstract
During the implementation of the innovation strategies of the enterprises, various factors are introduced.The process of producing and developing new ideas is a difficult and costly phenomenon. Frugal innovation strategy that has an impact on costs, innovation value chain development strategy, open source innovation strategy are becoming prominent.This study aims to evaluate the effects of these strategies on Research&Development processes, global information networks and new initiatives in the light of previous models. It also proposes a model and aims to consider the importance of examples. Within the scope of this study, the previous literature was used and inferences were made accordingly. When the companies put sustainable growth in the center of their business strategies, they are forced to take a more strategic approach for the sustainability in Research&Development and research. This will contribute to chart out for their own companies with alternative models and different innovation techniques and maps. This will require rapid adaptation to unexpected changes in the changing ecosystem and etc. Thus, this study makes contribution for both literature and the industry.
Keywords: *Globalisation, Innovation Strategy, Research&Development*
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1. Introduction

The effects of the Research&Develeopment (R&D) systems on the innovation strategies of enterprises cause very rapid acceleration in today's conditions. The growing importance of

available information, the unrestricted development of information technologies, the interactions of product and process development, new sectors, regions and international exchanges lead to the formation of partnerships and the rapid transformation of the innovation system (Wengel and Shapira, 2004:10-20). This situation also contributes to the R&D systems of enterprises. This digital communication system, which is defined as the internet of things, provides effective communication of all services, devices and systems with each other. Thanks to this system, which connects everything to everyone, it will be possible for companies that have contributed to the strategy of sectoral innovation systems approach and those who have gained technological talent to open new opportunities, especially R&D (Tuncel, 2016).

A wide range of factors need to be introduced during the implementation of the innovation strategy. These factors often require intensive and ongoing learning. The generation of new ideas and the setting of new goals requires the development of an environment that supports innovation. Barsh et al.evaluates this situation in their book'Leadership and Inovation' with four factors (Barsh et al., 2008: 1-3). These factors may be summarised as:A-goal integration of innovation, B- addressing innovation as a whole, C-Strong communication resources, D- Developing trust environment. There are subsystems that need to be interacted in this process. Enginoğlu (2015: 69) connects the interaction of these talent dimensions with learning, R&D, production, marketing, organization, resource use and strategy formation

When we see the Porter's cost reduction strategy with an innovation perspective, the Blue Ocean Strategy developed by Prof. Chan Kim and Renee Mauborgne (2004) over the Red Ocean Strategy in recent times of intense competition with competitors suggests that new market areas should be created using new creative strategies. Limits and competition rules are defined in the red ocean strategy.However, the otheremphasizes toprovide this with unopened new market areas, creating new demands, high profitable growth opportunities, value renewal and emphasis (Kim and Mauborgne, 2004).

The frugal innovation strategy is to minimize the use of increasingly difficult resources, such as capital, time, labor and energy, and to create more economic and social value.In fact, Radjou and Prabhu (2015) received great attention in their work, Frugal Innovation, with books based on the results of a four-year study, Jugaad Innovation (Jugaad is an Hindi word which means innovative remedy and improvisation solution born out of practical intelligence and resourcefulness.), published in 2012. In this study, they actually describe how to bring innovation systems to a completely radical transformation by achieving certain gains in cost, efficiency, speed and flexibility that downing cites in Change Engineering (Radjou and Prabhu, 2015: 2-9). They state that frugal innovation is more than a strategy. The writers propose that stretching assets, creating sustainable solutions, shaping customer-oriented behaviors, including customers are elements of a frugal innovation strategy, and in this waythe frugal innovation is more than a strategy.

Innovation value chain development strategy is one of the important strategies of the present day, like Michael Porter's value chain for converting raw materials into finished goods, the three stages of the chain are to produce ideas; transform ideas, select them, develop them into products and applications; and thirdly to disseminate these products and applications. (Birkinshaw and Hansen, 2011: 110-117).

When the innovation strategies are analyzed in terms of R&D, it is evaluated how the decision-making process in R&D investments can contribute to the R&D of the company's business and similar strategies (see Figure 1).

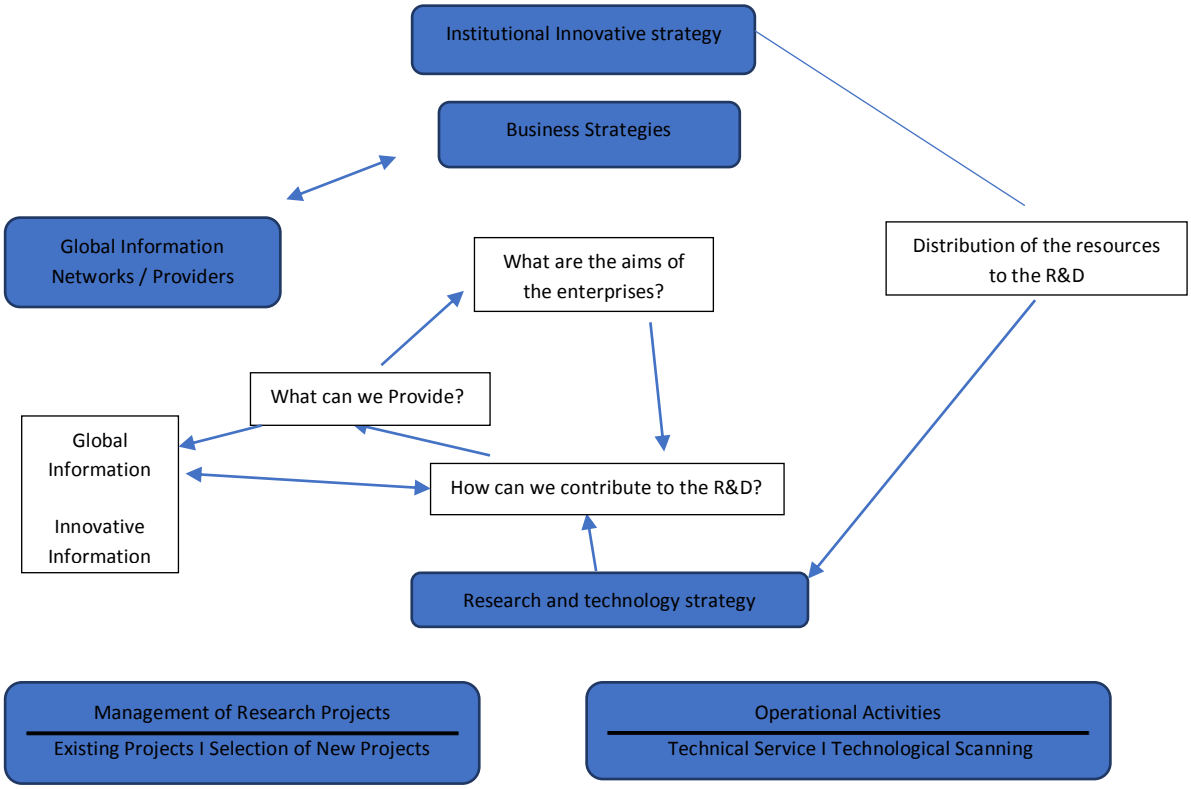

Figure 1. The effects of global information innovative networks on R&D investment decision making process (Adopted from Trott, 2008)

The fact that senior management adopting open source innovation strategies is a factor that increases the power of interaction. Follow-up of technical literature. Integration of laboratories (various academic and private). Connect & Develop can be a good example for this. Procter & Gamble's R&D laboratories can be given as examplesfor this case. Working with a variety of integrated networks, these laboratories have achieved success that is widely appreciated. The Company achieved fifty percent growth by achieving the target set for its segment, while reducing R&D costs by 25 percent. Today, it has developed the swiffer, and has expanded Febreze, each of which is a billion dollar brand (Satel, 2017: 156). The open-source innovation strategy greatly increases Procte & Gamble's competitiveness. But for the development of this process, it is even more important that the basic research in the portfolio of the innovation matrix of the enterprise is not well defined.

Against this backdrop, businesses need to understand emerging trends that affect them and the consequences of a competitive environment. The phenomena of globalization increase this need further. While the innovation strategies of the enterprises are involved in this process, there are frequent and radical changes in the focus of R&D. The aim of the research is to examine the answers of these problem statements as follows;

- How does development occur in R&D intensive firms with innovation strategies?
- How are services or industrial sectors affected by innovative strategies according to company categories and size?
- What are the effects of innovation strategies (enterprise strategies of enterprises) on the decision-making process of global information networks R&D investments?

- What are the effects of product innovation (existing and new projects) and process innovation strategies (operational activities, technical service, etc.) on the R&D process and the pressure of senior management?

2. Literature Review

Globalization is also changing the impact of product and process innovations on R&D. Product innovation relates to the development of a new or substantially different version of a product or service and its introduction to a market. Process innovation refers to significant improvements in support activities such as purchasing, accounting, maintenance, repair and programming (Polder et al., 2010). The requirements created by the process increased with globalization. In many cases related to the innovation process, it is emphasized that interrelated creative processes, including marketing, manufacturing, design and R&D of different learning areas, are developed. Griffith et al. believe that higher R&D investment per employee for developed economies in the European Union has the chance to improve investments for an innovator firm. They emphasize that financial presence is significant on the determination of firms entering R&D to be more innovative (Griffith et al., 2006: 485). In some researches, there are findings that deny the place of R&D among strategic innovation sources. For example, in a research conducted by IBM with more than 750 company leaders and senior executives (by telephone interview), it has been found that 76% of managers saw the most important sources for the company to acquire new ideas as partnership with another company and cooperation with customers. It was found that only 14% of them saw applying R&D activities within their preferred company as a source of new ideas (Yılmaz, 2015: 457). In another study, there is a similar finding. It was concluded that the innovations stem from the ideas obtained from the company (28.4%), suppliers (26%), customers (25%), competitors (24.9%) and fairs (24.6%), and other innovation sources such as universities and other non-profit R&D institutions were found to be 3.7% and 2.9% (De Ridder, 2008).

2.1 Globalisation and the Concept of Innovation

While executives at the global level strive to develop innovation primarily within their own units, they need a management level to carry out both activities together while implementing change programming within the company (Yılmaz, 2015:24). In this case, innovation is applied by firms as a tool that can provide a competitive advantage in the global competition environment compared to its competitors (Porter and Ketels, 2003).

In the globalization process, it can be thought that small and medium-sized enterprises are more prone to innovation activity (Acs and Gifford, 1996: 204). The process of globalization triggers change, which in turn leads to innovation, but in fact, change is also the result of innovation. Another factor that increases the effect of innovation on the R&D process in the globalization phenomenon is the acceleration of the use of creativity for a commercial purpose. However, the radio was found in 1887 but commercialized in 1922, the delay is 35 years. Insulin was found in 1889 but commercialized in 1922 (33 years). The automatic transmission was found in 1904 and commercialized in 1939 (35 years), and nylon was found in 1927 and commercialized 12 years later, in 1939 (Alexopoulos and Cohen, 2009). However, in today's conditions, the commercialization process of an invention has been considerably shortened. Today's development in communication is so effective that IBM commercializes its first R&D laboratory in Africa, which is also known as Silicon Savana, by instantly adapting mobile phone technology.

2.2 Corporate Innovation Strategies and R&D Strategies

Innovation strategies are often regarded as competition strategies. However, this situation can simplify the phenomenon of innovation. Innovation strategies should not only be considered as competitive strategies, but also in line with the strategies of the enterprise. In the literature, innovation strategies are examined by different authors such as the concept of innovation by

making different classifications (Balaban, 2019: 182). The most well-known of these are Freeman's (1995) innovation strategies that emphasize the timing and speed of the enterprise's entry into new technological fields that are the aggressive, defensive, imitating, traditional, dependent, opportunistic strategies. For example; those who implement the aggressive strategy start their R&D activities with basic researches and then turn to competitive advantage with their applications. In this case, R&D activities do not have positive results in enterprises as a result of long and costly studies and cannot monitor the changes in customer needs. Imitating enterprises are the ones that do not allocate much resource to R&D. Generally, they have a strategy based on the license etc. of the products of the leading enterprises. The dependent strategy is often a subcontractor. They are enterprises that have no initiative in product design and there are no R&D facilities. Traditional strategy is focused on traditional professional skills, not on scientific study. Their adaptation to the high-tech environment is difficult. The monitoring strategy, which can also be called an opportunity assessment strategy, focuses more on the weaknesses of the opponent, as in military strategies. Undoubtedly, innovation encompasses a wide range of technologies, products, processes, and business ventures, each completed on its own requirements.

In books, such as Tom Peters and Bob Waterman's (1982) "In Search of Excellence", Kanter's (1983) "Change Masters" and Gilford Pinchot's (1978) "Intrapreneuring", they emphasize the concept of free strategy, eliminating bureaucratic constraints, but emphasizing the need to focus on the future by protecting most revenue streams from existing jobs that pose a danger to current success. This situation brings with it a dilemma in R&D studies.

3. Model Suggestion and Conclusions

In the proposed model (see figure 2), maximizing the input scale means that the innovative outputs are maximized. Both global and financially negative impacts on innovation, the combination of specific innovation strategies and the selection of the appropriate ones, and the cost opportunity can be demonstrated through an approach that blends the organization's current capabilities and previous experience (with R&D and technology strategies). The three pillars of our strategy triangle should be; an appropriate ecosystem, to emphasize quality rather than quantity, and to determine the way they act together when necessary.

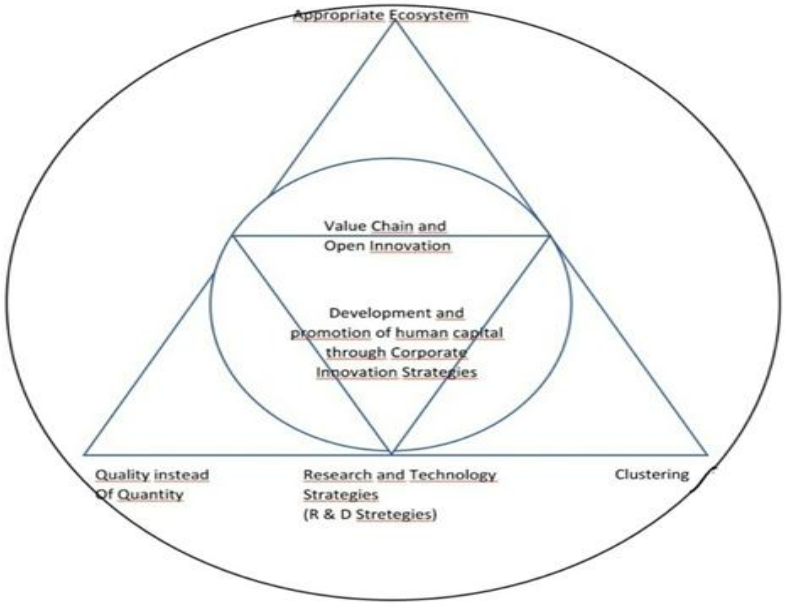

Figure 2: A Proposed Model

Quality instead of quantity – When it comes to innovation, sometimes quality is emphasized and even rewarded instead of quantity. Today, R&D functions are typically

measured according to the quantity of inputs (R&D expenditure) and outputs (new special products and patent numbers). In fact, the success of a company depends not on how much it invests in R&D but on how well it uses them (Radjou and Prabhu, 2015: 42).

Appropriate ecosystem – Financing is not the only requirement for the emergence and success of R&D and innovative projects. In order to develop, mature and produce results in regional and national R&D and innovation activities, the most appropriate ecosystem should be established (Özkurt, 2017: 336). When an appropriate ecosystem is not established, innovative ideas cannot develop, cannot be realized or/and cannot be successful because there is no demand even if it is implemented.

Clustering – R&D and innovation-oriented studies are often risky. One of the strategies that affect R&D processes in order to minimize this risk and maximize the benefit is clustering. The structures created by coming together in order to accelerate and improve R&D and innovation activities and to increase pre-competitive cooperation between similar companies are called clusters. Clustering triggers and encourages inter-firm cooperation, enables the efficient use of financial resources.

When the findings of the studies are evaluated, it is concluded that the costs are important. It is seen in the literature that many authors emphasize that there is a synergy between internal R&D expenditures and alliances formed (with information providers), and that the company's strong R&D capability enables the development of the corporate strategies development cycle which will have benefits in the future.

The fact that enterprises do not concentrate on R&D activities due to high costs is seen as an obstacle to innovation. Instead of defining the strategies of the companies by the environment, it may be suggested that they develop new value chains in line with the global ecosystem and develop a strategy capable of identifying their innovative environment with open innovation strategy etc. (together with the blue ocean strategy).

Corporate innovation strategies should be developed and integration with global information network providers should be assimilated and carried out together with R&D strategies. This situation may also affect the decision-making process (product and process innovation) of R&D investments positively. This situation will have a positive impact on the R&D cost mechanism. Establishing a system of interconnected value chains will change their perspective of innovation in 90% of small and medium-sized enterprises and make them more innovators. The development and change created by the globalization process necessitates this. The finding that the effects of institutional innovation strategies on R&D strategies in the globalization process and their high impact is supported by this study, and the multiple innovation systems monitored can reduce this effectiveness, the organization needs to choose the appropriate ecosystem from the quality rather than the quantity, and increase the benefits of impacts by acting together (the clusters).

As a result, managers should be able to convert unpredictability costs into opportunity costs by choosing the one that suits them and instead of using every possible leverage they face and by linking the commitment between different innovative structures. This situation will increase the innovation potential and positive interactions of small and medium-sized companies that cannot invest and develop R&D, especially in our country.

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