STRATEGIC MANAGEMENT OF THE DEFENSE INDUSTRY: A REVIEW ON CLUSTERING STRATEGY

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In addition to its military and political significance, the defense industry is also a strategic sector in terms of economy. There are several strategic decision areas in both the public and private sectors operating within the industry. In today's rapidly changing conditions, being able to develop and implement effective strategic decisions necessitates maturity in strategic management. In this respect, the clustering strategy implemented by the Turkish defense industry has brought many strategic advantages. Accordingly, this study aims to examine the strategic management process of the Turkish defense industry in the context of clustering strategy. Therefore, the dimensions of strategic management, its important components and the relationship between performance indicators and clustering strategy are examined. After a literature review on strategic management and clustering strategy in the defense sectors, evaluations and recommendations are discussed.

Key words: *Clustering strategy, defense clusters, Turkish defense industry, strategic management.*

1. INTRODUCTION

Strategic management, rooted from military strategies and planning, has gained popularity since the 1970s owing to its potential to create value in terms of effective and efficient use of resources for public and private sector organizations. In this process, being among the critical sectors, the defense industry has necessitated significant Research and Development (R&D) expenditures and high-cost investments due to increasing competition. However, it is not possible for all companies to bear these costs alone since developing and producing a new system, weapon, tool, or equipment is highly costly. Therefore, cooperation between businesses becomes essential [1].

In line with these developments, the dimensions of strategic management, its important components and the relationship between performance indicators and clustering strategy

are examined based upon the case of Turkish defense industry. After a literature review on strategic management and clustering strategy in the defense sector, evaluations and recommendations are presented in the conclusion part.

2. A TIMELY OVERVIEW OF THE STRATEGIC MANAGEMENT PARADIGM

Strategic management can be defined as managerial decisions and actions that determine the long-term performance of a firm [2]. While determining the organizational objectives, environmental scanning becomes essential. It is a process that requires strategy development, implementation, evaluation, and control activities. Accordingly, strategic management includes analysis, formulation and implementation activities in search of competitive advantage. It can also be seen as an integrative management field which benefits from disciplines such as marketing, organizational behavior, human resource management, and finance [3], [4].

In today's rapidly changing and developing information age and competitive environment, the survival of businesses is directly proportional to their continuous development and differentiation of their products and services, and this stage is called innovation. Innovation includes not only inventions made with technology and science, but also developments in services and products, and the production and marketing stages. Innovation and efficiency are the main factors for achieving sustainable profitability, and the profit gained by abandoning innovation can be described as capital consumption, not profitability. From a sectoral point of view, sectors based on knowledge-intensive services and products have a competitive advantage [5], [6]. The details of the strategic management process can be seen in Figure 1 below:

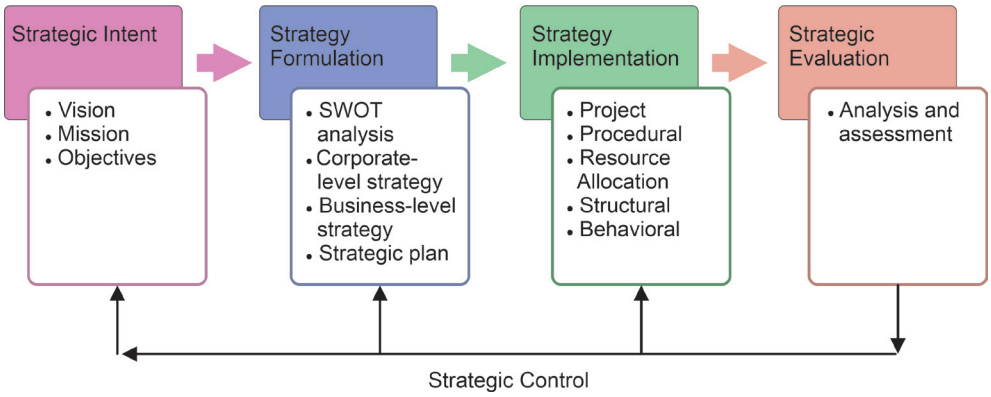

Fig. 1. Strategic Management Process [7]

Since the 1970s, several studies have been conducted in the field of strategic management. In a recent study [8], which examines the most frequently used keywords in the field, enlists them as the following:

- Alliances, joint ventures, and co-operation
- Capabilities, competencies, and resource-based view of the firm
- Cognitive modeling
- Competition and competitive analysis
- Concept of strategy as fit
- Corporate restructuring
- Corporate strategy
- Decision-making
- Diversification strategy
- Entrepreneurship
- Entry modes and strategic advantage
- Environmental modelling: governmental, political, and social influences on strategy.

On the other hand, starting from the financial theory and strategic management, the evolution of the field has been presented as functional strategies; global, international, and multinational strategies; growth models; industry analysis; leadership, management style, and learning, methodologies, theories, and research issues; organization: structure, strategy, and change, performance; planning and control systems; R&D, technology, innovation; strategy typologies and strategic groups; and top management [8], [9].

2.1. Strategic Management of the Defense Industry

There are two main views that dominate the defense field: international security issues and the economy [10]. As long as threats and the use of force are possible in the solution of international problems, the defense industries of the countries will remain significant in terms of foreign policy since defense industry capabilities provide the use of force and deterrence. Besides, defense industries are important in terms of economy and technology, as well as their contributions in the fields of military and diplomacy [11].

Revealing the strategic added values expected from the defense industry with both talent acquisition and an economic perspective requires multidimensional and time-consuming studies due to the nature of the industry. This situation requires a long-term strategic view. Considering the basic characteristics of the sector, which is envisioned to have relatively difficult market entry conditions owing to the necessary technological infrastructure, high investment costs, and current intense competition, the defense industry can be characterized as a monopoly or oligopoly structure. It is an economically strategic sector that can be characterized as new companies

established by the separation of a department from the main companies and the R&D intensity accordingly [12].

The next session explains the clustering strategy in the defense industry.

2.2. Clustering Strategy in the Defense Industry

Ensuring that defense companies operating in similar and complementary fields operate within clusters by establishing an ecosystem has become very important in the context of increasing the effectiveness of strategic management in defense industry [13]. According to Porter [14], who introduced the concept of clustering and worked on that subject, clustering consists of many enterprises operating in the same value chain, having economic relations while competing with each other, suppliers selling goods and services to enterprises, as well as universities, vocational training institutions, standards related to the business field, and auditing institutions which are located in the same geographical area. The scope of clusters can extend to a city, geographic region, country, and in some cases, a network of neighboring countries. Companies that come together will increase their competitiveness thanks to the advantage they create in the value chain.

On the other hand, when strategic management is investigated in terms of clusters, a very complex situation emerges since clusters consist of many small and medium-sized enterprises (SME) that are independent of each other, trying to continue their activities in different fields with their characteristics and different goals, and even competing among themselves, as well as different from each other in their sizes, cultures and management styles. Therefore, it is not easy for these different businesses to create an ecosystem in which they can act together by creating a common vision, a common mission, common goals, and a set of values. In this context, it is necessary to establish an effective communication network and to reveal the capabilities, areas of expertise, and capacities of each business in detail [15].

Clusters offer SMEs advantages for innovation through communication networks and strategic partnerships, increase their competitiveness at the international level, enable them to benefit from the input pool of large enterprises, develop new strategies and production techniques, and increase workforce skills. The most important sustainable strategy to create long-term value in the global economy is innovation [6].

The next session further discusses the clustering strategy based upon the Turkish case.

3. THE TURKISH CASE

Since a holistic view of the defense industry includes government, industry, military, and research components, the main stakeholders of the Turkish defense industry involve all.

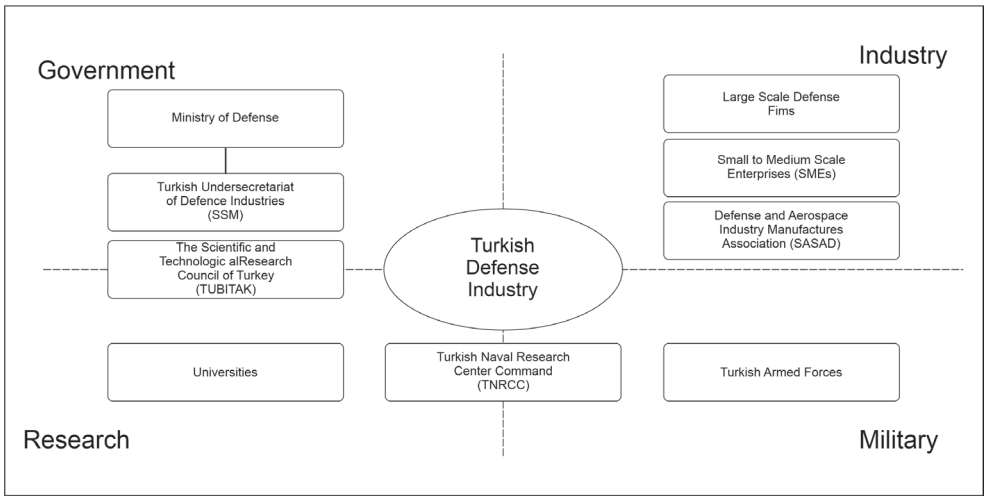

Fig. 2. Main Stakeholders of Turkish Defense Industry [15]

As clusters increase the sustainable competitive advantage by increasing the productivity of the enterprises in the cluster, triggering innovation, creating, and developing new job opportunities, their significance is also recognized by the defense industry. Major defense clusters in Turkey are Istanbul based SAHA Istanbul Defence & Aerospace Cluster Association, Ankara based Ostim Defense and Aviation Cluster (OSSA) and Teknokent Defence Industry Cluster, Eskisehir based Aviation Cluster (ESAC), Izmir based Aerospace Cluster Association, and Bursa based Aerospace and Defence Cluster (BASDEC).

The largest of the defense clusters operating in Turkey is SAHA Istanbul, the defense and aerospace cluster located in Istanbul. SAHA Istanbul Defense, Aviation and Space Clustering Association was established in 2015 with the initiatives of 27 founding members, in line with the goal of achieving a common synergy by clustering the power of 65,000 industrial companies operating in the Northern Marmara corridor, with the aim of producing technological products with high added value for the industry. In addition to technical textile studies, SAHA Istanbul has also supported

a number of large-scale programs and projects such as "National ERP Developing Program", "Holistic Innovative Solutions for an Efficient Recycling and Recovery of Valuable Raw Materials from Complex Construction and Demolition Waste (HISER)", "Energy and Power Systems UR-GE Project", and "Production of Rare Soil Elements by Biological Methods" [16].

Many clustering studies have been initiated in the region by the OSTIM Organized Industrial Zone management. In this framework, a highly comprehensive and detailed cluster analysis based on competitiveness was carried out in 2007. There are also large companies operating in the regional defense sector, opportunities to cooperate with universities, and access to a qualified workforce. Located in the region, OSSA, with the aim of increasing cooperation and communication and by applying a successful strategic management process, brings SMEs together to share information about their core competencies and capabilities, problems, and solutions with major institutions such as the Ministry of National Defense, Presidency of Defense Industries, Ministry of Industry and Technology, Ministry of Trade as well as Force Commands, General Directorate of Military Factories, General Directorate Of State Airports Authority, and General Directorate of Shipyards. Moreover, contractor companies from 60 countries (i.e. Airbus, Boeing, Skorsky, CERN, IGSS Kuwait) are brought together with SMEs in Industrial Cooperation Days in Defense & Aerospace organized by OSSA [17].

As a result, comprehensive development has been achieved in recent years. In addition to signature projects such as TCG KINALIADA (the fourth warship developed under the national MILGEM ship program), PIRIREIS (the first of the new type submarines), and TCG ANADOLU (the multipurpose amphibious assault ship), ATMACA (the first anti-ship missile developed with native technology), BOZDOGAN and GOKDOGAN (air-to-air missiles), TUFAN (electromagnetic railgun system), ARMOL (the national laser gun), AKINCI unmanned combat aerial vehicle (UCAV), AKSUNGUR unmanned aerial vehicle (UAV), GOKBEY, ATAK, and T70 helicopters, with the synergy created by the defense clusters, the fifth period for the Turkish defense industry has begun.

This period is highlighted as a native industrial period due to increasing technological maturity with 75.000 experts working in more than 1500 Turkish defense companies. Accordingly, the number of projects has amounted to 700 (the number was only 66 in 2002). Turkish defense projects were used be carried out with a budget limited to $5.5 billion in 2002 while as of 2020, the project volume hit the record of $60 billion. When the projects in the bidding are also taken into account, it is expected that the total volume will extend beyond $75 billion [18], [19].

On the other hand, Turkish defense industry clusters prefer to preserve their association status which hinders the development of an institutional structure. Besides, university-cluster synergy remains below the expectations in Turkey [20]. The activities of clusters in Europe are carried out with government incentives and in coordination with organizations that do not have financial concerns such as chambers of industry, chambers of commerce, and development agencies. Accordingly, suggestions for an efficient strategic management process will be discussed in the conclusion part.

4. CONCLUSIONS AND SUGGESTIONS

It is concluded that, although clusters achieve significant success in less than ten years, in order for them to reach the expected level, they should develop their cooperation with universities and other research institutions by analyzing successful foreign practices, and applying every stage of the process within the framework of strategic management approach and developing professional strategies in this field. In this respect, by taking advantage of the flexible structures of SMEs, clusters should update their strategies according to changing situations.

Assessing from a managerial perspective, developing a strategic management process and carrying out activities efficiently necessitate a holistic, inclusive, and up-to-date approach adopted by both the cluster managements and expert groups. First of all, mechanisms should be established where company representatives can come together regularly to share information, take joint decisions, and discuss cooperation opportunities. Thanks to these mechanisms, it will be possible to evaluate the opportunities that will arise.

In order for Turkish defense industry clusters to reach the level of information and technology density that is targeted today, it is necessary to create a synergy between the clusters not only among their own members, but also with other clusters in communication and cooperation, and the incentives of the relevant public institutions. It is also important for the cluster member companies to support the implementation of the neighboring area strategy; organize activities and include them in the cluster strategic planning and management processes.

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