TURKISH DEFENSE INDUSTRY AND UNDERSECRETARIAT FOR DEFENSE INDUSTRIES

A Master's Thesis

by
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Ankara

September 2007

To my aunt and my uncle

Ayfer and Kazım Soylu

TURKISH DEFENSE INDUSTRY AND UNDERSECRETARIAT FOR DEFENSE INDUSTRIES

The Institute of Economics and Social Sciences
of
Bilkent University

by

EFSUN KIZMAZ

In Partial Fulfilment of the Requirements for the Degree
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I certify that I have read this thesis and have found that it is fully adequate, in scope and in quality, as a thesis for the degree of Master of Arts in International Relations.

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ABSTRACT

TURKISH DEFENSE INDUSTRY AND UNDERSECRETARIAT FOR THE DEFENSE INDUSTRY

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This thesis analyzed the development of Turkish defense industry and the functions of Undersecreatiat for Defense Industry. First, the evolution of defense industries in the world and today's prospects of these industries were analyzed. Second, the historical background and today's situation of Turkish defense industry, Turkish procurement process were examined. Third, the role of Undersecretariat for Defense Industries, its legal basis, and its composition were analyzed. It is concluded that Turkish defense industry will be able to produce unique software systems through substantial governmental support. Moreover, SSM is a must both Turkish defense industry and for Turkey's democratic features.

Keywords: Defense Industry, Procurement, Offset, Weapon Systems, Export, R&D, Military, Turkey, Undersecretariat for Defense Industries.

ÖZET

TÜRK SAVUNMA SANAYİİ VE SAVUNMA SANAYİİ MÜSTEŞARLIĞI

Kızmaz, Efsun
Yüksek Lisans, Uluslararası İlişkiler Bölümü
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Bu tez çalışması Türk savunma sanayiini ve Savunma Sanayii Müsteşarlığını incelemektedir. Birinci bölümde, Dünya'daki savunma sanayiilerinin gelişimi ve sözkonusu sanayiilerin bugünkü durumu ele alınmıştır. İkinci bölümde ise Türkiye'deki savunma sanayiinin tarihsel gelişimi ve günümüz Türk savunma sanayiinin sorunları ve başarıları analiz edildi. Ayrıca ikinci bölümde Türkiye'deki tedarik sistemi anlatıldı. Son olarak Savunma Sanayii Müsteşarlığı'nın yasal statüsü, işleyişi, savunma sanayii ile ilgili olarak uyguladığı politikalar ve projeler incelendi. Sonuç olarak Türk savunma sanayiinin devlet desteğiyle özgün sistemler üretebileceği ve SSM'nın hem Türkiye'nin demokratik özelliği hem de Türk savunma sanayiinin gelişimi için gerekli bir kuruluş olduğu sonucuna ulaşılmıştır.

Anahtar Kelimeler: Savunma Sanayii, Asker, Tedarik, Offset, Silah Sistemleri, İhracat, Ar&Ge, Türkiye, Savunma Sanayii Müsteşarlığı.

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LIST OF ABBREVATIONS

A400M: Büyük Kargo Uçağı / Future Large Aircraft

AECMA: European Association of Aerospace Industries

AMX: Ground-attack aircraft

AQAP: Allied Quality Assurance Publications

ASELSAN: Askeri Elektronik Sanayii-Military Electronic Industry

AWACS: Airborne Warning And Control System

BAe: British Aerospace

C4: command, control, communication and computer-processing

CFE: Conventional Forces in Europe Treaty

DGA: General Directorate of Armament-France

DIDA: Savunma Sanayii Destekleme ve Geliştirme Merkezi-Defense Industry Development and Support Administration

DIR: Delegate for International Relations

DOD: US Department of Defense

DSA: Defense Services in Asia

EDC: European Defense Community

EFA: European Fighter Aircraft

EMBREA: Brazilian Aircraft Company

EU: European Union

FMF/FMS: Foreign Military Funds/Foreign Military Sales

FNSS: FMC Nurol Savunma Sistemleri- FMC Nurol Defense Systems

FSX: Flight Simulator X

GOSB: Gebze Organize Sanaayi Bölgesi-Gebze Organized Industry Region

IAI: Israel Aircraft Industries

IDEF: International Defense Exhibition

IDEA: International Defense Equipment and Avionics Exhibition

IDEX: Internatıonal Defense Exhibition in UAE

IMBEL: Brazilian War Material Company

IMET: International Military Education and Training

ISI: Import Substitution Industralization

ISR: Intelligence Collection, Surveillance and Reconnaisance

ITU: Istanbul Technical University

JSF: Joint Strike Fighter

KESK: Kamu Emekçileri Sendikası-The Union of Public Workers

KMS: Kaideye Monteli Stinger

MAM: Marmara Research Council

MAP: Military Assistance Program

MASF: Military Assistance Service Fund

MBB: Messerschmitt-Bölkow-Blohm

METU: Middle East Technical University

MIC: Ministry of Industry and Commerce in the United States

MKEK: Makine ve Kimya Endüstrisi Kurumu-Machinery and Chemical Industry Corporation

MSB: Milli Savunma Bakanlığı-National Ministry of Defense

NATO: North Atlantic Treaty Organization

OYTEP: On Yıllık Tedarik Programı-Ten Years' Procurement Program

PPBS: Planning, Programing and Budgeting System

RMA: Revolution in Military Affairs

SLOC: Sea Lanes of Communication

SME: Small and Medium Size Enterprises

SSDF: Savunma Sanayii Destekleme Fonu-Defense Industry Support Fund

SSİK: Savunma Sanayii İcra Kommitesi Defense Industry Executive Committee

SSM: Savunma Sanayii Müsteşarlığı-The Undersecretariat For Defense Industries

STM: Savunma Teknolojileri Mühendisliği-Defense Technology Engineering

TAF: Turkish Armed Forces

TAI: Turkish Aerospace Industry

TaMTAŞ: Tayyare ve Motor Türk A.Ş.-Aircraft and Motor Turkish Joint Stock Company

TDIPS: Turkish Defense Industry Policy Strategy

TEI: Turkish Engine Industry

TGNA: Turkish Grand National Assembly

THK: Türk Hava Kurumu-Turkish Aviation Association

TSKGV: Türk Silahlı Kuvvetleri Güçlendirme Vakfı-Turkish Armed Forces Support Foundation

TÜBİTAK: Türkiye Bilimsel ve Teknolojik Araştırma Kurumu-Scientific and Technical Research Council of Turkey

UAV: Unmanned Aerial Vehicle

WEU: Western European Union

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CHAPTER I

INTRODUCTION

The production and upgrading of weapon systems have always been one of the most significant occupations of the modern state. The organization –and reorganization- of the defense industry according to changing international circumstance and threat perceptions is a matter of vital state interest. This special branch of industry has several peculiarities. First, its market is limited mainly to the states, and in certain cases, to a single state only. Second, the market is not usually regulated by liberal economic norms. Third the market is usually, dominated by high-risk factors. Finally, industrial projects depend heavily on Research and Development (R&D) and high technology more than in most of the other branches of industry. This characteristic of defense industry makes production a highly expensive undertaking. This thesis intends to examine Turkey's defense industry by referring to these problematic aspects as well as the institutions and ways developed to deal with them.

Chapter two of this thesis is devoted to the general aspects of defense industries and procurement policies and historical evolution of defense industries in general with special reference to the United States, Soviet Union, France, and Brazil. This study has provided me with the opportunity to observe and understand the problems in fully industrialized countries as well as in a

developing country such as Brazil which has already made a certain progress in the sector. Moreover, this chapter also examines the impact of globalization on defense industries.

Chapter three traces the evolution of Turkish defense industries from the Ottoman Empire to the post-Cold War era. The same chapter extrapolates the specific problems that Turkish governments are facing and the prospects of defense industries in Turkey. Besides, defense market in Turkey, Turkish procurement policies are also analyzed in this chapter.

The liberalization of the Turkish economy in the 1980s requires a reorganization of the defense industry. This led to the establishment of the Undersecretariat For Defense Industries, a new institution that planned to manage production and procurement, and the role of the state in defense industries. The Undersecretariat and its activities have introduced a radical change in Turkish defense industry. I therefore believe that it deserves a detailed examination in a separate chapter. The Undersecretariat For Defense Industries brought about a certain degree of civilianization of the defense industry. Within that context, I will also examine the role of the military in the decision making process concerning production and procurement of weapon systems.

I do not intend to make a theoretical study. My purpose in writing this thesis is not to prove or disprove a given theory. The reader should not expect from this thesis any efforts on my part for the refinement of a given theoretical framework. My approach to the topic of this study is purely descriptive. My purpose is to make an account of the evolution of Turkey's defense industry, including the novelties introduced in the 1980s and their implementation, and the problems that Turkish governments have so far faced and are to face in the years

to come. This approach, I believe, will elucidate the transformative reforms and their contributions to the development of defense industries.

My research has mainly relied on Turkish and English language sources. As a preliminary basic reading, I used general books and articles and I based the preparation of the Second Chapter together with several brief country studies on them. The books written by Jacques Gansler and Michael Brozska helped me to comprehend defense industry literature. Moreover, articles written by Ethan Kapstein and Raul de Gouvea Neto, were used to analyze French and Brazilian defense industries. For chapter 3 and 4, I mostly used the Turkish sources such as military periodicals mainly Savunma ve Havacılık, newspaper articles mainly Turkish Daily News, published official documents and interviews with government officials as well as a few interviews that I realized with experts.

CHAPTER II

THE EVOLUTION OF DEFENSE INDUSTRIES IN THE WORLD

The ultimate aim of the state has been to protect its population, national independence and territorial integrity. After the Westphalian Treaty (1648), by which each "nation-state" began to respect each other's sovereignity, states began looking at the means to fulfill these principles. These have included a standing army and also high-tech weapons to counter perceived threats. The maintenance of defense industry is always the ultimate aim of state.

Defense industries and defense economics are among the major fields in which states formulate their policies. In this chapter, I will first discuss the basic aspects of defense industries. I will then focus on the historical evolution of defense industries, especially during the Cold War. Finally I will examine the development of defense industries in the post-Cold War era.

2.1. An Overview of Defense Industries and Procurement Policies

The defense industry has always been of major importance for states' survival. A state, irrespective of its economic system, always has a say in the process of arms production. Moreover, states have often owned major defense

firms despite their economic regime. In this section, I will study the relationship between state and defense industry, and will also look at the issue of whether or not cooperation with other states is an option.

2.1.1. The Relationship between State and Defense Industry

Defense industry was defined by Gansler as follows: "[T]his industry embraces industrial sectors that unequivocally manufacture military goods, but by large it includes sectors that produce goods."[1] The nature of product has inevitably led states to intervene in the defense market. Moreover, government is the only buyer of this product, and defense is a public good[2] which means that there is only one producer of that military good and that society will benefit from this regulation. The specification of the equipment to be produced is determined by the ministries of defense or by other bureaucratic organizations.[3] Another reason for government intervention is that in order for companies to invest in high-risk projects at the cutting edge of technology, the government needs to subsidize firms to keep defense market alive. Moreover, the arms industry should, ideally, produce high-tech weapon systems. In this case, the technology that the state receives will also be beneficial for other industrial sectors, and thus defense industries serve as the locomotive power of the economy. In other words, it will "[e]xploit the ascribed economic and technological benefits of arms production."[4] Moreover, private firms, if there is no guarantee about winning contract, than will be hesitant to invest much more on R&D. States, that places importance on high-

[1] Daniel Todd. *Defense Industries: A Global Perspective* (Routledge:London, 1988). pp. 18-19.
[2] A public good is a good that is hard or even impossible to produce for private profit, because the market fails to account for its large beneficial externalities.
[3] Ethan B. Kapstein. *The Political Economy of National Security: A Global Perspective.* (McGraw Hill: New York, 1992)
[4] Michael Brozska. *Restructuring of Arms Production in the Western Europe.* (Oxford Press: England, 1992) p. 35.

technology should, therefore subsidize defense firms. As a result, government support, or government desire to produce more guns, questions of defense budgeting will arise.

A state's support of its defense industry obviously involves the question of finance. The size of a defense budget in proportion to the national economy varies from one country to another, according to a given state's political and cultural values. For example, while European powers focus on the economic side of weapons procurement, the United States emphasizes the quality of weapons rather than their cost. Budgets are also shaped according to states' perceived national security needs. If a country perceives itself as being in a dangerous position, then its defense expenditures will most likely increase. For example, Israel devotes 30 per cent of its GNP to defense[5]. Defense budgeting is not only a domestic, but also an international issue.[6] The classical notion of "guns vs. butter" has been a main issue in the course of determining defense budgets. The reason that high defense budgets are frequently criticized is that the devotion of scarce resources to non-productive assets such as tanks, artilleries and the like will cause restriction in other areas, such as a state's social welfare programs. The regime type also affects the opportunity costs of defense for social benefits[7]..

2.1.2. Arms Procurement and the Need for a Special Agency

It is generally agreed that arms procurement should be based on efficiency, which "[is] about eliminating 'waste' and improving 'value for money' by lowering program costs and/or duration without buying fewer and less

[5] Stewart Reiser. *The Israeli Defense Industry.* (Holmes&Myer: New York, 1989). p. 50.
[6] Kapstein. The Political Economy of National Security. p.38.
[7] David Dabelko& James M. McCormick, "Opportunity Costs of Defense: Cross National Evidence" *Journal of Peace Research,* Vol. 16(1977) pp.145-154.

complicated items."[8] However, procurement process cannot be easily detached from the political process. It is not a science in which there are rules concerning desired outcomes. Moreover, decision-makers in the area of defense often do not have sufficiently extensive knowledge to deal with the effective outcomes of their decisions. "If decision-makers with no special knowledge are offered a narrow range of choices or if they are offered partial information by experts who have their own policy preferences, they are not able to make an informed choice. This is a process failure."[9]

As a means of providing such expertise within the defense production and procurement process, specialized agencies were set up in a number of states. These agencies which are not fully under the purview of the military, serve as intermediaries between finance ministries, defense ministries and trade ministries. They try to play the "efficiency game in the town". However, they do not have full power to make final decisions concerning armament. Procurement agencies should be subordinated to the civil authority in order to have power on the decision-making process, which will provide them with the ability to influence trade-off packages.

Another function of such procurement agencies is to provide the military needs. Sometimes, the military issues only general requirements. In this case, the arms procurement agency will, by getting professional advice from the armed forces, try to determine exactly what equipment is needed and obtain it in a cost-effective manner. However, the relative impact of agency on the force structure can be changed by the decisions about which products are to be procured.

[8] Ian Anthony, "Arms Procurement after the Cold War: How Much is Enough to Do What". *International Affairs.* Vol. 74-4 (1998) pp. 871-882.
[9] *Ibid.* p. 875.

Besides, the final decisions on major issues of arms procurement, such as those concerning long-term programs and their modifications, depend on the ministry of defense. As Anthony mentioned

> [R]elationship between the agency and the military can also be affected by the extent to which a procurement agency is staffed by military officers on secondment[10] and the extent to which the agency employs either a special cadre of officers trained equipment procurement or civilian specialists.[11]

Another aspect of arms procurement is the relationship with the industry, which some say should be based on 'rational customer' policy. The critical part of a weapon or highly sophisticated weapon system is manufactured by a company, which was previously selected by the state. In addition to this, there is a general preference for producing these critical parts or systems within the state concerned rather than importing them. The producer company is designated as a "main/national prime contractorship" as determined by the state. In this process, liberal market policies are not applicable. There is no competition to determine the national prime contractorship. In this area, states do not leave the ultimate decision to the industry, in order to protect its strategic interests.

2.1.2.1. Procurement Options

There have been several options for states to procure weapons. However, each options have pros and cons for the economic structure of states and technological feature of defense industrial bases. If the equipment is procured from the domestic industry, the possibility of extra costs exists. The production of complex weapons in the domestic market is beneficial in terms of the structuring

[10] Secondment means the detachment of a person from their regular organization for temporary assignment elsewhere
[11] *Ibid.* p. 879.

of the country's defense base (savings in R&D process, and employment within the nation in question), albeit in an expensive way. Nevertheless, the production of complex weapon systems is a costly and long-term development, which must be supported by the customer. This process is also a risky one.

Another procurement option is licensing or co-production. In this process, the country can co-produce with the supplier one, or produce by means of a license. For example, in general, European countries purchased the US goods by this way during the Cold War. This method is particularly helpful to those countries that have fewer resources and no ambition to produce high-tech weapons. However, this type of procurement method has limitations. For example, licensed production helped the United States to control technology exports. There is also the possibility of delaying commitment until production begins. Moreover, the buyer depends on the supplier for high technologies. Such dependence could limit the buyer's advances in technology. For example, US products cannot be exported to third countries. This requirement was set up by US government to give it a say in the buyer country's exports and to control arms transfers. Although the buyer may want to export its specified part of the project, the United States can still have the power to restrict the sale for political and economic reasons. As a result of this, co-production is much more costly than direct sales. For example, the co-production of F-16 jetfighters, with the participation of four European countries, cost 34% more than direct sales from the United States. Such US participation did not satisfy the European customers, and this is why they turned to producing their own weapons.

The third option is international collaboration. Stated briefly, it refers to the agreement between states to develop weapons separately and to buy from each

other. However, this approach has not totally eliminated the problems of procurement collaboration. There is still disagreement over the requirements of the military and international collaboration is still done on a project basis.

2.1.3. Technology in the Defense Industry

In the defense industry literature is there has been much more emphasis on technology or R&D in arms procurement. High-tech weapons have been the most demanded type of arms. However, sustaining such high-tech weapons has not been so an easy task. States devote a considerable amount of resources to R&D, or else import this technology and become dependent on the exporter. Apart from that, the R&D costs for any weapon will obviously increase the overall cost of the weapon. The financial effect of R&D can be explained as follows:

> [W]ith each particular weapon system, a larger sum of R&D has to be recovered. Second, without proportional increases in weapons budgets, R&D absorbs a growing proportion of the available resources. Third, this decrease in numbers causes further cumulative price increases because 'economies of scale' are of considerable magnitude in arms industry, particularly since there is decreasing 'learning costs' associated with the production. The cost of the first item produced is much higher than that of the 100th, which in turn is higher than that of the 1000th[12].

Another aspect of technology and arms industry is that the prospect of government intervention is the highest in this area. The reason for this centralized trend is that it leads to the "[p]olitical protection of key technology whose control is needed if the state wants to pursue of the strategy of keeping ahead with

[12] Michael Brzoska&Peter Lock "The Western European Armament" in ed. by. Michael Brzoska, *The Restructuring of Western Europe,* (Oxford Press: England, 1992)

mercantilism."[13] This kind of mercantilism entails the state relying on domestic resources to build an indigenous arms industry and to decrease expenses by means of an active export policy. Moreover, the state has the power to block the export of its high-tech weapons to prevent adversaries, from acquiring new technologies. The present mercantilist trend impedes competitiveness and slows down the development of new technologies.

There has always been a relationship between civil and military technologies. Besides, the possibility of the diversion of military into civil technology exists. If the economy of a country is in need of upgraded technology, and cannot import from the outside, it could "spin-off". Military industries could spin-off to civilian industries[14], and vice versa. When spin-off happens, it can be assumed that "military production is not only for the national security needs, but [spin-off] also contributes to economic development"[15]. The process of "spin-on", on the other hand, occurs when civilian technology fosters new military applications.

Advances in technology, or reduction in the costs of R&D could both be accomplished through international cooperation. Moreover, when military systems become more complex, individual states are not able to produce those systems by themselves. "Second, as complexity has increased and the time factor in the development of new systems has lengthened, the demands upon expertise and the skills of the aviation, armaments and electronic industries have grown"[16].

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[13] Raimo Voyrynen *Military Industrulization and Economic Development: Theory and Historical Case Studies.* (UNIDIR:Dartmouth, 199) p. 18.
[14] A good example will be the Internet, which was developed during the Second World War, by the US army, in order to find a new telecommunication system.
[15] *Ibid.* p.23.
[16] Stanley Sienkiewcz, "Technology Transfer Policy and Export Control Practice" in ed. by. Ethan Kapstein *Global Arms Production: For the Policy Dilemmas of 1990s.* (University Press of America: New York, 1992) p. 223.

Another reason in support of cooperation in arms production is that this mechanism can assist a producer in entering new markets. For example, US firms have proposed collaborative programs under the NATO umbrella, to enter "Fortress Europe market". In addition, when one country produces a small number of weapons, "large economies should be achieved by combining production procurements of each participant [country]."[17]

2.1.4. Cooperation in Arms Production

Various types of cooperation evolved as a result of new challenges in market. These types could be summarized as follows; licensed production and offset

2.1.4.1. Licensed Production

This type of cooperation occurred mainly in 1980s. It entails transnational sale or transfer of rights to manufacture a weapons system that was originally developed in the supplier country. Licensed production is also depicted as the "one-way flow" of technology. The reason is that supplier country benefits much more than importing state. At least, supplier state has an advantageous position by infiltrating to importing states' defense market. Transatlantic cooperation during the Cold War occurred mainly in this fashion. As opposed to this one-way approach, European countries proposed a "two-way street" approach in which the United States would open its markets to European defense industrial goods.

[17] Jacques Gansler *The Defense Industry.* (MIT Press: US, 1982) p. 23.

2.1.4.2. Offsets

European countries made attempts to overcome the deficiencies of the one-way street approach by new types of cooperation. One of the most important types is the use of offsets. In fact, "offset" is not a new term. This concept was first used during the 1930s, in Germany and is "used to describe a range of commercial practices usually required as a condition of purchase, through which some portion of the purchase value is offset by the supplier in the purchasing country."[18] Defense companies execute this concept in order to compensate the costs of exporting. Besides, offsets are not always in terms of money, some offset earnings could also include technological advances and so on. In the American Economic Alert websites, the term of offsets was defined as;

> Compensation (in essence a kick back) demanded by a buyer in one country for making a purchase from a company in another country. For example, if Turkey buys an airplane from Boeing, it may require that Boeing build part of the plane in Turkey; transfer technology to Turkish firms; and arrange for the purchase of other Turkish products or for investment in Turkish firms. As a result, offsets drain jobs, technology, and capital from the original manufacturing country. Companies victimized by offsets acknowledge the problem, but insist that these practices have become the unavoidable price that must be paid to export many kinds of products. U.S. military allies are among the heaviest users of offsets, and U.S. defense firms and workers are among the biggest targets.[19]

Offset has two sub-categories, one being direct offset, and the other indirect one.

Direct offset, which includes co-production, is reciprocal business activity. It is specific to a product or service. Co-production, which involves a government-government agreement, generally has been generally employed when

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[18] Robert H. Trice. "Transnational Industrial Cooperation in Defense Programs" in ed. by. Ethan Kapstein *Global Arms Production*. p. 160.
[19] William R. Haskins. "Defense Offsets: Why Play Fair with 'Allies` Who don't", American Economic Alert, 20 May 2005,also available on line at: http://www.americaneconomicalert.org/view_art.asp?Prod_ID=1941

states have the financial means but not the technological know-how to produce weapons.

> … [W]hen states possess financial resources to invest in an industrial infrastructure but lack technological know-how, they will be limited to assembling foreign weapons under licensing or co-production agreements; the F-16 program in Western Europe and Turkey provides a notable example.[20]

Indirect offset, on the other hand, comprises business activities on the part of manufacturer that benefit the purchaser but not directly in relation to the product or services sold. Co-development is one type of indirect offset. Co-development "represents a leap over traditional methods of transnational industrial cooperation and increases the complexity as well as the financial and technical risks of new weapon programs"[21] It involves two or more states sharing the costs of weapons project from basic R&D to final production. Besides, the diffusion of technology needed to share capital requirements in return for R&D and production work share increased the attractiveness of co-development. The most important projects in this category are the European Fighter Aircraft (EFA) and Flight Simulator X (FSX) programs. The term of offset will be analyzed in detail at the end of this chapter.

However, cooperation in arms production is not easily accomplished. The most important reason has been the emphasis on the national sovereignty. When cooperation is in the area of defense, the emphasis placed on national sovereignty is much more than in other areas. Moreover, the classical notion regarding efficiency in liberal theory has changed as a result of the imperfection of liberal

[20] Ethan B. Kapstein. "International Collaboration in Arms Production: A Second-Best Solution" *Political Science Quarterly*. Vol 106:4 (1991-1992). p.665
[21] Robert Trice, *ibid.* p.163

ideology in the defense industry. The efficiency will be determined "[by] the length of domestic production runs and subsidized R&D spending."[22]

2.2. Evolution of Defense Industries

The defense industry emerged during the sixteenth and seventeenth centuries. In the same period, Europe witnesed the introduction of new military battlefield tactics and standing armies. The first tier[23] state in this period was the United Kingdom. England had not only a state-owned defense industry, but also private industries, such as Vickers. The government supported such private firms that contributed to the process of technological innovation.

Following the Industrial Revolution, second tier countries, such as Russia and Spain also came onto the scene. These countries were not able to innovate the necessary technology, but they could adopt it according to their needs in order to produce their own weapons. In the eighteenth and nineteenth centuries, the importance of military technology increased. United Kingdom held onto its position as a first tier state. Pre-second tier countries, such as Germany and France, also became first-tier states due to the speed of their industrialization.

2.2.1. Pre-World War I Era

An important modification in the international defense sector during the nineteenth century was the new reliance on arms exports for states. With the formation of German Krupp firm, free trade between German and British firms

[22] Andrew Moravcsik, "The European Armaments Industry At the Crossroads" *International Organization.* Vol 40:4 (1992). p.72.
[23] In the defense literature, the states in the first tier, were those which could innovate required technology and produce weapons, the second tier, which could reproduce and adopt technology but could not innovate, the third tier, which could only adopt technology and become dependent to the other state.

began. As a result of the growth of export-oriented defense firms in Europe, arms production entered into a period of privatization. As Kapstein noted "[a]t the same time these defense industries looked to foreign markets in order to extend production runs and to achieve economies of scale. The late nineteenth and early twentieth centuries were the heyday of free trade in armaments"[24] Another feature of this period was that cooperation between states in the arms industry was initiated. Moreover, mergers and co-option between defense firms had also been another trend in the arms industry.

By World War I, modern technologies concerning armament had diffused around the globe. The international scene was described by Krause as follows:

> [A] dominant tier of sellers who, by virtue of their mastery of techniques were the pre-eminent powers;a second tier of states(Russia, Italy, Austria-Hungary and Spain) that, cognisant of the risks of dependence on foreign suppliers and of the benefits of possession of an arms industry, attempted to emualate first tier producers' success; and a growing number of third tier states(most prominent among them China, Japan and Turkey) that possessed limited capacity to produce arms diffused from first tier states.[25]

However, arms transfer after the WWI, was faced some restrictions. After the demise of Germany and the horrific experience of the war, European powers questioned the desirability of arms transfer. "League of Nations launched an investigation into the role of arms trafficking before and during the war, and found that war manufacturers had fanned the flames of conflict."[26] For the first time in international defense history, public outcry was also involved in the decisions regarding arms transfers in Europe. In the US Congress and British Parliament, representatives criticized arms transfer. Moreover, the speech of

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[24] Ethan B.Kapstein, *The Political Economy of National Security,* p.24
[25] Keith Krause, *Arms and The State: Patterns of Military Production and Trade* (Cambridge University Press: New York, 1992), p.32
[26] Frederic S. Pearson, *The Global Spread of Arms: The Political Economy of National Security* (Boulder: Westview Press, 1994) p.45

British the then Prime Minister David Lloyd George affected the Convention of League of Nations. In his speech, he emphasized the relationship between private firms and the war, and stated that

> [T]here was a feeling that Krupp's in Germany had a very pernicious influence upon the war spirit in Germany. There was not one who did not agree that if you wanted to preserve peace in the world you must eliminate the idea of proft in the manufacture of armaments.[27]

As a result of this, policy makers in the first-tier countries scrutinized exports and increased control over arms exports. Yet despite these restrictions, second-tier countries also started to emerge on the international scene. These countries had successfully industralized and entered the arms export market in order to spread the cost of R&D. The role of first-tier states' role in the international defense area shrank as a result of newcomers.

Another development after the war was the state's presence in military R&D. After World War I, and despite the tendency of scientists to remain in civilian business, nations' armed forces provided mechanisms for the intensification of scientific research in military science. As Kapstein noted,

> [W]WI had profound effects on every part of American science and European also. Not only the out-moded equipment modifications, but also states had sponsored the innovation of high-tech weapons, such as electronic communications, anti-submarine warfare detection, navigational improvements, aircraft carrier and the development of radar.[28]

Moreover, governments, such as that of the United States, established *bureaus* for the control of technological innovations. This sensitivity also promoted the idea that R&D would not be left to the market and states would

[27] Cited in *Ibid.* p. 34
[28] Ethan B. Kapstein, *The Political Economy of National Security*.p.67

continue to regulate these activities. This militarization of science also spread around the globe because scientists were employed in research efforts that were supported by foreign governments, as in the case of atomic science. There was mobility in the scientific community; scientists could work outside of their homeland. Another reason may have been that states were more aware of the other's improvement in military technology. As a result of these developments, the globalization of technology in the defense sector started during the inter-war period.

2.2.2. The Rise of Germany and World War II

Apart from the limitation of arms transfer and newcomers to arms export market, there were other processes concerning defense industries. For example, the prolongation of the war situation, devastated the notion of trench warfare, because trench warfare had made industrial mobilization inevitable, and as a result, national resources and defense spending had doubled or trippled in four years time. The rise of Germany during the post-World War I period can be better comprehended by looking at German mobilization right after the Versailles Treaty. Allied Powers forbid German militarization efforts However, German goverment did not abandon its efforts. Apart from this, being a private defense firm, Krupp could also play an important role in the country's militarization. For example, secret research, development and production were conducted under the supervision of Krupp. The Weimar government also supported these activities by directing the flow of funds to the firm. In addition, the growing Soviet arms industry employed the Krupp firm's engineers and directors (under the Rapallo Treaty) "[...]in return for which facilities for training future Luftwaffe pilots and

testing artillery were provided."[29] The German government did not manufacture weapons in its own territory; rather, weapons were manufactured in other countries, such as the Netherlands and Sweden. "[German] canon were built by the German-owned Swedish firm Bofors, and in Holland, German-owned firms researched, designed and constructed U-boats for Japan, Finland, Spain, Turkey and Holland itself."[30] The result of this research and experience were transferred directly to Germany which started secretly producing tanks in 1928.

In World War II, new military technologies played an important part. During the war the development of radar, computers, the jet engine, and most dramatically, atomic power[31] were developed. Moreover, strategic bombarding by air powers and defense by the air forces entered in the military technology during the World War II.

> [...] Two innovations, both largely products of World War II, dominated the second half of the century but proceeded with little interaction. One was the elaboration of nuclear arsenals and their delivery systems. The other was the radical reconstruction of onventional warfares through applied electronics[...][32]

The bureaucratic organizations that were created during the inter-war period for the purpose of scientific research, also had an important role in the war. For example, in Washington D.C., the Office of Scientific Research had direct access to President Roosevelt's office. "Using the best human and capital resources that could be found in universities, industries and government, [this office] focused the research effort on technologies that appeared to be of

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[29] Keith Krause, *Arms and The State.* p. 77
[30] Frederic Pearson. *The Global Spread of Arms.* p. 67.
[31] In the history of warfare, nuclear weapons have been used only twice at the end of World War II. The first one, "Little Boy" was dropped on 6 August 1945, by the United States on the Japanese city of Hiroshima. The second one, "Fat Man" dropped on the city of Nagasaki by the United States**.**
[32] Barton C. Hacker. " The Machines of War: Western Military Technology 1850-2000" *History and Technology*, Vol.21:3, 2005, pp.255-300

particular military importance."[33] Moreover, the atomic bomb dropped in Nagasaki, Japan in 1943 was invented firstly in Los Amalos. To use it effectively in war, scientists worked only 28 months. This pace could be an indication that "The USA in 1940 and 1941 learned how to harness research to military needs effectively."[34] State intervention for the purpose of R&D again became one of the legacies in the defense sector.

A significant consequence of World War II was the emergence of the Soviet Union and the United States as the superpowers. The rise of the Soviet Union as a superpower underlined the significance of indigenous defense industries. The Soviet Union used arms transfer as a way of political power as in the case of its exports to Turkey. As a result of such exports, political influence by means of arms transfers entered onto the international scene. Not only the Soviet policy, but also that of the United States was based on using arms transfers and military aid in order to extend its sphere of influence. The Soviet Union and the United States being the winning party in WWII became the major players in the Cold War system. However, in the defense sector, in addition to first-tier countries, new third-tier states emerged in the 1960s.

After the WWII, European industrial bases were devastated except in Britain. However, Germany and France were successful in recovering their losses, with the assistance of the United States. In the next section, I will focus on the major players; their defense industries and arms export policies. Then, I will examine Europe's recovery period and the European Union. Finally, I will analyze third-tier states, namely Brazil.

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[33] Ethan B. Kapstein. *The Political Economy of National Security*. p. 26
[34] Barton C. Hacker " The Machines of War" *History and Technology*, p.256

2.2.3. Cold War

2.2.3.1. Superpower's Defense Industries

As stated earlier, the Soviet Union and the United States tried to attract the allegiance of other states through military aid and arms transfers. Moreover, these aids by the major powers were in the form of "off-the-shelf"[35] equipment. This equipment was not, however, manufactured according to the latest technology that both powers had at that time.

2.2.3.1.1. US' Export Policies

The United States utilized foreign military aid and sales to increase its influence on the recipients. Initially, the United States directed many of its transfers to the devastated European market, in order to help them for economic recovery. One of the assistance programs was called the Military Assistance Program (MAP). This grant program was directed to NATO members and Asian allies. Its major recipients were: France ($24,029,000), South Korea ($ 15,337,000), Turkey ($ 14,841,000) Italy ($ 12,710,000) and Greece ($ 7,492,000). The second program, Military Assistance Service Fund (MASF), was a grant program for Vietnam, Laos, Thailand, Korea and the Philippines. Last but not least, US exported its arms through Foreign Military Sales. Most sales were conducted through this program, but recipients of such aid could vary when US foreign policy changed. The United States at times used military aid for political purposes by reducing it or cutting it off. For example, the United States initiated

[35] Commercial off-the-shelf is a term for software or hardware products that are ready-made and available for sale to the general public. They are often used as alternatives to in-house developments or one-off government-funded developments (GOTS). The use of COTS is being mandated across many government and business programs, as they may offer significant savings in procurement and maintenance.

arms transfers to Middle Eastern countries, such as Iran and Saudi Arabia. This induced the recipients to develop their indigenous industries.

Thus it could be concluded that US political decisions were the main bases for the implementation of exports. Besides, these policies enabled US governments to justify increasing defense budgets and R&D projects. However, sometimes the executive and legislative powers had different viewpoints regarding arms transfers. It should also be noted that US arms transfers were regulated and overseen by governmental agencies such as Arms Export Control Board.

2.2.3.1.2. Arms Export Policies of the Soviet Union

The Soviet Union used the same kind of policy moves as the United States in order to expand its sphere of influence. However, its arms transfer reports were secret during that period and the reports that were open to the public were exaggerated.[36] Another point about Soviet arms transfer is that until 1955, recipients (Eastern Europe, North Korea, China and North Vietnam) generally imported World War II era equipment and did not receive large quantities of arms, because according to the Soviet Union, their reliability were not tested. However, as the United States shifted its interests from Europe to other countries, the Soviet Union signed a major pact with a non-European and non-communist state, Egypt. Middle East thus became a destination for global arms transfers. The Soviet Union extended its agreement with Egypt to Syria, Yemen, Iraq, Afghanistan and Indonesia. This may also have been a reflection of Soviet foreign policy considerations in the area of arms transfer.

[36] Keith Krause, *Arms and The State,* p.89

Soviet aids to these countries were on the basis of credit, and the repayment of this debt would be in local currency or barter agreements. Yet, despite these advantages in relation to arms transfers (large quantities of weapons that were also less costly than those offered by the United States), the Soviet Union was reluctant to transfer high-tech weapons to other countries. The growth in Soviet arms transfer occurred in 1960s. The reason for this increased in volume could be related to international events. The Sino-Soviet split led the Soviet Union to encourage revolutions and independence movements in Africa and Asia. Soviet Union supported countries such as Somalia, Guinea, and South Yemen by new arms transfer agreements. In addition to their rivalry with China, "[t]he Soviets needed to increase facilities available to their navy to accompany its expanded global role; thus deals for access to such facilities were negotiated with clients such as Egypt, Vietnam and Syria."[37] These transfers to developing countries continued in 1970s and 1980s. Until the Iran-Iraq war, Soviet policy makers perceived restrictions on arms transfers as a policy of imperialist states. However, the war changed their viewpoint, and the Soviet Union started to act in conjunction with its rivals for the purpose of controlling the export of technologies for military purposes to developing countries.

2.2.3.1.3. The American Defense Market

Arms exports have thus been conceptualized as an important method of influence in international politics, especially when the major powers performed such exports. This section will focus on the domestic side of the defense industries in these countries. First, US defense companies were numerous in the

[37] *Ibid.* p.90

market. This concentration meant that one area of the arms system was developed by only one firm. For example, the aircraft producer was Newport News; two firms produced jet aircraft engines (General Dynamics and Newport News). This structure sustained the division of labor in the arms industry in the United States. Naturally, the only buyer in the defense sector was the Department of Defense (DoD).

The determination of military specifications for all hardware are determined by the DOD so that in economic terms, US defense industry has been "monopsony"[38]. Defense firms have generally proposed their plans on a long term basis. The US government extends funds to these firms on the basis of its annual budget. However, these funds could be decreased, delayed or increased. This uncertainty has led companies to use sophistication in their defense planning and defense firms in the United States focused much more on R&D than their past practices. They have invested large sums of money without any guarantees from the government. It was also realized that when weapons were manufactured in terms of high-tech, the possibility of sale to the government would increase. Moreover, these firms were not able to operate freely. They were strictly overseen, not only by

> [T]heir managers at the Department of Defense, but by various congressional bodies as well including congressional committees, the General Accounting Office, and the Congressional Budget Office. Since defense contracts are high-stake business, members of Congress are active in ensuring that a piece of pie goes to their local constituents. This means that economically optimal decisions are often set-aside for politically expedient ones.[39]

[38] In economics, a monopsony is a market form with only one buyer, called "monopsonist", facing many sellers. A monopsonist has market power, due to the fact that he/she can affect the market price of the purchased good by varying the quantity bought.
[39] Cited in Ethan Kapstein, *The Political Economy of National Security.* p. 45.

Another issue about the defense industry in the United States is that defense firms have been active during the decision-making process, by the way of lobbying. Such firms have been able to attract Congress representatives by promising new employment opportunities for their district and so on. Lobbying led to questions of "privatized wars" and "privatized destructions," although, these assumptions did not go beyond being a conspiracy theory. For example, Gholz and Sapolzsky analyzed US defense industry by a theory called "follow-on theory" which had to do with the power of lobbying. They argued that "[i]n contrast to innovative high- technology sectors, the defense business was stable because the Military Industrial Complexes(MIC) created new jobs for prime contractors as they completed old projects."[40] Moreover, it was stated that pleasing the customer, i.e. the military, was more important than pleasing Congress, so that despite technological uncertainties, firms focused on performance enhancement.[41]

2.2.3.1.4. Soviet Defense Market

For its part, the Soviet defense industry was highly bureaucratized. For example, for each phase of weapons production, several ministries were set up. Moreover, a number of bureaus and specialized industries oversaw and carried out the R&D process in the Soviet Union. As Pearson mentioned,

> [A]ccording to the US intelligence community, the VPK[42] is a small but powerful group, responsible for centrally overseeing the research, development and production of all Soviet weapon systems. It coordinates developments between its chief customer, the Ministry of Defense, and the key suppliers, the defense industrial ministries. As the expediter of weapons-

[40] Eugene Gholz & Harvey M. Sapolsky, "Restructuring the US Defense Industry", *International Security,* Vol. 24:3, 1999-2000. pp. 5-51
[41] *Ibid.* p. 45
[42] VPK was the synonym of Soviet military-industrial complex.

> development projects, it is the principal Soviet military instrument for eliminating or circumventing the inefficiencies characteristic of Soviet economic system.[43]

The Soviet economy was developed on the basis of five-year plans. There was stability in the weapons procurement systems, which was unheard of in the Western countries. Stable budgets and constant manpower level would result in a regular progression of designs and prototypes, "… and would also allow the Soviet research and design bureaus to maintain and develop a corps of experts (in contrast with the shifting manpower with the cycles in the US defense industry)".[44] This stability and certainty in economic terms was the underlying reason for the strong military complex in the Soviet Union. Another difference from the situation in the United States was that concentration in the defense sector was not the model adopted in the Soviet Union. Government opted to separate the weapons manufacturing process to different centers. Senior military officers directed these firms.

2.2.3.2. Western European Defense Industry

European[45] countries after the World War II lost most of their industrial base. Although the British industrial structure suffered less than that of continental Europe. Western European countries revived their industrial structure with the help of aid from the United States, as mentioned earlier. They were able to use these grants either to revive their indigenous arms industries, or to co-produce sophisticated arms with the United States. As Gansler pointed out "[m]ost producers opted for sophisticated local production, relying on other

[43] Frederic Pearson. *The Global Spread of Arms Production.* p.45
[44] Jacques Gansler, *The Defense Industry,* p.102
[45] In this part, I will analyze Europe by focusing on Western Europe, because the evolution of defense industries will go on in today's' world.

suppliers for licenses to produce key components such as jet engines or advanced electronics."[46]

These countries emerged as second-tier states during the 1960s and 1970s. Germany and France relied on first-tier countries, namely the United States, for technological equipment. However they were successful in exporting their arms to developing countries. The reason for the export-oriented policy in these countries, and also for the difference between the United States and European countries in this area, was that domestic demand for weapons in Europe was much lower than that in the United States. In order to benefit from exports, these countries searched for new markets. For example, France used its colonial past to its advantage, exporting much of its equipment to its former colonies. Before analyzing the export orientation of these countries, I will focus on their revival, especially the French arms industry. I will then elaborate on arms transfers, by these countries.

Europeans, by means of collaborative projects with the Americans, benefited from technological advances by the Americans. Moreover, they were successful at acquiring these technologies according to their need. By the 1970s, European countries represented a serious challenge to the United States. Not only the technological base, but also US aids and grants promoted the development of military infrastructure in states like France and Italy.

> [T]his American aid also made it possible to reduce the burden of defense on European economies and, in a sense, also constituted the second stage in the standardization of equipment within NATO after the equipping of European armies…[47]

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[46] *Ibid.* p.120

[47] Pierre de Vestel, "Defence markets and industries in Europe: time for political decisions?" *Challiot Paper* 21 (Paris:WEU for Security Studies, November 1995), p. 23.

However, when the US aid began to decrease, European countries started to look at cooperative measures among themselves such as mergers or collaborative projects. In 1950, the first attempt about promoting cooperation in Europe came from France. It proposed the creation of a European Defense Community (EDC). Despite being the initiator of the project, opposition to the draft proposal came mainly from France. In France, cooperation with Germany under the auspices of Anglo-Saxons and the loss of sovereignty in defense issues would not be welcome by the public. After this unsuccessful trial, European countries launched another project called the Western European Union (WEU), established on 23 October 1954. The French government made another proposal calling for a European Armament Agency to exist within the WEU. This agency would be a supranational authority, which would organize standardization of equipment and cooperation in Europe, and which would be responsible for harmonizing requirements and for sharing production between countries. Although, other European countries did not support this proposal, they did establish a consultative body within the WEU, called Standing Armaments Committee, which was responsible for promoting standardization and cooperation.

During this period of limited cooperation, the United States offered a new financial assistance to the European countries so that they could produce American equipment under license. As de Vestel emphasized

> [US] aid than took the form of the transfer of technology and financial assistance to enable a number of projects to be launched, the most important of which were the F-104 (produced jointly by Germany, the Netherlands, Belgium and Italy), *Hawk* missiles (five European countries), *Sidewinder* air to air missile (eight) and *Bullpup* firearm (four).[48]

[48] *Ibid. p.* 27

However, these efforts did not sustain the harmonization of equipment between the various nations and thus interoperability between countries was not as successful as desired. In 1965, the United States again made an attempt to harmonize and rationalize overall armaments in the market by the way of setting up a Defense Common Market within NATO. Through this, countries would specialize in certain areas of production where they had a comparative advantage. However, due to their desires to control their own national defense industries, the European countries also refused this proposal.

Aside from these American efforts, European countries managed to cooperate in arms production during the late 1960s. One collaborative project was the maritime patrol aircraft *Breguet Atlantique* in which France, Germany, Belgium and the Netherlands cooperated in the area of R&D. Other projects included AS-30 missile (France, Germany and the United Kingdom), Franco-German projects such as *Milan* and *Roland* missiles, Franco-British projects such as the *Jaguar* aircraft, the *Puma* tank, *Lynx,* an anti-surface search and attack maritime helicopter and the *Gazelle,* a light utility helicopter. The most important collaborative project, the *Tornado* aircraft, was co-produced by Germany, the United Kingdom and Italy. This project has applications in both the military and civil aerospace industries. It was also important in the sense that "[Tornado aircraft project] was an expression of the partners' ambition: to develop an aircraft that would stand up comparison with the best American aircraft."[49] Moreover, it also started a competition between the United States and Europe and

[49] Burkard Schmitt, "From cooperation to integration: defence and aerospace industries in Europe" *Challiot Paper40.* (Paris: WEU Security Studies, July 2000) p.32.

the 1970s was thus not only the decade of the revival of European national defense industries, but also of their competition with the United States.

Whatever their national interests were, these countries pursued a policy of cooperation in Europe. The common idea behind this strategy was that through cooperation they would acquire the necessary know-how and expertise, and also reduce the cost of R&D.

> [The] reason for the unsatisfactory tradeoff between quality and quantity is the existence of "learning committees", an industrial phenomenon whereby employees and mangers engaged in the production of highly complex system require considerable before they learn to work efficiently... The more complex the system, the more severe R&D and learning diseconomies are created by the short production run.[50]

In Europe, the focus on the cost of production rather than on the performance of equipment was relatively greater than the United States. "The Europeans are much more constrained economically when it comes to weapons development"[51] This idea was the underlying reason behind European reliance on cooperation in the continent. Another reason for collaborative projects was that national requirements could be met by the use of international means. The most sophisticated projects could be completed through collaborative programs. For example, the German aerospace industry, as a result of its cooperation with European countries such as *Tornado* as well as with the United States was able to acquire a high level of competence in the fields of integration, design and technology. In order to elaborate on the European defense industry and underline highly nationalistic policies, the next section focuses on French case.

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[50] Andrew Moravcisk, "The European Armaments Industry at the Crossroads" *Survival* Vol.24: 4. (January-February 1990) p.65

[51] Ethan B. Kapstein, "International Collaboration" p.34

2.2.3.2.1. French Defense Industry

French governments have worked to establish national defense industry since the eighteenth and nineteenth centuries.

i. Motives to Establish a National Defense Industry

The main reason for these attempts had to do with military influence which crossed over into political life, especially when issues of national sovereignty were concerned. For example, France chose to use US grants to revive its local defense base, and it was also the first to coin the idea of national championship. As Kolodziej emphasized

> [French motives] arises from the demands of national populations everywhere, no less in France, for greater material welfare and for a more equitable share of national wealth and of the world's resources. An independent, national capacity to design and develop arms and an open-door policy to sell them as well as military technology-*ventes d'armes tous azimuts*- has been a policy instrument of significance equal to the *force de frappe*. [52]

Another reason for having a strong defense industry base was the French desire to project autonomous national power to shape the international environment according to its needs. It might have been expected that during the Cold War, this policy would not work. However, for French policy makers, such a goal was not impossible. "[The] French state guided by the regimes of the Fourth and Fifth Republics, has pursued strategic policies calculated to maximize French influence and independence. This was notably true of the Gaullist Fifth Republic."[53]

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[52] Edward Kolodziej, "French and Arms Trade", *International Affairs*, Vol.56: 1, January 1980, p.56

[53] _____, "Europe as a Global Power: Implications of Making and Marketing Arms in France" *Journal of International Affairs* vol.41: 2 (1988) p. 389.

The revival of French firms, during the Cold War was possible thanks to US grants or aids. For example, the French-made *Mystere* IV was purchased by the United States. The experience by the *Mystere* project led the French aerospace sector to be successful in other aircraft projects in Europe. However, the French desire to have a national and independent arms production base hastened the process of its defense industry under the guidance of the government.

ii. French Governmental Structure Responsible for Defense Industry

French government set up Délégation Générale pour l'Armement (DGA), which was responsible for military R&D and production.

> First [DGA] is the principal administrative mechanism through which the military services purchase arms. Second it is also a major producer of arms through centuries-old French arsenal system. Third, and largely operating through the Delegate for International Relation[54] (DIR), the DGA assumes central direction for France's global arms effort.[55]

The French arms procurement mechanism was the tightest among the European countries. This agency was "… structured by tightly interwoven industrial and financial links, as well as by personal relationship between government and industry"[56]

In addition, the DGA was composed of engineers and technocrats, who shared a similar educational background. As a result of this, arms procurement decisions would be separate from party politics and bureaucracy, because these technocrats had common ideas regarding the independence and national status of France. This commonality was understandable, given that the DGA had the right

[54] DIR is a branch of DGA and is responsible for arms trade
[55] *Ibid. p.* 390
[56] Michael Brozska&Peter Lock, *Restructuring of Arms Production,* p.78.

to supervise engineer schools that were under the supervision of Ministry of Defense.

Despite the French emphasis on national independence, France also took advantage of the opportunity to collaborate with European countries, as mentioned earlier. The underlying reason was economic considerations such as larger production runs to decrease the unit costs, sharing the costs of R&D, access to foreign technology and know-how and so on. However, in the French case, there was also a political motive, i.e. the desire to be the leader of European integration process in the defense sector. Moreover, French colonies became a "strategic burden" rather than "assets", thus France started to look to continental Europe for its strategic future.

iii. French Policies on Arms Export

France was also quite successful in exporting arms. For French defense industry, Third World countries became a major source of demand. As Brozska&Lock mentioned "[i]n the 1960s and 1970s arms transactions became more commercial as the oil revenues of the OPEC provided an alternative source to finance purchases."[57] Moreover, the transfer of arms was notable not only in quantity but also in quality. France started to export modern weapon systems to Third World countries. This was due to the aggressive French commercial policies. As Kolodziej exemplified

> [F]rance was the last Western supplier to abandon its lucrative arms trade with South Africa, and then only after sustained pressures from Black African states and

[57] *Ibid.* p.80

the UN. French sales of military aircraft, missiles, armored ground vehicles, and naval craft were justified as contributions to South African external security.[58]

Meanwhile, the economic imperatives of the defense industry overrode foreign policies and strategic objectives of the French government. However, in political terms, aggressive commercial policy, or open-door policy, "… provided France with an instrument to influence the policies of purchasing governments and to assist friends and allies."[59] The export issue was also kept secret by the government and the bureaucracy. "[Arms export policy] is a model of closed bureaucratic politics… in France there was the absence of broad public or inter-party debate or even serious disagreement between the major political groupings over France's arms position."[60]

To sum up, the European defense industries were revived by the American aids and grants. The European states were successful at adapting grants according to their needs. Collaborative projects in Europe reduced the costs of arms production. In addition, they pursued aggressive commercial policy in order to decrease the unit costs. Thus, for European countries, quantity for arms trade was more important than quality of arms.

2.2.3.3. The Defense Industry of Developing Countries

According to arms trade categorization, developing countries are labeled as third-tier state. These countries are able to produce only one or two sophisticated weapon system. "They [also] remain dependent upon imports of critical

[58] Edward Kolodziej. "Measuring French Arms Trade" *Journal of Conflict Resolution* vol.23: 2 (1979). p. 42
[59] Michael Brzoska, *Arms Production,* p.109
[60] Kolodziej. *Ibid.* p.45

sophisticated subsystems and little or no transfer of knowledge required going beyond the simple reproduction or copying of weapons occur."[61] The third-tier states, despite their scarce resources, typically devote most of their GNP to the arms manufacturing or arms transfer.

As mentioned in the Gansler's book "the developed world, to which all major arms suppliers belong, spends about 5 per cent of its GNP on military forces, while the developing world for the most part highly deficient in armaments production, devotes more to defense."[62] However, in some cases, this devotion of resources was not made in vain. Countries such as Brazil, Israel, India and Argentina managed to develop their own national industries. In the sections that follow, I will focus on motives for acquiring defense industry, and then I will briefly examine Brazil's achievement on this field.

2.2.3.3.1. Motives to Establish National Defense Industry

The first motive was that these countries faced threats to their survival, to their political independence or to their territorial integrity. This can be best understood by looking at the Israeli case. It is known that Israel perceived itself as an island embedded in an "Arab sea". The only means to survive in this sea was armament. Over time the militarization of its industry has enabled Israel to produce the most sophisticated weapons in the arms market.

The second motive was that these countries perceived autonomy in military hardware as a potential asset. For example, policy makers in Argentina believed that their defeat in the Falkland War was the result of their deficiency in

[61] Keith Krause. *Arms and The State*. p.90
[62] Ralph Sanders. *Arms Industries: New Suppliers and Regional Security*. (Washington: National Defense University, 1990) p. 18.

domestic arms production. Its larger neighbor was in a similar situation: "… Brazil's basic goal [wa]s also self-sufficiency, to be achieved constantly increasing the local content of military goods with a possible spin-off for exports."[63]

The third motive, which is related to the second one, is that such countries did not want to rely totally on the United States or other Western powers for arms, because of their experiences. For example, Israel faced arms embargo during its creation, in 1947. Moreover in 1967, during Arab-Israeli War, France put an embargo on arms transfers to Israel. Moreover, as Dvir&Tishler noted "[w]hen the British interrupted the provision of spare parts for *Centurian* tanks, during the Yom Kippur War in 1973; Israel built its own main battle tank, the *Merkava.*"[64] As a result of these embargoes, Israel produced as much of its own arms as it possibly could. Another type of embargo that was applied to various nations in recent decades, was linking arms exports to the countries' human rights record. For example, during the Carter administration, the United States imposed a number of embargoes on Third World countries. Such embargoes increased the desire to have an indigenous defense industry such that countries like Brazil and Argentina speeded up their military industrialization process.

The fourth factor was that, like civilian manufactures defense industry was a way to create job opportunities, to acquire technological know-how, and to reduce foreign exchange costs. Moreover, developing countries perceived defense industry as a tool that could contribute to economic growth.

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[63] *Ibid.* p. 23

[64] D.Dvir & A.Tishler. "The Changing Role of the Defense Industry in Israel's Industrial Development and Technological Development" *Defense Analysis.* Vol. 16:1 (2000) pp. 33-52.

The fifth factor was that some countries perceived exporting arms as a way to enhance their influence both within region and beyond. For example, "[A]rgentina has exhibited a national security interest in Bolivia. In pursuing its aims, Argentina has supplied La Paz with substantial amounts of military equipment, including howitzers and thousands of rounds of ammunition."[65] However, these exports were generally unsophisticated or uncomplicated weapons such as small arms, light fighters or ammunition. The importers were generally less wealthy states or states that had difficulty in acquiring arms from first or second-tier states. As a result, third-tier states became "first-tier" in the eyes of small countries.

On the basis of these factors, some developing countries managed to acquire indigenous defense industries. One of them was Brazil. In order to broaden the analysis, I will focus on the development of Brazilian defense industry in the next section.

2.2.3.3.2. Brazilian Defense Industry

Despite its status as a developing country, Brazil succeeded in producing sophisticated weaponry. Before the 1960s, Brazil imported much of its weaponry from the United States and lacked the necessary infrastructure to adapt technologies according to its needs. In the late 60s, Brazil started to look to different suppliers for its arms equipment. As a result of President Carter's emphasis on human right records, Brazil turned to Western Europe. Cooperation with European countries, rather than the United States, "[…] included the gradual transfer of production technology, from direct supply of the first units to local

[65] Ralph Sanders. *Arms Industries*. p.34

assembly and ultimately indigenous manufacture."[66] By the 1970s, Brazil acquired technological infrastructure for simple weapons, light aircraft, artillery and armored cars. Till 1980s, it was able to export overseas, with its sales centered in Middle East.

i. Brazil's Motives

The Brazilian motives for acquiring national defense industry could be understood in terms of politics and economics. As political motives, independence in developing an arms industry was the most important one. According to Brazilian officers, the state needs to be able to produce its own arms. As Sanders noted in his book, "[t]he Brazilian military arrived at a consensus with the leaders of industry and agriculture toward the goal of working for Brazilian "greatness" an idea that has become a Brazilian psyche."[67] Brazil had other motives, which also had to do with the "greatness" of the country. Having a strategic defense industry would enhance its influence in the South American continent and also in other parts of world such as Africa and Asia. Moreover, arms exports would give Brazil economic and political clout vis-à-vis its customers and prevent other rival countries from playing the same role.

Another factor, which had more to do with domestic politics, was the fact that Brazil was under military rule from 1964 to 1985. The military, which guided the Brazilian policy making process, played a key role in making the development of a Brazilian national defense industry possible. In addition, Brazil realized its economic miracle, putting itself in an advantageous position for developing its infrastructure. The defense industry would provide military

[66] Ethan B. Kapstein. "The Brazilian Defense Industry and International System", *Political Science Quarterly.* Vol.105: 4 (1990) pp.579-587.
[67] Ralph Sanders, *Arms Industries,* p.35

backing in politics whenever it wanted. "[T]he development of a defense industry created an opening or raison d'etre for the Brazilian Armed Forces to assume an active role in the country's domestic and foreign political and economic spheres."[68]

In addition to political motives, economic factors also affected Brazil's desire to develop its own defense industry. The first one was the import-substitution industrialization strategy (ISI)[69], which was one of the economic policies implemented in Brazil. This policy helped Brazilian government to deal with the bottlenecks that existed in sectors essential for defense industry. Moreover, the ISI strategy made possible the rise and the development of a computer industry and microelectronics technology. The success of this strategy also owed to the Brazilian government. Because it implemented the ISI, by facilitating strong linkages with importers, sectors that import goods, and exporters. Another factor was the Brazilian government's increasing emphasis on developing indigenous technologies. However, this was not envisioned as a trade-off between guns and butter, but rather in the sense that the industry would develop "dual-use technologies" that would be usable in both civilian and military products. As Neto pointed out "[B]razilian policy makers, however, justified the defense industry by noting changes in merging national security ideals, geopolitical goals, economic growth, and technological innovation."[70]

[68] Raul de Gouvea Neto, "How Brazil Competes in the Global Defense Industry" *Latin American Research Review*. Vol. 26:3 (1991) pp. 83-108.
[69] Import substitution industrialization also called ISI is a trade and economic policy based on the premise that a developing country should attempt to substitute products which it imports, mostly finished goods, with locally produced substitutes.
[70] *Ibid.* p. 85.

ii. Strategies Pursued for a Brazilian Defense Industry

What were the strategies that were followed by the Brazilian government to acquire national arms production base? Primarily, military advisers re-equipped the army and met other military needs by focusing on economic growth that was taking place in the automotive and steel industries. The military industry was supported by this civilian industrial technology, and in return, government funds and the military's orders for jeep, trucks and tents strengthened civilian industry. Moreover, during the initiation phase, government also set up new military research institutes including the Aerospace Technology Center, the Institute of Military Engineering and the Naval Research Center. After this structuring period, Brazil started to produce first civilian goods, such as civil airplanes. During the second stage arms production process there were plans to devote greater resources to the arms industry and military research. As emphasized by Brigagao

> [T]he allocation of funds to research became larger and more frequent over time, and included extraordinary credits approved during each fiscal year. The military also used the power of secret decree government directives not made public-to further increase its share of federal budget.[71]

Joint ventures were another area of mobilization in the Brazilian industry. These were conducted with the approval of military élite and more than a hundred were implemented.

As the industry grew larger, the Brazilian decision makers set up Brazilian War Material Company (IMBEL) in 1974. This organization was mostly

[71] Clovis Brigagao, "The Brazilian Arms Industry" *Journal of International Affairs*, Vol. 40:1. (1986). p. 104.

comprised of military personnel so that it was under the control of military. IMBEL

> [H]elped to increase investment in and the commercialization of imports and exports needed for defense industry development. The military expected that this would strengthen Brazil's industrial sector so that it could become more efficient regarding both internal and external security.[72]

IMBEL consisted of both state-owned and small private factories. Its policy regarding exports was to bring capital, technology and international customers to the domestic market. Moreover, it had the right to acquire patents and software equipment and revise import substitution policies.

The defense industry in Brazil was largely state-owned. For instance, the most successful industrial enterprise, the aircraft producer EMBREA, was owned by the state. Its success was because of joint ventures and licensing agreements. "[This factory] enabled the aircraft producer to acquire large-scale assembling technology from the Italian firm Aermacchi, sales techniques from the US company Piper, and inputs such as landing gear for its airplanes from the French company Eran."[73] This company has also been the major exporter to newly industrializing countries. Its success was a result partly of its flexibility in designing both civilian and military products. However, despite the dominant position of state-owned enterprises, the private firms such as Engesa, and Avibras played an important role in Brazilian defense industry. These firms specialized in certain sectors of military production. For example, Engesa specialized in the wheeled armored fighting vehicles, while Avibras worked in the areas of space research systems, satellite communications and the like.

[72] Ethan Kapstein "The Brazilian Defense Industry" p.389
[73] Raul Neto "How Brazil Competes with Global Defense Industry" p.96

iii. Brazilian Arms Export Policies

Arms exports were perceived by Brazilian policy makers as a way to project influence in its region. For example, "[d]iplomats serve as salesman, speaking with local defense ministries about procurement while promoting the benefits of Brazilian manufactures and Brazilian state."[74] Arms transfer from Brazil went primarily to developing countries. The uncertainties of imports from the United States led these states to turn to other suppliers, and Brazil then had the opportunity to serve in that role. Moreover, the Brazilian marketing strategy for exporting arms

> [Wa]s considered quite flexible, no-end user certificates are required, the decision left to the independent states' decisions. Moreover, Brazilian producers achieved high degree of flexibility in hardware design in seeking to accommodate their customer's needs as much as possible.[75]

Defense firms in Brazil also had the ability of "tropicalizing" their technology, meaning that the technology could be modified according to importer's need.

There were criticisms at Brazil's role in the arms trade, which focused largely on Brazil's non-discrimination policy- i.e., Brazil did not restrict its exports according to the local conflicts. Its export policy, which very much resembled that of France, was also considered an aggressive commercial policy. For example, Brazil continued to export arms to Honduras, a country in conflict with its neighbor. It also went on exporting arms to Iraq, during the Iran-Iraq war. According to an estimate by the Stockholm International Peace Research Institute (SIPRI), 40 percent of all Brazilian arms transfers from 1985 to 1989

[74] Ethan Kapstein "The Brazilian Defense Industry". p. 340
[75] Raul Neto "How Brazil Competes with Global Defense Industry" p.90

went to Iraq.[76] As a result of this, it was asked whether "Brazil [has] not only militarized its economy by seeking industrialization through the strength of its armaments, but [it] has also militarized its foreign relations"[77].

2.3. Globalization Process

After the Cold War, most Western states reduced their defense spending. There was no immediate threat, so that there was no need to devote a significant portion of the budget to defense. However, defense firms did not welcome this process because their major customers were governments. Moreover, during the Soviet era, it was easy to determine who was a friend and who was a foe. As Keller noted "[However] in today's environment, future guarantees of assured access to industry and technology are much less predictable due to great uncertainties associated with future Third World countries and regional conflict."[78]

2.3.1. Revolution in Military Affairs (RMA) and Technology during the Process of Globalization

Another factor that led to a "quiet revolution" in the defense industry is the upgrading of weapons. The Revolution in Military Affairs, especially in the United States, has resulted in the increasing prevalence of sophisticated weapons. The RMA is related to the emergence of both new threats, many of which couldn't be met by conventional means, and a shift in the nature of core military technologies. While large and complex individual platforms would still have a

[76] Available online at: http://armstrade.sipri.org/arms_trade/values.php
[77] Clovis Brigagao, "The Brazilian Arms Industry" p.107
[78] William Keller, "Global Defense Business: A Policy Context for The 1990s" in ed.by Ethan B. Kapstein *Global Arms Production: Policy Dilemmas For the 1990s* (New York: University Press of America, 1992). p.68

role, they would be less important than an overall complex of systems, both hardware and software centered, integrated into much larger networks of capabilities. "It further emphasizes the importance of technology acquisition, systems conceptualization and managerial integration possibilities rather than hardware development and manufacturing per se."[79] Moreover, the RMA implies

> [The] combination of joint force doctrines, strategies and tactics, changes in military organization and integrated logistical support with the development of intelligence collection, surveillance and reconnaissance (ISR), command, control, communication and computer-processing (C^4) and precision force.[80]

In the wake of global terrorism, technology has also gained importance in new sectors, such as intelligence and surveillance system, anti-terrorist security device, small arms and stun grenades, some of which can be provided by small firms competitive markets (unlike airlift and smart weapons).[81]

Another aspect of technology in the global world is that commercial technology began to drive innovation to a greater extent than military R&D. There was competition between civilian and military industries so innovation in the market accelerated. Mussington emphasized that "[as] a consequence in selected industries commercial advances outpace those in defense applications. Technological dependencies that limit national access to sensitive products and processes have serious implications for national security."[82] States began to adopt critical technology policies as a response to the growing problem.

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[79] Derrick J. Neal & Trevor Taylor, "Globalization in Defense Industry: An Exploration of the Paradigm For US and European Defense Firms and The Implications for Being Global Players" *Defense And Peace Economics* Vol.12 (2001). pp. 337-360.
[80] Joseph Nye & William Owens "America's Information Edge" *Foreign Affairs* Vol. 75:6 (1996) pp. 23-40.
[81] Keith Hartley & Todd Sandler, "The Future of Defense Firm" *Kyklos* Vol.56:3 (2003) p.363.
[82] David Mussington *Arms Unbound: The Globalization of Defense Production* (Brassey's: Washington 1994) p.84

2.3.2. The Solution to Decrease Weapon Manufacture Cost: International Cooperation

The costs of these new developments along with decreasing budgets in the defense sector led defense firms to focus on other markets or to engage in collaborative and cooperative activities with foreign firms. Although globalization foresees the restriction of custom duties and trans-nationalization of activities, the defense industry would remain under the control of government. It is because:

> [D]efense spending is a public good, paid by national taxpayers and overseen by national legislators who would prefer to see public money t in domestic markets to employ their voters and to provide broader national benefits. In general, the desire to avoid dependence on foreigners for critical defense products and knowledge is still powerful. Furthermore, defense exports an extension of foreign policy and government will want to retain a say in the flow and direction of such goods and services…. Governments will want to ensure that the globalization of defense industrial production will not compromise national security and national economy.[83]

Without going into more detail on this globalization vs. government debate, this thesis will focus on emerging trends among international defense firms, which increased cooperation between firms. Where domestic demand decreases because of the disappearance of threats, firms need to adapt their functions according to the market. First of all, in European countries, rationalization process started. In this process, excess production diminished, and some of the production was terminated. In other words, plant closures and lay offs occurred in defense firms. For example, the British company BAe decided to close four of its factories and went for 4700 job cuts.

The Conventional Forces in Europe (CFE) Treaty in 1990 was also another catalyst for rationalization. It was concluded between NATO and the Warsaw

[83] Keith Hayward, "The Globalization of Defense Industries" *Survival* Vol.42: 2 (2000). pp. 115-32.

Pact countries. With the demise of the Soviet Union, European countries decided to limit their forces in Europe because of increasing budget constraints.

2.3.2.1. Mergers

Another trend was the merger of small companies with larger ones. In addition, a number of transnational mergers took place in the 1990s. When a merger takes place within the boundaries of a nation, this can also be considered as an example of consolidation. For example, in Germany, government supported the consolidation process. It tried to save one of its biggest companies, MBB, but was not successful and so turned to the private sector allowing Daimler Benz to take over MBB. However, the consolidation of bigger companies also creates apprehension about monopolization, which would decrease the competitiveness of market.

As for international mergers, British Aerospace, Daimler Chrysler, and the French Aerospatiale and Matra, were planning to merge in order to form the European Aerospace and Defense Company. There were also transatlantic mergers. For example, the American firm Raytheon merged with the French Thomson. A primary motivation behind the US firms' desire to merge with European companies was the fact that "[…] everywhere, the pressure to buy domestic remain[ed] fierce. Access to foreign markets w[ould] be easier for American contracts if they c[ould] partner with companies based in buyer and competitor countries."[84]

[84] Ann Markusen, "The Rise of World Weapons" *Foreign Policy* Vol. 58:3 (1999), pp.40-58.

2.3.2.2. Collaboration

Another method of going global is collaboration, which is in some way a compromise between remaining national and going fully global. As mentioned in the Kapstein's article

> [C]ollaborative arrangements for the production of complex weapon systems represent a second-best solution to the problem of defense acquisition. Such arrangements reflect the desire to maintain domestic military-industrial capacity on the one hand, while incorporating capital and technology on the other hand. In short collaboration represents a form of protectionism. As a policy instruments, collaboration seeks to resolve the underlying tension between nationalistic conceptions of security and the globalization of defense industries.[85]

Collaborative projects are not a new phenomenon within the defense industry. However, in a global world, the pace of these projects increased. Moreover, these projects become more formal, with more integrative industrial linkages at the firm level, through the creation of international joint venture companies. As mentioned above, international cooperation can be in the form of co-development and co-production. The management of such cooperative ventures was handled through consortiums. These are ad hoc mechanisms, which clearly delineate "[...]the responsibilities of each corporate or national participant, especially in ensuring that each partner receives a value of production work equal to its investment in the program (a process known as *juste retour,* fair return)."[86]

Some examples of successful collaboration examples include the Harrier program, F-16 program, and Spanish F/A-18 program. Such successes depend on: a) program being identified as a high-priority project among the participating

[85] Ethan B. Kapstein "International Collaboration" p.567
[86] Richard A. Bitzinger "The Globalization of Arms Industry: The Next Proliferation Challenge" *International Security* Vol.19: 2 (1994). p. 175

countries, b) limiting the number of participants (larger number of states will mean lots of national requirements to be met) c) a program that is likely to generate and sustain support from various political constituencies in the respective countries, d) obtaining commitment from countries to buy a "critical mass" which is defined as a number that permits the non-recurring development costs to be allocated while maintaining a total per unit cost that is politically and economically affordable e) providing sufficient industrial incentive to overcome political obstacles, f) possibility of potential conflicts of interest among participants, g) understand potential impact of technology transfer issues on the ultimate marketability of product.[87]

As a result of the success in these programs and gains, defense firms individually go global. European firms chose to cooperate with each other, and sometimes did not even acknowledge their governments. These collaborative programs were not only specific to Europe or transatlantic relations. Third World countries also adapted their industries in accordance with globalization. Such cooperation may be among themselves, or it may be with the first world countries, such as the Italian-Brazilian AMX attack jet, or the K-1 tank jointly developed by South Korea and the United States. Israel has engaged in licensed production with Taiwan and South Africa for its Gabriel anti-ship missile.

Despite these successes, there were also failed projects. They were due to "[…] over administration, poor coordination at the R&D stage, lack of competition in component production, and excess production capabilities."[88] Other challenges for collaborative projects include examples where firms might no longer deliver the goods in question, or states might back off their

[87] *Ibid.* p.180
[88] *Ibid. p. 180*

commitment to a given weapon systems because of changes in strategy and international relations.

2.3.2.3. Offsets

Also relevant to the discussion of collaborative ventures is the fact that the use of offsets increased substantially during the globalization process, especially in the case of Third World countries. Offsets are generally considered desirable by importing countries for a number of reasons. For one thing, straightforward arms imports create dependency on the exporter country. Moreover, there are fewer economic benefits for the importer. Offsets, on the other hand, can help promote internalization of technology, employment in the importer country, and reduce the unit cost of the weapon. However, these advantages can be realized only when there is an industrial infrastructure to manage these successes.[89] As Struys emphasized

> [O]ffsets re-enforce the observation that states with a significant pre-existing defense R&D and production capability are equipped to assimilate technology transfer in terms of both recipient value-added, and the ability to apply know-how gained through licenses to independent national designs. Correspondingly, states with limited pre-existing defense industrial capabilities have found offsets to be costly and lengthy process involving little genuine technology transfer.[90]

In addition to collaboration, there are also other methods for defense companies to cope with decreasing budgets. One is conversion to civilian production. Military firms can spin-off to civilian ones as the result of their high-tech assets. This process can be restricted to the diversification of products to civil industry, rather than wholesale restructuring of the defense firm in question.

[89] Wally Struys, "The Future of the Defense Firm in Small and Medium Countries" *Defense and Peace Economics* Vol.15: 6 (2004). pp. 551-564
[90] Matthew Uttley "Defense Offsets, Weapons Proliferation and Emerging Security Challenges" *Defense Studies* Vol. 1:1 (2001). P. 174

However, “most recent empirical studies reveal a decided aversion on the part of many heavily defense-dependent firms to such approach”[91]

2.3.3. Challenges of Globalization and the Civilianization of Defense Industries

Globalization also presents challenges to the defense industry. Firstly, as arms exports or cooperation programs increased, technological transfer also increased. The technology transferred to these states could potentially be used as a weapon against the exporters, which actually occurred in the case of the Gulf War, or the war in Afghanistan. Moreover, these technology transfers enabled Third World countries to set up their own defense industries. In the face of embargoes by the Western powers, these countries would be able to develop sophisticated weapons by themselves. Moreover, these countries could also export the arms acquired through technology transfer to other Third World countries that were in conflict with their neighbors.

The increase in transfers involving high technology has the potential to increase militarization in the world and cause conflicts to become bloodier. In order to counter this threat, Western states need to focus on the cooperative export mechanism. However, there is also another challenge in this respect. Whatever the outlook of the producer countries (European countries are favorable inclined to exporting, whereas the United States is not), dual-use products will inevitably cause difficulty in controlling export materials. These characteristics of defense industry in the age of globalization have been described as the “civilianization of the defense industries”. According to Pierre de Vestel,

[91] Keith Hartley & Todd Sandler, “The Future of Defense Firm” p.54

these industries should internationalize and should be subject to free market conditions and competition. De Vestel notes that the technological content of weapons also shifted to the extent that it now often comes from civil origins. "As result of these factors, defense industries and markets are adopting characteristics of civil economy *mutatis mutandis,* adopting these characteristics in accordance with the specific nature of the defense domain and national circumstances."[92]

Another consequence of globalization was increase in defense budgets in Western countries. For, globalization leads to progressive erosion of the military technologies of Western countries. "[I]n attempting to aid their defense industrial bases, the industrialized countries could be trading away short-term gains that could eventually lead their military challengers to be more technologically advanced"[93]. Besides, Third World countries could conceivably threaten Western technological improvements. Thus the West might increase its defense budget in order to sustain its technological level. Moreover, globalization may foster the development of weapons of mass destruction. Some types of collaboration on dual-use technologies such as missiles and long-range aircraft could reduce the time and cost of developing nuclear weapons.

Following the above analysis of the defense industry, the next chapter will focus on the emergence of Turkish defense industry and pros cons in the Turkish defense market.

[92] Pierre de Vestel, "Defence markets and industries in Europe: time for political decisions?" p.11
[93] *Ibid.* p. 24

CHAPTER III

THE TURKISH DEFENSE INDUSTRY

We must continue to implement the measures that were enforced to develop and extend our industrial capabilities and we must particularly keep military requirements in mind in the context of our industrialization efforts.

M. KEMAL ATATÜRK-1937

Turkish defense industry has not been as effective regarding the production of weapons as some of its counterparts in other countries, although, Turkey's first attempts to establish its own defense industry were in the fourteenth century. Turkey has relied on imports in order to meet the needs of its armed forces. When its defense industry was evolving, Turkey experienced vicissitudes concerning such arms imports, which led policy-makers' to attempt at developing an indigenous defense industry. While some of these attempts were successful, many of them failed.

Reasons to Acquire a National Defense Industry

Turkey's geostrategic location is one of the prime factors to explain establishment of its own defense industry. Turkey is surrounded with states that have different cultural and political backgrounds. In this neighborhood, there are also countries that are indicated as a threat to international security by the international community. Moreover, Turkey has neighbors with relatively

stronger defense capabilities relative to Turkey. Middle Eastern neighbors especially Iran have been pursuing nuclear weapons capability. Turkey has been committed to international agreements regarding nuclear nonproliferation such as Non-Proliferation Treaty. As a result of this, Turkey managed its defense by focusing on its deterrent capability by conventional weapons. This capability would gain importance by strong defense industry that is able to produce high-tech weapons. This point is also supported by Western countries which perceive Turkey as a "buffer" against possible threats from Turkey's vicinity.

> Apart from Turkey's NATO obligations, Ankara has maintained its regional perspective on security problems. Because of its regional geopolitics, Turkey has somewhat a distinctive position within the Alliance. The Turkish Armed Forces (TAF), therefore, planned and carried out reforms with a view to maintaining the capability to operate either in tandem with the allied countries or alone.[94]

As indicated above, the development of a defense industry is not a new phenomenon for Turkey. Since the Ottoman times, the defense industry has been a focal point for the country's industrialization efforts. This chapter will focus on the evolution of the Turkish defense industry, and then evaluate today's Turkish defense industry and its problems.

3.1. Historical Evolution of Turkish Defense Industry

3.1.1.Ottoman Period

During the Ottoman period, military power was utmost importance for empires and nations. Having technologically developed equipment was a way to

[94] Ali L. Karaosmanoğlu& Mustafa Kibaroğlu "Defense Reform In Turkey" in Istvan Gyarmati& Theodor Winkler. *Post-Cold War Defense Reform: Lessons Learned in Europe and the United States*. (Brassey's Inc: USA, 2002) p. 123

triumph during battle. For this purpose, Mehmet II (Mehmet the Conqueror) ordered the production of mortars in Edirne, Istanbul, Erzurum and Birecik. This period was also significant in the sense that the production of these materials was based on research and development. For example, following the production of mortars, the idea of using them on the empire's ships and ripped mortars was also implemented by the R&D process in the Ottoman Empire. In the fifteenth century, the Ottoman navy yards were the most advanced ones in Europe. These yards could produce 137 ships at one batch.[95]

Even during the period of its decline, the Ottoman Empire did not give up its efforts to produce technological equipment. During the nineteenth century foreign experts were invited to help in the establishment of military institutions. For example, submarines were manufactured with the assistance of English officers. Despite these attempts, technological backwardness of the military was one of the reasons of Ottoman decline. Moreover, the economic decline of Ottoman Empire and World War I did not bequeath a substantial defense industry to the new Turkish Republic. The republic inherited only navy yards, gunpowder plants, and some continuation and maintenance supplies and equipment that were brought into Anatolia secretly during WWI.

3.1.2. Early Republican Period*:*

Mustafa Kemal Atatürk[96] stressed the importance of the defense industry during his speech at the İzmir Economic Congress in 17 February 1923: He declared that during Turkey's industrialization period, defense industry should not

[95] Muammer Şimşek, *Üçüncü Dünya Ülkelerinde ve Türkiye'de Savunma Sanayii-Defense Industry in Third World Countries and in Turkey,* (SAGEB: Ankara, 1989), p.151
[96] Mustafa Kemal Atatürk is the founder of modern Turkey and its first President

be left out. The decision to set up an integrated light weapons and ammunition industry in Kırıkkale was first taken at the İzmir Economy Congress. Moreover, in 1921 the General Directorate of Military Industries was set up. The government prioritized the establishment of a number of defense industry facilities. These were

> [I]n 1924, a facility for the repair of light weapons and artillery another facility for ammunition and carpentry was set up in Ankara; in 1927 a new ammunition facility was set up in Ankara, followed by a capsule factory in Kayaş in 1930, a power plant and steel facility in Kırıkkale in 1931; a facility for gunpowder, rifles and artillery in 1936 and a facility for the gas masks in Mamak in 1943.[97]

3.1.2.1. Establishment of Private Defense Company

Beside the state firms, a private defense company was also established during the Atatürk period. For example, the Nuri Killigil Enterprise was a private industrial enterprise that could produce weapons, such as pistols, 81mm mortars and ammunitions, explosives and pyrotechnics. This company also sustained necessary equipments for Turkish Armed Forces during the Second World War. Navy yards that were inherited from Ottoman Empire were also modernized in this factory. In 1929, for the repair of battleship *Yavuz* , the yard that had been in Haliç was moved to Gölcük. In addition to this, a new yard was established in Gölcük and in 1941; the Taşkızak navy yard was reopened.

3.1.2.2. Important Developments in Aircraft Sector

Aside from these attempts, the most successful ones occurred in the aircraft sector. In 1926, the "Aircraft and Motor Turkish Joint Stock Company"

[97] SSM, *SSM ve Türk Savunma Sanayii-SSM and the Turkish Defense Industry,* (Mönch Yayıncılık: Ankara, 2005) p. 5

(TaMTAŞ-Tayyare ve Motor Türk A.Ş.) was set up. The German[98] company Junkers was a partner in this joint venture. The TAMTAŞ facilities in Kayseri began production in 1928. By 1939 "[…] a total of 112 aircraft- 15 German Junkers A-20s, 15 US Hawk fighters, 15 German Gotha liaison aircraft- had been produced."[99] This factory was a first class aircraft factory. However it was closed down as a result of a dispute over a license which led to the breakup of the German partnership. Aircraft production halted, although the maintenance of Turkish Air Forces' planes continued.[100]

In 1941, the Turkish Aviation Association (Türk Hava Kurumu-THK) set up an aircraft factory in Ankara. This was the first independent attempt to establish an aircraft industry in Turkey. In this factory, several aircraft and gliders were produced. These were the "[…] Miles Magister trainer aircraft, twin-engine ambulance aircraft, the THK-10 light transport aircraft and the 60 Uğur two-seater trainer aircraft"[101] The first aircraft engine factory was also established in Ankara in 1948. In addition, in Malatya, various facilities were built to repair the aircrafts procured from the United Kingdom during the Second World War. A private factory was also founded in the aircraft sector. Nuri Demirağ, who was one of the wealthiest men in new Republic, owned this company. With the license with Germany, this establishment was able to produce 24 aircraft and gliders. However, the factory was closed in 1943.

[98] Germany has been the most important ally for the foundation of defense industry in Turkey during the Republican Period and Cold War.
[99] *Ibid. p. 6*
[100] Suat Söylerkaya, "Türkiye'de Milli Harp Sanayii-National War Industry In Turkey"*, Milli Harp Sanayii Semineri Tutanakları.* (Ankara Ticaret Odası Yayınları: Ankara, 1976) p.92
[101] SSM. SSM ve Türk Savunma Sanayii. p.10

After the Second World War the most expensive investment in defense industry around the world was made in the Turkish aircraft sector.[102] A wind tunnel was established in 1947. This tunnel would enable engineers to determine the effect of air on materials by creating an artificial air direction. One-third of the national budget was devoted to sustaining this venture, which is another indication of the emphasis placed on R&D during that period. However the project was not fully completed because in the 1950s American aid would stop the R&D process in Turkey. In 1967, Brodcard specialist from France came to report the wind tunnel. (This was a NATO field study.) They reported that this wind tunnel had been one of the most successful tunnels in Europe, as a result of its design and construction. In 1994 there was an attempt to re-start this project but it failed.[103]

This tunnel was one of the pillars of Turkish defense industry policy in 1947. The other two were establishing aircraft and engine industries and setting up a technical university which would teach aircraft engineering. As a result of this plan, İstanbul Technical University opened the branch of aircraft engineering. Moreover the THK's facilities in Ankara were broadened and turned into the aircraft engine and maintenance industry.

In conclusion of the pre-Cold War period "[Turkish] arms industry expanded to meet the internal security requirements of the new state and later as part of a state-led industrialization surge. Turkey even established the nucleus aircraft industry."[104]

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[102] Adil Ayaz, *Savunma Sanayii ve Dış Politika İlişkisi-The Relation between Defense Industry and Foreign Policy,* (Unpublished Master Thesis: Gazi University, 2003) p.32
[103] Aytekin Ziylan, *Savunma Sanayii Üzerine-On the Defense Industry,* (ASELSAN: Ankara, 1999) p. 20
[104] Ömer Karasapan, Turkey's Armament Industry, *Middle East Report* Vol. 40:1 (1987). p.27

3.1.3. Cold-War Period

During the Cold War period, Turkey received grants and credits from the NATO allies, especially from the United States. However, these aids halted the defense industrialization period in Turkey, because they were more effective in meeting defense needs than the indigenous production. The imported weapons were also technologically advanced than Turkish products. Thus attempts to develop the country's own defense industry faltered. As Turkish defense industry could not meet Turkish Armed Forces' demands, meeting it from outside became a burden for the national budget. As a result of this, the defense industry went to reorganization.

3.1.3.1. Machinery and Chemical Industry Corporation- (Makine Kimya Endüstrisi Kurumu-MKEK)

The General Directorate of Military Industries was re-organized under the name Machinery and Chemical Industry Corporation (Makine Kimya Endüstri Kurumu-MKEK). Law numbered 5591 empowered MKEK to buy THK. This corporation was operated as a State Economic Enterprise. MKEK produced MKEK-4 training aircraft. However, the production of aircraft was soon halted and the factories were turned over to maintenance and continuation. Licensed production of foreign products such as *Sidewinder* and *Bullpup* missiles was another function of these factories. These facilities had the capacity of producing 500 aircraft and grinders. However technological advances outdated the usage of propeller planes. Aircraft with jet engines entered the market but MKEK could not update its technological base. Because of the government's import policy, all

of these production facilities were turned into civilian enterprises. For example, the engine factory was turned over the Turkish Tractor Factory and others were transformed into textile factories.[105] Yet despite these developments during the period between 1954 and 1958, Germany ordered 740 million DM worth of equipment. MKEK entered in the period of investments. Between 1956 and 1974, MKEK completed 18 investments and the value of this corporation increased 6 to 7 folds.[106]

3.1.3.2. Foreign Aids

The aids and grants from abroad were the main reason for the stagnation of the development of a Turkish defense industry. The US' aids which were the execution of Truman Doctrine, was divided into four areas: donations, Foreign Military Funds /Foreign Military Sales credits, commercial credits and training support.

Donations: With this aid, Turkey was able to procure M-47/48 tanks, howitzers, aircraft and ammunition. Donations were gradually phased out during the 1970s. The military ammunition aid, which was out of use, was lastly used during the Southern Flank Agreement. F-4E (Phantom II) and T-38 (jet trainer) aircrafts and old Perry class frigates were also acquired by donations.

FMF/FMS (Foreign Military Funds/Foreign Military Sales) credits: This type of aid was started after 1972. During 1975-1980, these credits were cut as a result of embargoes. They were reinstated in 1980 and went on until 1998. These credits were initially in the form of donations. However, they were then transformed into long-term credits with a 5% interest rate.

[105] Simsek, *Üçüncü Dünya Ülkelerinde ve Türkiye'de Savunma Sanayii,* p.78
[106] Ayaz, *Savunma Sanayii ve Dış Politika İlişkisi,* p.54

Training Support*:* Turkey has been active in a program called International Military Education and Training[107]. This aid costs one-two million dollars in a year. This program has been defined as

> […] it is a low-cost grant program ($26.35 million in FY 1995) that provides professional military education and training to more than 3,300 foreign military and civilian personnel from over 100 countries annually. Over half a million foreign personnel have been trained through IMET sponsorship over the past three decades. By attending IMET-sponsored courses and programs in the United States, future leaders of foreign defense and related establishments are exposed to U.S. values, regard for human rights, democratic institutions, and the role of a professional military under civilian control. [108]

Not only the United States but Germany as well offered aid to Turkey. German aids came in the form of weapons that were produced according to new technologies. Turkey could also use these technologies in civil industry. This aid was also useful in the establishment of calibration facilities and other small weapons productions.

3.1.3.3. Domestic Efforts besides Foreign Aids

During this period, Turkey was able to make two attempts to further develop its own industry. One was establishment of a factory to produce ammunition, which was in line with NATO standards. The other was the production of the *Cobra bazooka* under license from West Germany in 1967.

Despite these attempts, policy makers could not realize the effects of aids to the indigenous defense industry. Turkey could procure the weapons but not the technology that came with the weapons. Western European countries realized what the situation was and questioned the motives of US aid in 1960s. Moreover,

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[107] İbrahim Orün, Türk Savunma Sanayii'nin Tarihine Bir Bakış, *Savunma ve Havacılık,* Vol. 5:1(1997) p.45

[108] Military Assistance, Available on line at; www.defenselink.mil

Western European countries could use this aid to further development of their own defense industry. However Turkey incurred negative effects of being dependent on other countries' during the Cyprus Crises in 1964.

3.1.4. The Crisis that Helped Turkey's Defense Industry

To give some very brief background on the Cyprus issue, for the protection of Turkish Cypriots and its own national interest, Turkey attempted to intervene in Cyprus. However this attempt was prevented by the United States. In a letter, US President Lyndon Johnson[109] warned Turkey not to use NATO equipment[110] for intervention in Cyprus. Despite this letter, Turkey did intervene in Cyprus in 1974. Following this event, the US Congress voted to impose an embargo on arms transfers to Turkey. As mentioned in the Karasapan's article

> [T]hese blows to the Turkish state's esteem and the modernization requirements of WWII vintage weapons which no longer sufficed to meet the country's need led to the promulgation of a Remodernization Plan (REMO I) in 1970. The plan reflected not only the political decision to expand arms production but also the economic reality that foreign grants and concessionary loans could no longer meet the high-tech, high-cost weaponry needs of the Turkish army.[111]

3.1.4.1. The Attempts for Self Sufficiency in Weapons Production

The motto became "produce your aircraft yourself" As a result of this policy; several attempts were made to reinvigorate the national defense industry: first of all, the Armed Forces Foundations (of the Air, Naval and Ground Forces-Silahlı Kuvvetler Vakfı) were established. "However, [it] did not take too long to realize that the actual needs for a defense industry as required by the contemporary conditions could not be met only through donations given to these

[109] US President Lyndon Johnson sent this letter to Prime Minister İsmet İnönü in 1964. For a detail analysis on this issue, Haluk Sahin. *Johnson Mektubu.* (Istanbul, Gendas Yayinlari,2002)
[110] The ammunition used by the Turkish Armed Forced in the operation was of US and NATO origin.
[111] Karasapan, Turkish Armament Industry, p.27

foundations."[112] After the military foundations, a number of civilian foundations and private companies were set up. These included İŞBİR Electronics, KÖYTAŞ, SİDAŞ, ASKALSAN, OTOMARSAN, ASELSAN, TUSAŞ, Kalekalıp and Parsan. These newcomers along with the international situation caused Turkish policy makers to realize the importance of R&D. However, these firms and MKEK because they were using old-technologies had too many employees and were not working to full capacity could not compete in the foreign market.

In 1975 Ministry of National Defense (Milli Savunma Bakanlığı-MSB) prepared "Defense Industry Association" law. This draft proposed transforming MKEK into an association under the MSB. However, Turkish Ministry of Industry and Commerce (Sanayii ve Ticaret Bakanlığı-STB) opposed the draft. The reason was that defense industry was a part of the national industry and as such should be under their oversight. STB also noted that MKEK had been producing civilian goods and should therefore not be part of the Ministry of National Defense.

3.1.5. 1980s: Attempts to Foster the Defense Industry

3.1.5.1. Liberalization Efforts in Turkish Economy

Turkish economic policy before the 1980s was based on the import-substitution model. This model also applied to the defense industry. According to this model, weapons imported from abroad would be produced inside the country at the same quality under the license. ISI was based on cooperation with the exporting state. However, if the domestic market was a small one, then the

[112] SSM, *SSM ve Türk Savunma Sanayii*, p.11

production of weapons inside the country would be impossible. In addition, because of structural difficulties and economic bottlenecks, modern weapons production has become more difficult. The reason is modern weapons require a huge investment. Yet despite these difficulties, some countries, such as Israel, Argentine and India, were successful in acquiring a defense industry through the import substitution model. These countries devoted much more attention to the defense industry than to the industrialization of the nation as a whole.[113]

Countries that could not make the import substitution model work for them turned to the export-orientation one. This model focuses on exports with the firms that export being supported by the government. It also comprises the liberalization of economic policies and free market regulations. Because of their economic situation, developed countries adopted this type of regime after the 1970s[114].

As outlined above, Turkey had implemented the policy of import-substitution model in the beginning of 1950. However, because of a lack of investment and economic instability in the market this model for the defense industry collapsed. In the 1980s, Turkey initiated export orientated economic policy. As Akgül emphasized "[t]he major change in the economic policy of Turkey, since the beginning of 1980, has been to reduce the role of the state in economic and commercial activities and to confine it to infrastructure and socio-economic investments."[115] This new policy was also applicable to the defense industry with slight differences. The state monopoly in this sector was preserved until 1985. Private industry for defense sector has also encouraged for the

[113] Aziz Akgül, *Savunma Sanayii İşletmelerinin Yapısı ve Türk Savunma Sanayii-The Structure of Defense Industry and Turkish Defense Industry,* (Başbakanlık: Ankara, 1986) p.120
[114] *Ibid.* p.125
[115] *Ibid.* p.110

investments. Until this time, private industries were forbidden to intervene in domestic defense market. Moreover, foreign investments for this sector were welcome after 1980s.

> [A]fter the adoption of the new economic policy, the Turkish authorities decided to apply a more liberalized policy towards the establishment of a modern defense industry in Turkey, mainly by the help of the Turkish private sector in collaboration with foreign technology know-how and capital. The instruments of this new policy have been laid down in Act No. 3238 enacted in November 1985.[116]

3.1.5.2. The Establishment of New Organization for Defense Industry

This act initiated not only the liberalization of Turkish defense industry but also the foundation of a new body. Law numbered 3238 created the Defense Industry Development and Support Administration (Savunma Sanayii Geliştirme ve Destek Merkezi-DIDA-SSGDM) and established the Defense Fund. The predecessor of this body Defense Hardware Administration General Directorate had been set up in 1983. "However, the shortcomings stemming from [this directorate's] public owned status hampered the success of this enterprise, and all properties of that enterprise were transferred to DIDA[117] or with its new name Undersecretary for Defense Industry[118].

However, this new policy was objected to in some quarters in the Turkish Grand National Assembly (TGNA) and governing elites. The law stipulated that DIDA would acquire the assets of the military foundations, and that MKEK shares would also be sold to the private sector. However, the civil and military élite were opposed these changes.

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[116] Vahit Erdem, "Defense Industry and Investment Projects", *Turkish Review Quarterly,* Vol. 2:11 (1988) p. 15.
[117] SSM, "SSM ve Türk Savunma Sanayii", p. 6
[118] The functions of this body will be analyzed in detail in the third chapter. Briefly stated, its role was to act as an intermediary between industry and the government, and also to serve as a procurement agency.

> [T]he military brings its traditional view of civilians as undisciplined, bickering, and used to easy profits. This led to a March 1986 decree prohibiting private sector production of lethal equipment the refusal of the military foundations to turn over their assets to DIDA reflects this attitude as well.[119]

Not only elite but also public opposition could be observed during the discussions in the TGNA. Murteza Celikel of the Democratic Left Party opposed the idea of privatization of defense industries and asked what would happen if there were a strike in these companies.[120]

However, despite such opposition the liberalization of the defense market began. Additionally SSM was set up in 1985. Besides, this body firstly was established apart from bureaucracy. The then Undersecretary Vahit Erdem outlined their aim for the defense industry in Turkey as follows;

> [Turkish] objective is to bring its domestic defense industry to a level which will produce economically feasible military products necessary for the modernization of the TAF, with the ability to follow and easily adapt to the latest technology. Therefore Turkey will be able to play the role her friends are expecting and put fewer burdens on her allied countries.[121]

3.1.5.3. The Boom Period in Turkish Defense Industry-Project Based Defense Companies

With the establishment of the DIDA (and then SSM), the Turkish defense industry entered into a boom period. Moreover, the first joint-venture project was implemented during this era. Turk Uçak Sanayii A.Ş. (Turkish Aircraft Industry-TUSAŞ) formed an alliance with US company General Dynamics and started to produce F-16 aircraft. This joint venture also reformed the basis of the Turkish

[119] Karasapan, Turkish Armament Industry, p. 28
[120] *Ibid.* p. 28
[121] Erdem, Defense Industry and Investment Projects, p. 14

aerospace industry by creating Turkish Aerospace Industry (TAI) Company. In 1987 an aircraft engine factory was opened.

> [TAI] has produced 278 F-16 jet fighters, 46 of which have been exported to Egypt, and the rest have joined the Turkish Air Force. Turkish partners hold 51 per cent of the shares in TAI; General Dynamics and General Electronic have 49 percent of the shares. Thanks to this project, Turkey's new domestic aircraft industry has made considerable progress in the 1990s and Turkey has acquired new technology. In addition it has contributed greatly to improving managerial capabilities that can carry over the next generation of aircraft production projects.[122]

Thus the first step in the development of a liberalized, modern defense industry in the 1980s occurred in the aircraft industry. This was done on purpose, for the reason that the technology used in aircraft industry was the most advanced. It could therefore serve as a "locomotive technology" for the defense industry. However, TAI was not only company that was created through a joint venture. Others included FMC-NUROL, MARCONI and THOMSON. These companies were project-based. In another words, the foreign partners could leave the market when they thought they had finished what they had come to do.

The Defense Industry Fund that was established by the Law numbered 3238 enabled such joint ventures or the private sector to take part in the industry. The fund would support new companies and try to eliminate uncertainties about the market. New companies had not gone into the defense business because of the risk in the market. This fund would be a kind of insurance for such companies.

The creation of a defense industry with the help of joint ventures was also a part of the export-oriented policy adopted by Prime Minister Turgut Özal. This cooperation enabled firms to acquire technological infrastructure and know-how,

[122] Karaosmanoğlu&Kibaroğlu, Defense Reform in Turkey, p. 134

and increased employment opportunities. Not only forming coalitions but also offsets[123] that have entered into arena in this term intensified these attempts.[124]

However, the R&D that was the real basis of such projects did not receive much attention. "Theoretical frameworks on science and technology and prepared reports could not be successful at defense needs productions and exports because of not having a clear policy on R&D."[125] The money devoted to R&D during this period was only 0.3% in the MSB Budget.

3.1.6. Post-Cold War Period

3.1.6.1. Changes in Turkish Foreign Policy

The 1990s, a decade which changed world politics had a corresponding effect on Turkish politics also. Turkey had been a vital ally for the United States and NATO because of its geo-strategic importance. The United States assisted Turkish military in meeting its needs as a result of this. With the collapse of the Soviet Union, it was thought that Turkey would lose its importance and this would hamper industrialization efforts in the country's defense sector. Most joint ventures during the '80s took place with the help of the US government and US companies.

Not only international politics but also regional conflicts in the vicinity of Turkey altered Turkish defense policies. Military strategies to counter "new" threats were developed. In 1998, a *Whitebook,* outlining Turkish national defense

[123] Offset policy will be analyzed in the third section.
[124] Anthony Bartzokas, 'The Developing Arms Industries in Greece, Portugal and Turkey', in Michael Brzoska &Peter Lock *Restructuring of Arms Production in Western Europe* (Oxford: UK, 1992) p.167
[125] Perihan Çakıroğlu, "Dünya'ya Silah Satan Türkiye-Turkey: Selling Weapons to World" *Milliyet* 25-05-1997

policy was published. According to it, new strategies would be based on "[d]eterrence, military contribution to crisis management, forward defense, and collective security"[126]. The last two concepts were developed after the Cold War. The so-called "2 ½ strategy"[127] also affected national defense policy. According to this strategy, Turkey should be prepared to fight a two-front conventional wars and guerilla warfare. The army therefore should be prepared for two possibilities.

> Firstly, the Ground Forces and Air Forces should first slow down an intensive attack backed by the armored vehicles and then repulse it by means of a deepened defense tactic. Secondly, the ground forces and gendarmerie forces would eliminate the internal threat based on the concept of zone control. […] Thus possible wars would take place on Turkish soil.[128]

Not only has the protection of its territorial integrity but also contributing to regional security included in the new defense policy. In order to meet this objective, it would be necessary to restructure TAF. The *Whitebook* listed the following requirements*:*

- Deterrent military force,
- Command, control, communications, computer, intelligence, surveillance and

Reconnaissance (C4ISR) systems,

- Superior operational capability and fire power,
- Advanced technology weapons and systems based on the principle of quality rather

Than quantity,

- Air/missile defense and NBC protection capability against weapons of mass

destruction,

- Capability for rapidly transforming from a state of peace to a state of war,
- Capability for performing various types of operations such as supporting peace,

supporting crisis management, use of limited force, blockade, embargo, aid in natural

[126] Milli Savunma Bakanlığı, *Beyaz Kitap(Whitebook)* (MSB:Ankara, 1996) p.13
[127] Şükrü Elekdağ, "2 ½ War Strategy", *Perceptions*, Vol. 1:1 (1996) pp. 33-57.
[128] Ali Kulebi, "Turkey's Military Strategy, Power and Future" *Cumhuriyet,* 26-06-2004

disasters, humanitarian aid, prevention of migration, and fighting against terrorism, besides classical warfare,

- Capability for performing joint and combined operations and
- Capability for being able to reciprocally use the armed forces of the alliance member

countries.[129]

3.1.6.2. Modernization Efforts of TAF and Technology's Increasing Importance

The need to match capabilities with policy affected the Turkish defense industry. Efforts to modernize TAF were initiated. Although these efforts had their roots in 1987, with the changing nature of security threats after the Cold War, they became a more urgent issue on the agenda. Modernization would be mainly based on technology. For example, the C^4I (Command, Control, Communications, Computers and Intelligence) technology became one of the most important priorities during the era. The modernization of major weapons systems and their production within Turkey was another central issue in this period. The TAF stated that the concept of modernization means that money for the requirements of TAF, will be spent to develop our national defense industry.[130]

Another indication of the emphasis on technology was the establishment of Defense Technology Engineering (Savunma Teknolojileri Mühendisliği-STM) in 1992 at the decision of Defense Industry Executive Committee. The mission of this agency was to

[129] MSB, *Whitebook,* p.14
[130] Ersin Yılmaz, "Türk Silahlı Kuvvetleri İhtiyaçlarının Önümüzdeki 25 Yılına Bir Bakış-A Look Upon The Requirements of Turkish Armed Forces", *Savunma ve Havacılık,* Vol. 4:1 (1996), p.30

> [P]rovide support to Turkish Armed Forces (TAF) and Undersecretariat of Defense (SSM) in systems engineering, technical consulting, project management, technology transfer and logistics support and to establish and maintain centers in software development, maintenance and technical assistance for the Turkish Defense Industry.[131]

The STM staff's expertise would be in the area of defense technology, including the testing and determining technical aspects of weapons and systems/subsystems. During the period between 1991 and 1993, STM provided assistance for projects such as *Peace Onyx,* as well as various software systems. The first assistance programs were based on aircraft projects. Moreover, STM was also involved in some projects for land forces, such as Remote Video Control system for Unmanned Aerial Vehicle (UAV).

The reason that technology became so important for the Turkish Armed Forces was the consequences of the First Gulf War. In 1991, after the experiences of Gulf War, Turkey started to insist in the transformation of structure of its Armed Forces into a high level of mobility and fire power, using high-tech air defense, communication, electronic equipment.[132] Insisting on professionalism also required reduction of manpower. This process could be observed in the decision in 1992 to shorten the period of conscription.

3.1.6.3. Changes in Technology Acquisition Method

The method used to acquire technology was also another debated issue. Turkey had tried to acquire technology by procuring weapons. However, this policy did not work. Technology did not come automatically with the weapons.

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[131] Haluk Nalbantoğlu, "Savunma Teknolojilerinde Ulusal Çözümler:STM-National Solutions to the Defense Technologies: STM)", *Savunma ve Havacılık,* Vol. 9:4, (2001). p. 98.
[132] Gülay G. Şenesen, Türk Silahlı Kuvvetlerinin Modernizasyon Çalışmalarının Değerlendirmesi (The Evaluation of TAF's Modernization) in Faruk Sönmezoğlu, *Türk Dış Politikası Analizi,* (Der Yayınları: İstanbul, 1994) p. 256

Exporter countries have been hesitant to transfer important technologies. As a result of this, Turkey lagged behind in technology and defense industry race. This weakness was also emphasized during the restructuring of the defense industry in the post-Cold War period.

The policy of TAF was that if a technology was not domestically produced, it should be acquired by means of international cooperation. However, this method was to be used only if Turkey was not capable of producing the item in question by itself. Besides international cooperation in the defense industry should be with NATO or Western European Union (WEU)[133]. The TAF's insistence on this issue had defense companies be part of NATO's Allied Quality Assurance Publications (AQAP) in 1988. This program was intended to bring about standardization in the defense industries of NATO in areas such as the security of the industry and timing. However, the Turkish defense industry did not fully meet the requirements in this perspective. In the *White Book,* the projects being done with these groups[134] were mentioned and it was indicated that these projects were to be supported by the government. However, the cooperation between allies was to be based on reciprocity and the procurement of R&D and technology.[135]

[133] Turkey has been a member of NATO since 1952 and an associate member of WEU since 1992. However, Turkey is also a member of the Western European Armament Groups and the Western European Armament Organization.
[134] These programs were with WEAG: *Stinger*, Future Large Aircraft and M483/M864 Advanced Artillery Ammunition and with CNAD: Alliance Ground Surveillance (AGS) System, Theatre Missile Defense (TMD) System, Continuous Acquisition and Lifelong Support (CALS) System, Battlefield Information Systems (BICES), Tactical Communications Systems (TACOMS-POST 2000) and NATO Friend or Foe Identification System (NIS).
[135] Elliot Hen-Tov, The Political Economy of Turkish Military Modernization, *MERIA,* Vol. 8:4, (2004) p. 23

3.1.6.4. Modernization of Land Forces

Technological improvements were generally led by the modernization of aircraft sector. During this period, the TAF's aircraft were updated. Plans also called for "[…] the upgrading of F-5, F-4 and F-16 aircraft in electronics and avionics to give the Turkish air force nighttime and all-weather capability."[136] Another area was the modernization of land forces. Turkish policy makers emphasized that Turkey would sustain deterrence capability against its southeastern neighbors with the highly mobile fire-power of its land forces. As a result of this, TAF land forces were restructured into a professional army, by both shortening the period of conscription and modernizing weapons and equipments. Specifically, equipment such as artillery, wheeled armored personnel carriers, surface to air missiles and anti-aircraft systems would be upgraded or procured to gain more firepower and mobility. As mentioned in the Hickok's article,

> [The] Turkish land forces had slowly been transitioning from division and regimental command structures to the American-style brigade organization... Ankara decided to move forward on co-production of main battle tanks to replace outdated vehicles scheduled to phase out of service in 2000 and of attack helicopters to provide greater mobility and organic air supports.[137]

3.1.6.5. Modernization of Navy Forces

Despite the emphasis on aircraft and land forces projects, navy modernization was in fact better defined and institutionalized. "The main reason [emphasis on navy force's modernization] may be the stable relationship with the German shipyards since 1970s. German shipyards sold to Turkey navy equipment

[136] Michael Robert Hickok, "Hegemon Rising: The Gap Between Turkish Strategy and Military Modernization" *Parameters,* Vol. 4 (2000) p.110
[137] *Ibid.* p. 115

worth 6300 million DM since 1992."[138] These sales were consisted of frigates, submarines and assault boats. There was also equipment that was procured from the United States. However, the origin of this equipment was German. Nonetheless in its modernization efforts, the Turkish military did not want to be bound to one producer, because of past experiences. As a result of this, Turkey also procured naval equipment from France such as six *Tripartites* mine layers which were to be produced in Turkey. *Knox* and *Perry* type frigates were obtained from the US. Three Turkish shipyards, Gölcük, Taşkızak and İzmir specialized in maintenance and continuation services. These modernization efforts transformed Turkish naval forces from a "coastal navy" to a "blue water" one. In addition, the naval forces were also equipped with the ability to

> [M]aintain deterrence through its presence and exercises in the adjacent seas, control and protection of the sea lanes of communication (SLOCS) refugee control; humanitarian aid; search and rescue, environmental protection and operation against terrorism[139]

As a consequence of the above policies and programs, the modernization of armed forces would sustain the military as follows:

> [The army would have] weapons systems that would establish preponderance over the enemy deep inside his territory, fire smart ammunition including long-range ground-to-ground missiles, and provide a continuous and sound fire cover. [The army also would have] modern tanks with advanced armor and effective anti-tank weapons systems with organic air defense and helicopters for air assault troops. Machinery would rapidly erect hurdles to the enemy's mobility and open passages to enhance the mobility of the friendly units. Intelligence gathering systems would enable units at every level to detect, pinpoint, and recognize the enemy within the range of their capability[140]

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[138] Şenesen, *Türk Silahlı Kuvvetleri Modernizasyonu,* p.234
[139] Karaosmanoğlu&Kibaroğlu, Defense Reform in Turkey, p.127
[140] Hüseyin Kıvrıkoğlu, "NATO Üyeliğimizin 50. Yılı ve Çok Yönlü Tehdide Çok Yönlü Savunma-50th Anniversary of Our Membership to NATO and Multidirectional Defense against Multidirectional Threats", *Savunma ve Havacılık,* Vol. 6:1 (1998)

3.1.6.6. Economic Aspects of TAF's Modernization

The modernization efforts of TAF were to be sustained with less pressure on the budget. The liberalization period in the overall economic structure was assumed to meet this pressure. The free market idea and the privatization of government-owned industries were redefined according to defense industry needs. For example, MKEK was reformed in order to meet these requirements. The workforce was reduced by six thousand to improve productivity. "Some factories were granted self-authority the production lines which has lost their strategic features were charged off. Others were modernized."[141] Another important feature in the modernization of Turkish defense industry in terms of its economic aspect was the use of off-sets. The use of indirect offsets to make the production of weapons economically feasible also enabled the private sector to take part in the defense industry. This subject will be analyzed in detail in next section.

3.1.6.7. New Initiative in Defense Industry Policies: To Export

In the post-Cold War era, nations used their defense industries to increase exports. This at the same time enables a defense industry to decrease its costs. The Turkish defense industry moved to take advantage of this system. For instance, Turkish defense companies have attended firstly international defense industry fairs, including Paris Air Show and IDEX 93 (International Defense Exhibition and Conference in 1993). Such fairs were also organized in Turkey. The first one was IDEA 87 (International Defense Equipment and Avionics Exhibition in 1987). The attendees amounted to 306, whereas in 1989, at the second fair this

[141]Şenesen, *Türk Silahlı Kuvvetleri Modernizasyonu,* p.234

number was increased to 700. This acceleration seemed to be an indication of Turkey's importance for weapons-producers.

These attempts reached such a level of success that Turkish defense companies began exporting their products. These exports were generally made to the Third World or Middle Eastern countries. Exporting companies included Otokar, TEI (TUSAŞ Engine Industry) and FNSS. "[…] FNSS has proved that the big amount of exports were not a dream for Turkish defense companies. It was also an indication that if there was true policies directed by the Directorate of Defense Industry Development and Support (Savunma Sanayii Geliştirme ve Destekleme İdaresi Başkanlığı-SAGEB), these dreams will come true."[142] Moreover in 1998 the Ministry of National Defense published the Defense Industry Politics and Strategy Document (TDIPS-Türk Savunma Sanayii Politikası ve Stratejisi)[143] which included some measures to encourage exports, such as establishing an export credit mechanism. These credits would be spent on advertising Turkish products and granting loans to importing countries. It was also specified that Turkish overseas agencies, economic and commercial consultants and military attachés would be responsible for the advertisement of these products. In addition to this, a cadre of military attachés knowledgeable on this issue would be responsible for exports.

3.1.6.8. The Re-Adaptation of Defense Market

The legal framework of the Turkish defense industry was also re-defined through adoption of the Defense Industry Politics and Strategy Document. In this plan, the Ministry of National Defense defined and characterized technological

[142] İbrahim Orün, "Türk Savunma Sanayii'nin Tarihi", p.47
[143] This document contained the government's directive for the defense industry.

aspects of weapons for the first time. It was stated that technologies designed as "Must Be National" and "Critical" should be manufactured inside the country. These systems were to be produced in order to gain a technological infrastructure in the industry. The goal was that "Must Be National" technologies in the long run should be produced in and procured from Turkey's own defense industry. Domestic manufactures with national security documentation would be entrusted with the task of producing this kind of technology. If this was not possible then defense market would go to subcontractor. The selected subcontractor would also serve as a main contractor by upgrading its performance.

The long term development of the ability to produce "critical technologies" inside the country was to be targeted. Where this was not possible, they could be procured by joint-ventures. The Ministry of National Defense published the list of these technologies, in accordance with the requirements of the TAF. The third technology area came under the heading of "other technologies". It was stated that "[i]f we are benefiting from the foreign technology, than the main object is that this technology should be imbibed by domestic firms. After this internalization process, production of this technology at an upper level will be supported by the Ministry of National Defense."[144]

As was discussed earlier, the defense market turned into a liberal one. In this respect, competition among the firms would be sustained under governments' supervision. Foreign firms became indispensable actors in the Turkish defense market. However, because of the low scale of Turkish defense companies, they were not able to compete with foreign firms. Not only the scale but also technological aspect of imported weapons was a preferential situation for the

[144] MSB *Savunma Sanayii Stratejisi* (MSB:Ankara, 1998). p. 23

procurement agencies. As a result of this, in the new defense industry plan, it was mentioned that domestic firms would be supported by the government by decreasing 15% of the costs. Moreover, in the document it was emphasized that competition would provide to procure weapons which are efficient for the TAF in both quantity and quality at a lower cost. "[Turkish defense] industry and related institutions should technologically cooperate without intervening in a fierce competition and they should look after states' interests"[145]

However, in order to strengthen domestic defense industry, these categories should be left out from competitive policies. A main contractor firm should be elected and this firm will only produce this type of technology and government will procure that from the main contractor. The reason is that "Must Be National" and "Critical" technologies ones that sustain self-sufficiency during weapons production. This is the case in the contemporary world. As a result of this, if TPDIS emphasizes the development of defense industry; it should not foresee competitive policies in these areas.

Another result of modernization period and restructuring in the defense market was the selling off of government-run defense manufacturing companies with the new plan also calling for privatization. The privatization aspect of the new plan was effective on this issue. Privatization of government-run industry was also included in the Defense Industry Politics and Strategy Document.

> [A] number of factories between 15-20 which are worked under the supervision of naval, land and air forces, will be closed because of not being feasible and finishing its missions. Some of them will continue their maintenance and continuance works… Some of them will be transferred to private sector.[146]

[145] *Ibid. p. 23*
[146] Aytekin Ziylan& Şemsi Batmaca *Türk Savunma Sanayii* (Unpublished Document:Ankara, 2000) p.76

Despite these efforts "to match capabilities with modernization attempts" several criticisms were raised. One was that Turkey would not be able to achieve sufficient technological capabilities. "Turkish companies were in the process of giving the military the technology to make the leap to the 21st century, although those capabilities were limited in their geographic application."[147] In addition, the Turkish industry did not devote enough funds to R&D process to fully meet the country's defense needs, which hindered the domestic development of defense technologies.

3.2. Procurement System in Turkey

One of the most important element of procurement mechanism is SSM. Before analyzing today's position of Turkish defense industry, I will focus on Turkish procurement system. It is based on the TAF's Planning, Programming and Budgeting System (PPBS) document. The Commander of Armed Forces prepares "Operational Necessity Study" and "Plan Capability Target Document" to indicate requirements. These documents are based on the Turkish National Military Strategy, which is defined by the National Security Council. The General Staff analyzes these offers and prioritize the requirements[148]. Necessary ones will be included in the Strategic Target Plan. This plan is revised every two years and is executed as part of "Ten Years' Procurement Program" (On Yıllık Tedarik Programı-OYTEP).[149]

[147] Hickok, *Hegemon Rising,* p.115
[148] The system is schematized in the figure at the end of this section.
[149] TÜBİTAK, *Savunma Sanayii ve Tedarik: Ülkemizin Bilim ve Teknoloji Yeteneğinin Yükseltmesini Esas Alan Bir Yaklaşım,* (TÜBİTAK: Ankara, 1998) p.6

3.2.1. Legal Basis of Arms Procurement in Turkey

The main system procurement is made by the units of MSB and the Undersecretariat For Defense Industries (SSM). The system of defense procurement is based on the Public Tender Law No. 2886 and the Law of Undersecretariat For Defense Industries No. 3238. In Law 2886, the protection of public finance is aimed at, with competition being used as a means to achieve this. There is no protection for Turkish firms and no substitution will be made. However, the defense industry is exempted from this regulation as stated in the Article 89. This exemption is administered by the MSB which is empowered to regulate the defense market.

In Law 3238, the importance of foreign technology and foreign capital is highlighted. Article 6 states "The committee [SSİK] is responsible for searching possibility of setting up production facilities with the help of Public and private sectors with the contribution of foreign capital and technology."[150] It is argued that the nationalization of defense firms is in the second place for policymakers.[151]

3.2.2. Agencies Responsible Of Procurement

The defense procurement agencies in Turkey are legally subordinated to the Ministry of National Defense. These agencies are Undersecretariat of MSB and SSM. The Undersecretariat of MSB executes procurement through the Domestic Procurement Agency, the Foreign Procurement Agency and the head of the R&D and Technical Services Department. These are agencies that were

[150] SSM, *SSM ve Türk Savunma Sanayii,* p.15
[151] TÜBİTAK, *Savunma Sanayi ve Tedarik,* p.8

formed under the Undersecretariat of MSB. They are apart from SSM. They have their own strategies for procurement. These agencies' procurement methods are based on procuring weapons from outside.

However, the SSM is entrusted with the task of procurement by way of industrialization. This structure is criticized by many industrialists. These criticisms will be analyzed in the following chapters. However, some policy-makers support this duality during the procurement process. For example, then Undersecretary of SSM Prof. Ali Ercan stated that "[SSM] procured depending on local assistance and domestic production. MSB's type of procurement has been made by specific tender law and specific budget. Ours is a different type of budget and different type of payment."[152]

3.2.3. TDIPS and Procurement Methods

The main policy directive for the procurement methods to be used is given in the Turkish Defense Industry Policy Strategy (TDIPS). In this document, it is proposed that procurement be decreased urgently. The directive states that procurement on a last-minute or emergency basis should be reduced to a minimum level. This is because last-minute procurement tends to increase imports. The document also indicates the necessity of using the single-procurement mechanism. In the developed nations, as mentioned earlier, procurement is done by one agency, such as DGA. However, this is not the case in Turkey. The document also encourages procurement based on R&D. As a result of this, technological categorization would not be changed project by project.

[152] Ali Ercan, "Ulusal Savunma Sanayii Güçlü Bir Gelecek İçin Mücadele Veriyor-National Defense Industry Struggles For a Strong Future", *Savunma ve Havacılık,* Vol. 11: 2 (2003)

3.2.4. Political Impact on Procurement

Besides the organizational structure outlined above, politics also affects procurement decision. During the interview conducted with SSM Undersecretary Murad Bayar, he emphasized that politics did not play primary role in procurement decisions. However he added that in some cases politics could intervene, giving the example of the Armenian Genocide act in France. Despite this fact politics has become important input for the procurement.[153]

3.2.4.1. The Case of Attack Helicopter Procurement

Another example of how both international and domestic politics affect procurement decision has to do with the procurement of attack helicopter. John Heeming explained this procurement as "[if] we examine the stance that our neighbors have taken for such a long time from a geo-strategic point of view, Turkey doesn't just need the helicopters for fighting terrorism but to repel possible attacks from abroad."[154] In 2000, Turkish government prepared short lists of firms competing for this tender. In fact there were not many differences in the technologies offered by the various firms. In his article, Jeeming stated that the real issue was the politics of the matter.[155] The Western countries interpreted the Turkish emphasis on attack helicopters as a desire to use these helicopters against PKK terrorists. As a result of this the human rights issue in international politics became the number one reason not to sell helicopters to Turkey. Turkish officials in turn made politically based procurement decisions. For example, a German and French consortium was dropped from the short list. The reason was

[153] Interview with Murad Bayar, 25-02-2006
[154] John Heeming "Turkey Helicopter Tender A Political Choice" *Turkish Daily News* 02-06-2000
[155] *Ibid.*

Germany's policy regarding the human rights issues in Turkey. Moreover, US companies were also excluded from the tenders because of the US Congress' emphasis on the human rights issue in regard to Turkey's fight against terrorism.

3.2.4.2. The Case of M-60 and Main Battle Tank Procurement

Another project that was a matter of controversy for both Turkey and firms who were participating in tenders was the modernization of the M-60s and the procurement of the Main Battle Tank. Furthermore, these two projects were tendered at the same time. During an interview, retired General Hilmi Özkök, the former Commander of Land Forces was asked about the need for these two kinds of tanks. He responded that tanks that were to be used in peacekeeping operations needed to have different kinds of threats[156].

Besides the necessity of tanks, the suppliers of these tanks became a public issue. The supplier firms should obtain an export license guarantee from their governments in order to sustain their exports to Turkey despite of political fluctuations. As a result of this policy, some governments reacted Turkey by canceling their visits to Ankara such as Germany and France. "[…] Politics and technical specifications have emerged as two equally determining factors in Turkey's selection of final bidders in both projects."[157] These political criteria were mainly based on the human rights issues and Turkey's fight against terrorism as in the case of attack helicopter. In other words, the exporting countries wanted to determine where Turkey could use these weapons and where it could not. This was unacceptable for a sovereign country.

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[156] Hilmi Özkök, "Ulusal Savunma Sanayii Öncelikli Hedefimiz- National Defense Industry is Our First Target", *Savunma ve Havacılık,* Vol. 11:2, 2000

[157] Lale Sarıibrahimoğlu, "Budget Pressures Starts To Bite into Defense Industry Projects" *Turkish Daily News,* 28-04-2000

The M-60 modernization program was aimed at upgrading Turkey's M-60s according to new technology. The IAI firm in Israel was the producer of these tanks. During the rapprochement that took place between Israel and Turkey in 1996, Turkey decided to procure weapons from Israel. Israel's role as a supplier in the procurement process became an important one. The reason is that Israel did not oppose any procurement agreement with Turkey on the basis of its human right record[158]. Moreover, Israel was also able to sustain high-tech weapons in the defense market. As a result of these advantages, Turkey chose to procure some of its weapons from Israel. In the case of the M-60 modernization, the project was not opened to tender. The past experience with Israel was given as a reason not to open a tender. However, the Islamist parties in the Turkish Grand National Assembly criticized this position. Recai Kutan[159] declared that "[As] Israeli troops invade the Palestinian territories and hold siege to the house of Arafat, our incapable government signs a tank tender with Israel… We will do everything to cancel this agreement through legal procedures"[160]. Another political controversy regarding Israel occurred in 2007. As result of the consequent deterioration of relations[161] with Israel, it is thought that the defense agreements between two countries may be affected.

Delays in the projects discussed above are the result of exporting companies not being able to get export guarantee licenses or sustain the technological requirements. The attack helicopter project was delayed three times and the main battle tank project was delayed four times. Another important note is

[158] Mustafa Kibaroğlu, "Turkey and Israeli Strategize" *Middle East Quarterly*, Vol. 9:1 (2002)

[159] Recai Kutan was the head of Virtue Party, which is Islamist oriented.
[160] Metin Erksan, "Milli Savunma Sanayii-National Defense Industry", *Cumhuriyet,* 09-04-2002
[161] Prime Minister Recep Tayyip Erdogan has accused Israel of using state terrorism against the Muslims in 2006.

that Turkish firms were going to be part manufacturing process of these projects. It was stated that "[t]he tanks will be manufactured in Turkey under the supervision of Kayseri Anatamir Tank Factory with the successful company and the building of helicopters will be carried out in Turkey under the supervision of TAI and successful bidder"[162]

3.2.4.3. The Armenian Genocide Act and Defense Projects

The Armenian Genocide Act affects the procurement of defense projects from some countries. Armenian Genocide Act will not be analyzed in depth; but, it should be stated that Turkey was accused of mass killings that happened during WWI. Turkish governments, in order to react the enactment of this law by parliaments of some states, have cancelled defense projects with those countries. Some companies could not attend the tender of Training Aircraft, so some states were exempted from the defense project because of the act.[163] Aloof from politics, the figure below depicts in a simple way how Turkish procurement process works;

[162] Lale Sarıibrahimoğlu, "Why is Turkey Unable To Complete Its Military Tenders", *Turkish Daily News,* 12-06-2000.
[163] Anadolu Ajansı, "Türkiye'den İsviçre'ye Savunma Ambargosu-Defense Embargo From Sweden to Turkey", 01-05-2006

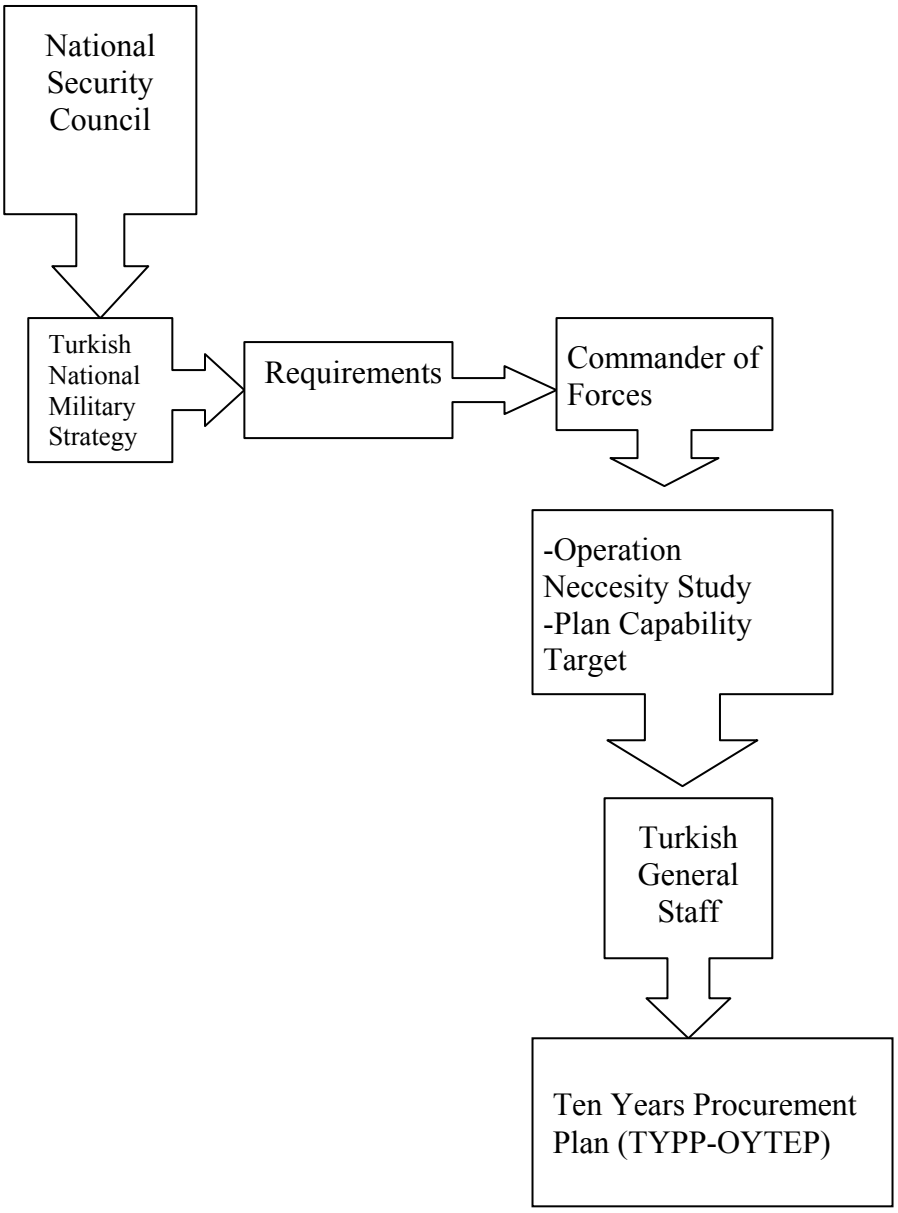

Figure 1. The Procurement System in Turkey

3.3. Problems of Turkish Defense Industry

So far, Turkish policy makers are generally hesitant to implement R&D based procurement. The main logic was that "we are not able to do everything". As a result of this, the sources that should be used for the national technology researches in the universities were poured into the foreign centers. Besides

focusing on R&D, there are other problems in the Turkish defense market. These problems will be analyzed in this section.

3.3.1. Lack of Coordination between Industry and Military

First and foremost, coordination between the industry and the military should be improved. The industry's modification of weapons system is not always in line with military's demand. As a result of this, TAF chose to procure weapons and equipments from abroad. Before the 1990s, the Ten Years Procurement Policy was not open to private industry. This resulted an advantageous situation for military owned companies. It also set back the development of other firms since they could not learn the exact needs of the TAF.[164] Another issue concerning the Ten Years Procurement Policy is that there is no long-term planning regarding the requirements for the defense equipment. This part of plan is revised every two years and the revisions also include major changes in the systems required. As a result of this, a long-term planning would not be realistic.

3.3.2. Problems Related With Organizational Structure

Another problem in procurement is organizational. In Turkey, procurement is implemented by two different agencies which have different "Implementation Regulations" and sometimes, these regulations could be applied to the same projects. For example, during the acquisition of spare parts, demanding agencies (military) generally procured differently. As a result of this, the price of this application has increased. Additionally, the personnel in these agencies are not well trained on the subjects of procurement and weapon systems.

[164] TUBITAK, *Savunma Sanayii ve Tedariki,* p.27

In the United States, for example, the personnel are trained at the Defense Acquisition University and eight years of experience is required. However, in Turkey, because of frequent appointments, there are not enough specialized staff members.

3.3.3. Lack of Project-Based Groups

In the developed world, the administration of defense industry and products are done by project based groups. There are specialized projects that are tasked different parts of equipment. In Turkey, this is not always the case. As indicated in the TOBB's report "[i]n our regulations, there are no criteria or standards for the special project management according to projects, determination of projects' costs and inspection. This results in discussion of each project"[165] This regulation also prolongs the time it takes to produce weapons. Another problem with the project management system in Turkey is that the requesting agency and the manufacturers do not work with each other. In the developed countries, the production of a weapon is divided into phases. In each phase, the military forces or procurement agencies and the manufacturers work together in order to prevent any deficiencies in the production of a system and reduce the need for modifications after delivery. This saves time and money and also increases the product levels of performance of the system. However, in Turkey, the requirements for the product or system are not defined clearly in case of domestic production. Additionally, the management of time and costs are not calculated for the system or equipment to be produced. The reason for this is the lack of cooperation between the military forces, procurement agencies and

[165] TOBB, *Türk Savunma Sanayii'nin Ana Sorunları ve Bu Sorunlara İlişkin Çözüm Önerileri,* (TOBB: Ankara, 2002) p.29

manufacturers. This situation can result in substantial modifications after delivery. "As a result of these intensive modifications, the producer will have lots of fiscal burdens; will not be able to plan on the issues of time, human resources and budget. [The military] will not reach its targeted force capability on time and in full capacity."[166]

3.3.4. Competition Policy during Tenders

In Turkey, the criterion for winning a tender is low cost. This is also the reason why in Turkey, competition is emphasized in public tenders. However, in international system this is not the case. To start with, the developed countries do not apply a competition policy to weapons acquisition. "The national sovereignty" requirement is a foremost consideration for these countries. National sovereignty in this case means that domestic production should meet Armed Forces' requirements, especially in software. Defense industry in a country should be strong enough to meet these demands. This is the reason why free market regulations are not applied in the developed countries. Moreover, a particular tender is selected because of an insistence on "life-cycle[167]" costs. This is also called "fair rate". In Turkey, the national sovereignty requirement is not applied to weapons acquisition.[168] The reason to apply liberal policies in Turkey is the emphasis placed on low cost when procuring weapons. In Turkey liberal policies such as free market and competition ideas is in practice in opposite with developed countries' defense market regulations.

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[166] *Ibid. 28*

[167] In deciding to produce a product or service, a timetable of life cycle costs helps show what costs need to be allocated to a product so that an organization can recover its costs. In the weapon production, the modification according to new technologies is a must. As a result of this, the cost in the public tender will include this modifications.

[168] Ziylan, *Savunma Sanayii Üzerine,* p.45

3.3.5. Lack of Investment in R&D

The lack of investments in R&D is one of the major problems of Turkish defense industry as discussed above. Policy makers tried to remedy this. For example, there are penalties for firms that did not operate "localization" of projects as indicated in their agreements. Decreasing the ratio of fees, profits and transfers of interests to foreign firms is another policy for localization.[169] Moreover, in interviews with the then Undersecretary of SSM, Ali Ercan stated that one of the aims of SSM was the localization of defense manufacturing. In projects overseen by SSM, the capability of Turkish firms has been analyzed. If these firms are unable to produce according to the projects' requirements, SSM then turns to international cooperation. The ultimate level that a defense firm becomes a local one is when it is able to produce software systems and engineering part of the project inside the country.

3.3.6. Structural Deficiency in Turkish Defense Market

An important deficiency in Turkey is the overall structure of the defense industry. In the developed countries, the defense market is divided into two: main contractors and subcontractors. The main contractors are responsible for the production of the most important part of the weapons, such as software systems, the technological requirements of main systems, and the design of equipments. Sub-contractors, on the other hand, specialize in the production of one part of the weapon. The main subcontractor does work for the same companies and are hired by these companies. This allows them to specialize. By giving different

[169] Perihan Cakıroğlu, "Askeri Fabrikalar Kapatılıyor-Military Factories are Closed Down", *Milliyet,* 25-04-1997

specialized jobs to subcontractors who specialize in different areas, rather than having to complete all parts of the production process itself, the main contractor saves time and money. The government procures from the main contractor. In this system, it is considered important for the main contractor to be a national one, for national security reasons.

In the case of Turkey, although the procurement rules make reference to a main contractor, in practice this system was not applied. There is no main contractor firm that will be applicable to this system. Another feature is that a main contractor needs to invest more in technology. However, in Turkey defense companies are reluctant to invest in R&D. Besides the investments are not used effectively. In addition, in defense procurement bids, even in main contract bids, Turkey employed a policy of open competition. Thus foreign partner companies could also participate in the bids. As a result of these foreign companies' advanced level of technology, Turkish firms could not compete with them. [170]

However, this policy was criticized by the Undersecretary of SSM and the Minister of National Defense. During interviews with them, this policy was acknowledged as the "main mistake"[171]. They indicated that the competition policy created fierce domestic competition that did not result in any benefits. This policy was accused of preventing the establishment of a strong defense industry in the country. To remedy this mistake, in 2006, SSM initiated the project of "Restructuring Defense Industry" (Savunma Sanayii Yeniden Yapılandırma Projesi-SSYP). This project proposes the consolidation of national firms within a single structure "Turkish Defense Holding". This company will be strong enough

[170] TOBB, *Türk Savunma Sanayii'nin Ana Sorunları,* p.34
[171] Vecdi Gönül, "Hedef Güçlü Bir Türkiye İçin Güçlü Bir Savunma Sanayii- The Target: Strong Defense Industry for a Strong Turkey", *Savunma ve Havacılık,* Vol.12:1 2005 p.15

to compete not only in Turkish defense market but in the international defense market as well.[172] This project will be analyzed in the last chapter of my thesis.

In addition to making it more difficult for strong main contractor companies to develop, the lack of focus on a main and sub-contractor structure, prevented the development of sub-contractor companies as well. In Turkey, there are many smaller manufacturing firms but they are not specialized in the production of specific weapons. By concentrating on a single area, Small and Medium Size Enterprises could develop their capabilities in that area and become more technologically advanced. However, Turkish SMEs do not in general specialize in defense production.

3.3.7. Arguments over Categorization of Firms

A discussion of the structure of the defense industry also must touch upon the categorization of firms into "indigenous" and "national" firm. As explained earlier, defense firms in Turkey are divided into these two categories. However, these indigenous firms are generally partnered with foreign ones. Policy directives emphasize "indigenous" firms, and do not mention the nationality of firms. According to the Public Tender Law, companies that are located in Turkey may participate in defense tenders i.e. being Turkish is not a necessary condition to do so.

While some executives in the industry approve this system, others do not. Their criticisms focus on the idea that Turkish firms should receive assistance to advance the country's technological level. They point out that a project-based firm can leave the country whenever the project is completed. Moreover, it is said

[172] Murad Bayar, "Yapacak Çok İşimiz Var-We have Lots To Do", *Military Science and Intelligence,* Vol.7 (2005). p.12

that because of the foreign partners, these firms are reluctant to transfer software systems to Turkey. Therefore, critics state that, because of the secrecy and security of involved in production defense industry, the government should support Turkish companies. The exemptions or assistance indicated in the laws should be granted to the national firms not foreign partnered ones. Another criticism is, as indicated above, that Turkish procurement system does not allow Turkish firms to become competitive. In addition to this, national and indigenous firms are not similar. National refers Turkish firms, whereas indigenous firms refer to the joint venture firms that are located in Turkey.

The government view also challenges nationalization of defense industry because SSM focuses on building weapons at the low costs in the short term, and of the best quality. If one firm could sustain this with the upgrading of defense market in Turkey, then that firm could also be called a national firm.[173] According to SSM, there is no Turkish nationalism in the defense market, which would put the economic structure and industrialization of country under distress.

The supporters of this system are, of course, are the indigenous firms. They argue that because the firms have Turkish partners, they should be considered Turkish and that their aim is to improve the country's infrastructure. They add that even after completing their projects, these foreign partners stay in Turkey and are willing to continue their partnerships. Kaya Ergenç, who is the chairman of TAI, states that "[t]his is an indication that these firms are profitable ones. Besides, this position can also be a reference that they are formed this partnership to invest our country."[174] Another advantage of this system, in view

[173] Prof. Ali Ercan, "Ulusal Savunma Sanayii'ne Doğru-Towards a National Defense Industry", *Savunma ve Havacılık,* Vol. 9:2, (2001) p.15
[174] Kaya Ergenç, "Bir Uçak Tasarlamak ve Üretmek" p.79

of its supporters, is that these companies are more efficient than some state-owned companies, which are accused of becoming "employment warehouses" due to state support.

3.3.8. Inability to Produce Software Systems

Turkish defense companies have not been able to produce unique software systems. It is significant in a world of high technology the use of software systems is increasing. Despite the general trend toward globalization, nations try to produce software systems for defense products domestically. The reason is that an imported system may not be applicable to a particular country's conditions. In addition to this, the exporter country could manipulate such a system whenever it wanted to.[175] It is generally thought that these technologies should be classified as top secret and that a country should not be dependent upon other countries in this area.

In Turkey, national firms formerly could not produce defense software systems on their own. By 2006, ASELSAN, Arçelik and Kordsa are able to produce unique software systems. However, in order to develop this capability, government support was considered necessary. [176]As mentioned above, in Turkey some defense technologies were classified as "Must Be National" and "Critical" ones. Nevertheless, the state did not specifically conceptualize which ones is "Must Be National" and which ones are not. As Aytekin Ziylan pointed out "[MSB] should publish which ones are secret and critical. They should indicate

[175] During the Falkland War, Argentina's aircrafts were not able to do battle with the British forces. The reason is that these weapons were acquired from the United Kingdom. During the war, the United Kingdom was accused of sending viruses to these aircraft systems so that they could not fly or they fell to the ground.
[176] TOBB, *Türk Savunma Sanayii'nin Ana Sorunları,* p.36

that these are secret and these are critical so that document will work. That is not done so that this document is not applicable."[177] When asked why this is not the case, Ziylan responded that foreign companies prevented that.

A case in point is Turkey's efforts to acquire attack helicopters. The procurement of the weapon was to be based on co-production with the US company Bell. SSM tried to develop critical software sources codes for the mission computer locally so as to have full control over the system. However the US administration stated that if Turkey insisted in they would delay Bell's export license guarantee. The US government agreed Turkey could customize its own unique configuration for the attack helicopters. However this feature was the only 25% of the software project.

> The letter written by Gen. Tom Walters on August 15, 2001 stated that Washington was ready to customize the unique configuration, but the Northrop Grumman-made mission computer should be used as a baseline produced for AH 1Z King Cobra used by the US navy[178]

The policy of US had SSM sign a contract with the Scientific and Technical Research Council of Turkey (TUBITAK) - Marmara Research Center (Marmara Araştırma Merkezi-MAM) for the indigenous development of the mission computer for the attack helicopters. This contract indicated that production of mission computers would be done inside the country. The United States would be proud of Turkey's insistence on the production, as emphasized by than Undersecretary of Defense Industry Ali Ercan. However, the United States

[177] Aytekin Ziylan, "Yazılım Yapmamızı ABD Engelledi-US Prevented Us From Producing Softwares" *Aksiyon* 18-10-2004
[178] Lale Sarıibrahimoğlu, "Turkey's Top Commander Kıvrıkoğlu Intervenes In Attack Helicopter Dispute" *Turkish Daily News,* 11-09-2001

also issued another bill in order to prevent the development of Turkey's national defense industry. This bill was explained as follows;

> [N]ow the third bill is on its way further restricting Turkish ability to develop the Targeting Sight System by ASELSAN. This system will also be included in the US FMS category, under which Washington will not transfer technology. If the mission computer is key in making the attack helicopter fulfill its fighting ability, targeting systems are equally critical in defining friends and foes during missions.[179]

The reason given by American policy makers for the restriction of modifications to US- made products is that the credibility of the products would decrease. There was also the problem of interoperability between the main system and newly produced one. Defense industry specialists interpreted these policies as US restrictions on Turkey's attempts to develop its own defense industry.

The ability to develop its own technologies is crucial for a successful indigenous industry. In the globalized world, capital may travel from one country to another. However important technologies are restricted so that they do not circulate around the world. There are secret embargoes that do not allow importer countries to have such technologies. As Tuna pointed out

> [I]n order to have a strong economy, the giant institutions of defense industry in the world is merging with its technology, people and product. Consequently, it is necessary for the state and for companies which claim to be national to change their ways of thinking (*investing in R&D)*, not the structures of the companies.[180]

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[179] Lale Sarıibrahimoğlu, "Turkish-US Dispute On Attack Helicopter Continues" *Turkish Daily News*
25-08-2001

[180] Fatih Tuna "Procurement Vision of Defense System and Main Battle Tank" *Turkish Daily News* 28-04-2000

3.3.9. Lack of Independent Test Centers

To determine their efficiency of the product, weapons systems should be tested. However, Turkey is also dependent on foreign countries in this respect. There are no independent test centers in which systems can be evaluated. The establishment of this kind of center is costly. In addition, in Turkey there are no experts who work independently from the government in this area. As a result of this, the successes of Turkish defense products were not independently verified.

3.3.10. Lack of Governmental Support for Export

Another problem that raised by defense manufacturers is the export mechanism in Turkey. The main problem is that there was a lack of trust in domestic manufacturers' ability to export their products successfully. As SSM Undersecretary Murad Bayar emphasized "[g]enerally we conclude that if we produce any weapon for our needs, this will have no chance to be exported, so this product will not be feasible. As a result of this, we procured weapons from foreign countries."[181] However, this assumption was shown false by successes such as FNSS's export of armored vehicle to Malaysia and United Arab Emirates (UAE) and ASELSAN's worldwide export of military communication systems. Manufacturers proposed that to further increase exports of Turkish products, bureaucratic agencies should establish a credit mechanism in Turkey. This would attract buyers overseas and increase export of goods. For example, the US grants FMS credits that are used to support defense companies which export their

[181] Murad Bayar, "SSM: 20. Yılında Yeni Sorumluluklar Yeni Hedefler-SSM: In its Tweentieth Anniversary, New Responsibilities and New Targets", *Savunma ve Havacılık,* Vol. 10:2 (2004) p.5

products. However, in Turkey there is no such mechanism for exporting companies to benefit from.

On the other hand, government agencies and officials tend to see the problems of the defense industry differently than manufacturers do. For example, according to Dr. Ercan the main problem is the mismanagement of investments "Until now investments in the defense industry have been equal to 3 billion US dollars. The annual turnover in a sector like this should be 1 billion dollars."[182] According to the Undersecretary of SSM, the main problem is the scale of the defense industry. Despite these problems, there is progress in Turkish defense market. These developments will be analyzed below.

3.4. Today's Prospects in the Turkish Defense Industry

Turkish defense industry arrived at its mature period. Defense manufacturing in Turkey can be divided into the following areas: state economic enterprises/military factories responsible for maintenance, project based private firms formed through the joint ventures with foreign partners and Turkish national firms. This categorization is based on the ownership status of the companies. However despite their numbers, the firms in these categories above still could not fully meet the requirements of TAF. For example, 75% of major weapon systems and 35% of the general requirements are still procured from outside the country. Despite this inefficient situation, some successes in Turkish defense firms are realized. I will analyze some major firms and their latest achievements.

[182] Prof. Ali Ercan, "Güçlü Yarınlara Doğru-Towards Strong Tomorrows", *Savunma ve Havacılık,* Vol. 8:1, (1999) p.13

3.4.1. Turkish Aerospace Industry (TAI)

TAI was founded as a joint venture to produce F-16s. At first, TAI was not able to perform design tasks. However, over the course of 22 years, TAI completed 34 projects including software systems. Such international projects enabled TAI to acquire technical know-how and production capabilities. Adaptation to the standards of foreign has also improved TAI's ability to compete in the international arena. TAI's customers included Boeing, Lockheed, Sikorsky and CASA. Moreover, TAI also possesses international certificates which enhance its image: These certificates are NATO AQAP-110, ISO-9001:2000, AS EN 9100 and AECMA-EASE. Additionally, TAI is also able to participate in international consortiums projects, such as A400M and Joint Strike Fighter (JSF), as a subcontractor. Moreover, with its last project, known as Phoenix-II, which included an offset rate of 30%, TAI acquired the capability to build the whole body of Super Pumas.

TAI achieved its success by focusing on unique software system production and R&D. Top management gives importance to having foreign partners, because of the shrinking domestic market. They also note that "[d]espite shrinking market, the fluctuations in the demands will disable to hold capacity at the optimum level."[183] The major development at TAI is its nationalization in 12 January 2005. As a consequence of this act, consolidation has started to take place in the Turkish defense industry

[183] Kaya Ergenç, "Bir Uçak Tasarlamak ve Üretmek-Designing and Producing an Aircraft" *Savunma ve Havacılık,* Vol.6:1, 2002, p.79

> [At] 'Share Purchase Agreement' signing ceremony held at TAI facilities on 12 January 2005, the Lockheed Martin of Turkey, Inc. (42%) and General Electric International, Inc. (7%) shares of TAI were transferred to Turkish Aircraft Industries, Inc. (TUSAŞ). TAI, 98% shares of which belongs to TUSAŞ, is a stand alone Turkish aerospace company[184].

TAI's participation in international projects has enabled other sectors of the Turkish defense industry to participate in the global defense area as well. For example, TAI's role in JSF has allowed Selex Communication to participate the production of JSF's lightening part. Additionally, Turkish firms are also able to increase exports to the third world countries

3.4.2. Machinery and Chemical Industry Corporation (MKEK)

MKEK, as a State Economic Enterprise, was also modified as a result of the changes in the defense market. Until 1999, MKEK was one of the leading firms in the world; it was one of the largest 100 defense firms in the world. However, the presence of a State Economic Enterprises (SEE-Kamu İktisadi Teşekkülü-KİT) in the sector was criticized as to when the company incurred a loss, the government must compensate it. As a consequence of this, MKEK could be a burden for the budget. This led SSM to try restructuring MKEK after the liberalization of the market. However, because of the new-comers to the market, this organization could not compete with new comers. Reforms in MKEK did not satisfy expectations.

3.4.3. ASELSAN

Another important Turkish defense firm is ASELSAN which was established after the Cyprus Crisis of 1974. It is a national firm, whose

[184] Historical Background is available online at: www.tai.com

shareholder is the Turkish Armed Forces Foundation. ASELSAN was founded to meet the TAF's needs for radios. Afterwards, it also gained the ability to produce electronic war systems, military communication systems and similar items. This company has become a leading one in design, development and production of critical and strategic electronic technologies in the areas of command, control and communications, electronic warfare, microwave, radar, electro-optics and micro-electronics.

By 2006, ASELSAN was able to produce unique systems, such as Pedestal Mounted Stinger System (Kaideye Monteli Stinger-KMS) systems to upgrade Stinger missiles. Moreover, ASELSAN won an air defense tender from the Netherlands Royal Land Forces in 2006. (It is ironic that ASELSAN originally got its start by procuring radios produced in Netherlands.) Besides, KMS was specifically designed to meet the TAF's needs. "KMS project is the first one which is designed in Turkey and first national air defense system. Moreover, [this project] is an indication of the level which shows Turkish technological structure in defense sector."[185] Because it is produced in Turkey, the modification of these weapons to meet special needs is easy.

ASELSAN invests in R&D. It set up a "Technology Supreme Council" which is responsible for researching the latest developments in defense technology and developing this technology within ASELSAN. As a result, ASELSAN could enhance its product range and started to focus on software systems.

[185] Necip K. Berkman, "Ulusal Çözümler, Uluslararası Başarılar-National Solutions and International Successes", *Savunma ve Havacılık*, Vol. 19:1 (2005) p.34

3.4.4. Governmental Restructuring in the Post-Cold War Era

Full privatization is not applicable in the full sense in the Turkish defense market. Financial support by government to industry is needed. However, government for the defense market was not restricted to funding or state ownership of factories. In order to regulate the market effectively, various structures were also set up inside the bureaucracy. One of them is the establishment of Undersecretariat of Technology and Coordination. This undersecretariat consolidates the same sectors (supervising technological issues) under its authority. Moreover, it serves to smoothen bureaucratic hardness related with R&D.[186] In 2000; Technology Panels were established under the authority of MSB. These panels are organized according to weapon systems. They also revised Defense Research Progress and Technological Plan. The members of these panels come from the defense industry or universities. These panels are established as a result of the emphasis on policy of procurement based on R&D. However, in these panels, there are no TAF members, which is a problem for the head of defense firms. The reason is that TAF members are the users of these programs and they have the right to organize R&D processes of weapons. Their demands would specify the feature of weapons.

Another established mechanism is the "Quality Management Head of Office," responsible for ensuring quality control and maintenance of the systems that is procured by the MSB. The testing of systems and the quality management mechanism are also issues that were criticized by industrialists.

Besides establishment of new agencies, some changes took place in terms of procurement system in Turkey. Turkey, aspiring full membership to the EU,

[186] Sabahattin Çakmakoğlu, "Değişen Savunma Stratejileri ve Türkiye-Changing Defense Strategies and Turkey", *Savunma ve Havacılık,* Vol.9:4 (2001) p.13

has reshaped its procurement system according to new conditions. Not only membership to the EU, but also the desire to strengthen its defense industry led policy makers to focus on an effective procurement system. The new procurement strategy which was declared in May 2004, put emphasis on effective usage of national resources and greater contribution from Turkish firms in defense projects. The aim is to increase the rate of domestic inputs into defense procurement. This new strategy:

> [E]xcludes co-production deals. Defense requirements are to be met through direct purchases from abroad, or, increasingly, from local firms. Emphasis will be put on developing own-designed products rather than transfer of technology. It also encourages the domestic defense industry to undergo a restructuring, through consolidation of state-owned companies, and encouraging private companies to consolidate and/or specialize. This is expected to result in economies of scale.[187]

Another issue about procurement strategy is in line with Turkey's prospective membership to the EU. So far, Turkey concluded its projects with the United States and Israeli companies. These countries did not focus on Turkey's human rights records as in the countries in the European Union. During the EU accession process, European companies' proposals could play a key role in Turkish defense projects. Moreover,

> [I]n the longer term, in particular, Turkey's progress on the EU membership may change the priorities of the country. Turkey invariably tops the league of NATO nations measured by defense spending as a percentage of national income… However, EU membership, even the process of becoming a member, could lead to a cut back in this relatively high level of defense expenditure.[188]

To sum, Turkey has been trying to acquire a national defense industry since the Ottoman Empire. Technological improvements were successfully

[187] Turkish-US Business Council, *Report on Turkish Defense Industry,* Available on line at www.turkey-now.org, 01-08-2004, p.2
[188] *Ibid.* p. 3

adapted to the empire's expansion period. However, for various reasons, the new Republic did not inherit any defense investments. During the early Republican period, Turkey attempted to acquire a defense infrastructure. However, after the country became a member of NATO, these attempts were halted. Nevertheless, various crises with supplier countries led to attempts by Turkey to develop its own defense industry. After the Cold War, the liberalization of the defense market and efforts to modernize TAF led to a boom in the Turkish defense industry. Moreover, since 2000, Turkish defense industry made successful attempts to produce unique weapon systems and export these products. Yet despite these developments, Turkish defense industry has still problems, in areas such as procurement methods, lack of R&D investment, lack of government support to the defense industry, competition policies and transfer of new technologies from abroad. SSM has been attempting to improve the situation of Turkish defense industry by implementing new policies. These policies as well as SSM itself will be examined in the next chapter.

CHAPTER IV

THE UNDERSECRETARIAT FOR DEFENSE INDUSTRIES

The liberalization of the economy and defense market in Turkey, which started in 1980s, forced policy makers to regulate this market through the establishment of some agencies because of the defense industry's sensitive nature. Turkey decided to set up a body which would undertake this mission. This administrative policy is not unique to Turkey. A number of countries, as stated in the first chapter, have such agencies. This body would work together with military in order to fully meet their requirements. In 1985, the TGNA amended the establishment of the Undersecretariat For Defense Industries (SSM-UDI) with Law No. 3238.

In this chapter, I will elaborate on the mechanism of SSM and Turkish defense budget. The policies regarding the defense industry, such as offsets and export policies, will be analyzed. In addition to this, SSM initiated new policies regarding the structure of defense industry in Turkey. This new policy will be also analyzed in the last part of the chapter.

4.1. Law 3238 and the Establishment of New Agency

Law 3238 was foreseen to sustain the liberalization of defense industry. It also allowed for the establishment of a new agency in the defense structure. The main aim of this law have been summarized as follows,

- Maximize the utilization of national defense industry capabilities
- Encourage and guide high technology investment
- Obtain input of foreign technology, cooperation and capital
- Foster research and development to maximize in-country production of defense equipment.

> Law No. 3238 brought about a completely new defense industry concept as well as a highly flexible and efficient system, which has five major components: the Defense Industry Higher Coordination Board, the Undersecretariat of Defense Industries, the Defense Industry Support Fund and the Defense Industry Audit Board.[189]

4.1.1. Defense Industry Higher Coordination Board (Savunma Sanayii Üst Koordinasyon Kurulu)

As envisioned by the law, this body meets under the chairmanship of Prime Minister. It is composed of 13 members such as Minister of Economy, Minister of Foreign Affairs, Chief of General Staff, and the Undersecretary of State Planning Organization and so on. The board convenes at least twice a year at the summons of Prime Minister. The functions of this board are, first to follow coordination and planning principles that are enacted by the Council of Ministers and second to determine procurement policies to acquire weapons indicated in the Strategic Target Plan by Chief of General Staff.

[189] SSM, *SSM ve Türk Savunma Sanayii*-SSM and the Turkish Defense Industry, (Mönch Yayıncılık: Ankara, 2005) p. 7

4.1.2. Defense Industry Executive Committee (Savunma Sanayii İcra Kommitesi-SSİK)

This body is the decision making part of SSM. The members of this committee are the Chief of General Staff and the Minister of National Defense and it convenes under the chairmanship of Prime Minister. As it was emphasized in the SSM's book "[T]he main task of the Committee is to make decisions in accordance with the Strategic Target Plan regarding the domestic production and when necessary, the out of country production of weapons and equipment of the TAF."[190] This body is empowered to investigate the availability of production inside the country. Moreover, it encourages foreign investment in the area of defense production as stated in Article 6 of Law 3238. According to Law 3238, domestic defense industry should be directed and enlarged by the participation of foreign technology and investment.

4.1.3. The Defense Industry Development and Support Administration Undersecretariat For Defense Industries (Savunma Sanayii Geliştirme ve Destek Merkezi- Savunma Sanayii Müsteşarlığı)

This body functions like an executive committee of the government in the market. It reports to the Minister of National Defense and has a legal persona and a special budget. Its functions are summarized as follows:

- Reorganizing and consolidating the existing national defense industry and to encourage new enterprises in line with national defense requirements.
- Proposing procurement programs and funding models
- Planning the production of weapons and equipment at private and state manufacturing facilities

[190] *Ibid. p. 15*

- Conducting research and develop modern weapon system and equipment
- Coordinating the export of defense industry products and offset trade.[191]

4.1.4. Defense Industry Support Fund (Savunma Sanayii Destekleme Fonu-SSDF):

This fund was established to sustain the flexibility of defense expenditures. Spending for defense projects is easily accomplished by using SSDF. This fund has also some privileges for the effective procurement. For example, the expenditures from the fund have been exempted from parliamentary scrutiny through Court of Audit. The income for this fund is derived from special taxes on items like alcohol and tobacco, taxes from national lottery, fund charges from the Turkish Armed Forces Support Fund and some charges determined by the Council of Ministers. A sum of approximately US $17 billion has been accumulated by the fund since 1986.[192] The properties of this fund will be analyzed below.

4.1.5. Defense Industry Audit Board

The functions of Undersecreteriat and the Fund are audited by this committee, which is composed of personnel from Prime Ministry, Ministry of National Defense, and Ministry of Finance. These personnel are appointed for two years of service.

[191] *Ibid. p. 18*
[192] *Ibid. p. 19*

4.1.6. Opposition to the Law in TGNA

When the Law 3238 was passed, some members of TGNA did not quite welcome the Law 3238. The opposition party had sent the law to the Constitutional Court to be reviewed. The main premise of the law was the privatization of Turkey's defense industry. Opponents declared that this act was inconsistent with Article 5 of Constitution.[193] Another controversial issue was the oversight of the budget. In the draft, it was stated that the role of the Court of Audit was the auditing of entire governmental agencies' spending. However, under the draft, the Defense Industry Support Fund would be exempted from this supervision. The opposition party argued that the public should have the right to know for what their money is channeled. However, despite these criticisms, the law was endorsed by the Constitutional Court.

4.2. The Defense Industry Development and Support Administration (DIDA) / Undersecretariat For Defense Industries (SSM)

Self-sufficiency in the arms production has historically been the most important issue for Turkish policy makers. However, establishing and organizing a defense industry according to the needs of the country have not been sufficiently thought about in Turkey. As mentioned in the second chapter, Turkish defense industry has been dependent on outside sources. It was unable to produce sophisticated weapon systems without external participation. Various embargoes imposed upon Turkey by allies highlighted Turkish defense industry's limited

[193] In this article, it was stipulated that the state's main task was the protection of national sovereignity and independence

capacity. On the other hand, these incidents forced military bureaucrats to focus on Turkish resources and to improve capacity. It has been emphasized by some military officers that Turkey must be more self-sufficient in armament production in order to maintain stability both inside country and within its region.

4.2.1. Reasons to Establish an Agency

Besides the desire to be self sufficient in arms production, there are also other factors for the establishment of a new agency. One factor is the Ministry of National Defense and its competency with democratic features of a country. Until 1985, the Ministry of National Defense had administered Turkey's defense industry. Traditionally, the MSB personnel have been predominantly composed of individuals from the military elite. As Narli pointed out "[t]he domestic and foreign procurement department in the MSB is headed by serving officers, usually one-star generals, while a civilian heads the SSM."[194] However, in a democratic country, requesting and procuring organization should not be same. The military side should only be responsible for determining its needs; the civilian side will decide the procurement of these requirements according to the budget. Only if there is a necessity of military expertise, than civilians will consult them. This common practice in the world had not been applicable to the Turkish case. The new agency is established to overcome this deficiency.

Another reason for the foundation of this agency is related with bureaucratic harshness in Turkey. Before SSM, the system did not respond defense companies'

[194] Ayse Nilufer Narlı, *Aligning Civil-Military Relations in Turkey: Transparency Building in Defense Sector and EU Reforms,* Available online at: http://www.bmlv.gv.at/pdf_pool/publikationen/10_wg9_taf_110.pdf

concerns and issues quickly enough. The new organization was envisioned as a separate entity that would sustain the time management for defense projects.

It is important to note that Western practices have also had an effect on the reorganization of the administration of defense industry in Turkey. As was discussed in the first chapter, in countries such as France, Germany and many others, defense companies are directed by civilian organizations that are connected to the ministry of defense. The function of these organizations is to serve as a bridge between industry and the government. In addition, they are empowered to organize the defense market according to desired plans. This system has also been in effect in some developing countries, such as Brazil. These organizations have played a key role in enabling developing countries to indigenize and develop their defense industries. It was noted in the second chapter that these countries' defense industries are generally state-owned. This helps the companies to gain more power in the market. Turkey tried to adapt a similar system.

4.2.2. The Functions and Aims of SSM

These new circumstances and the necessity of new organization as a result of new policies were acknowledged by the implementation of the Law 3238. In this section, I will analyze the functions of SSM or DIDA formerly as well as the aims and policies of this body.

In Law 3238, as mentioned earlier, the functions of this body are described as follows;

> [SSM] is the organization responsible for all the ground work of this system, starting from the point where the planned requirements of the TAF are determined;

> up to the point when the weapon, material or equipment is taken out of use by the Armed Forces, including logistic support. During this long and complicated process, [SSM] participates in strategical evaluations; issues requests for proposals; calls for tenders; makes technical, economic, financial and management evaluation and submits the final appraisal reports of the projects to the Committee. After the decision of the Executive Committee, the implementation of the programs is also carried out by the Administration, including contracts and quality and technology control work[195].

In addition to the functions indicated in the law, the aims of SSM were also set forth in the Turkish Defense Industry Policy and Strategy Document. In 1998, the Council of Ministers elaborated on this strategy by stipulating that "[…] the equipment necessary for the TAF will be sustained by domestic firms to the greatest extent."[196] In most of the interviews conducted for this thesis, the SSM undersecretaries mentioned the importance of Turkish firms' contribution to arms production. From the beginning, SSM analyzed the capabilities of domestic firms and encouraged them to participate in the new weapons production. Moreover, when the TAF set forth its needs, domestic firms were able to participate in the tenders. SSM supported domestic firms for this purpose. This is also a difference between SSM and the MSB's procurement agency. As mentioned earlier, SSM was to be responsible for formulating a domestic defense industry in Turkey. As former Minister of National Defense Sabahattin Çakmakoğlu emphasized;

> [W]hen SSM procures any system, it does not look at the subject from only one perspective: that of giving money and receiving the equipment. It is responsible for planning: which domestic firm will participate on what scale, which domestic product will be part of the project, which additional capabilities will be gained by the project, what gains domestic firm will acquire, the R&D aspect of project, the management and supervision of project, whether the project will

[195] Vahit Erdem, "Defense Industry and Investment Projects", *Turkish Review Quarterly Digest*, Vol.2 No.11 (Spring 1988), p. 15
[196] MSB, *Savunma Sanayii Stratejisi,* (MSB:Ankara, 1998)

> involve new investments, import dimension of the project through usage of offsets and the aspect of cooperation with foreign firms.[197]

SSM is responsible not only for the modernization of TAF but also for the procurement of equipment for the other security sectors of state. For example, SSM procured helicopters for the gendarmerie, police and border security forces and also for the Ministry of Forestry. SSM handled these contracts for different sectors due to its position as the only state agency with expertise in this area.

4.2.3. SSM's Working Process

In general, SSM's operation starts with the decisions made by the Defense Industry Executive Committee. For each project that comes to SSM, a project group is set up. SSM also applies to SSIK for the approval of the project. After that, a call for proposal is made. The proposals prepared by the firms bidding for the project are evaluated and presented to the SSIK. After selection of the firm, and the signing of an agreement, SSM oversees the entire process from production to delivery.

4.2.3.1. Criteria to Conclude a Defense Agreement

During the evaluation of the proposal, SSM applies two criteria. One is the cost of project. A lower cost figure is a factor in favor of a proposal. The second one is the proposal's level of degree. The level of degree has to do with the characteristic and importance of system.

> [T]he proposal should be in accordance with the technical documents that indicate TAF's requirements for capability. The proposal should also be

[197] Sabahattin Cakmakoglu, "Değişen Savunma Stratejileri ve Türkiye-Changing Defense Strategies and Turkey", *Savunma ve Havacılık(Defense and Aerospace)* Vol.4:1, 2001, p.18

evaluated according to its contribution to the domestic industry and to offsets. Moreover, administrative and economic issues are also evaluated.[198]

There are three main criteria for calculating the system's level of degree. The first is the effective use of domestic resources so that domestic contribution will be increased step by step. The second criterion is that domestic industry will receive a share of the profits. Third one is the minimum the money from the projects that went abroad should be tried to divert domestic resource. As a result of these criteria, it is foreseen that the indigenous defense industry will be promoted. By the application of these criteria the main system agreements signed by SSM are depicted as follows:

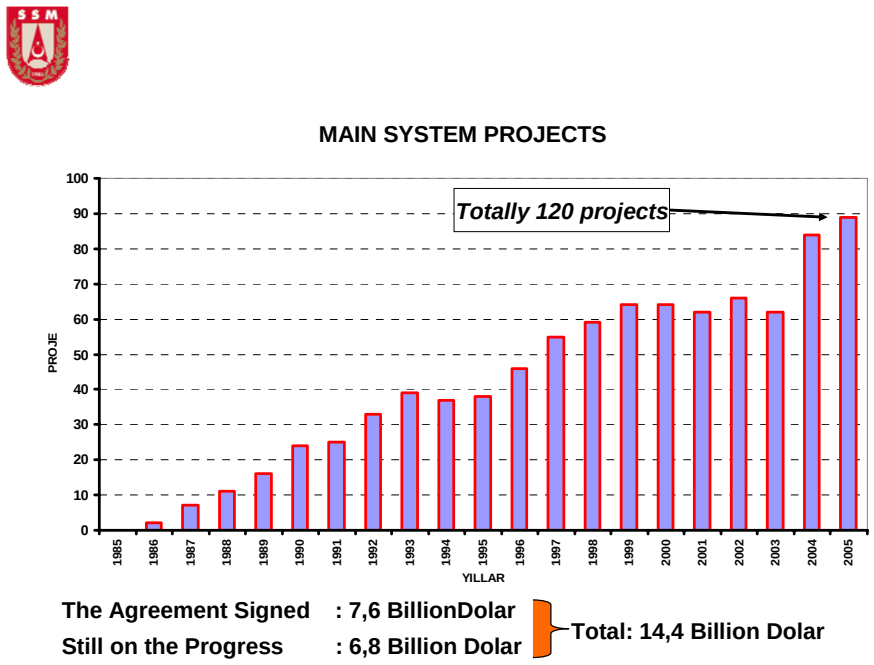

Figure 2. Main System Agreements[199]

[198] Prof.Dr. Ali Ercan "*Dünyada ve Türkiye'de Savunma Sanayii Üzerine Genel Bir Değerlendirme-An Evaluation Over Defense Industry in World and Turkey"* (06-08-2002) Available online at:www.savaskarsitlari.org/arsiv.asp

[199] The figure was depicted during the speech of Murad Bayar, "Opening Remarks" *SSM and International Defense Industry Conference* 14-15 November 2005, Bilkent Hotel Conference Center

4.2.3.2. Delays

Delays could occur as a result of the domestic economic situation. For example, during the economic crisis in 2001, some projects were delayed because of the difficulty in making payments. Such delays could take place if the executive committee decides that payment for the project will be made later than originally scheduled. Delays could also occur as a consequence of disagreement between countries. For example, military agreements with Israel and the United States were sometimes delayed because of disputes over offsets or similar matters. Another reason for project delays could be related to the decision-making process itself. Former Minister of National Defense Sabahattin Çakmakoğlu explained reason for these delays as "[…] the projects that were concluded recently were large ones. They needed in depth analysis, preparatory tests and evaluations.."[200]

4.2.3.3. The Effects of Military to SSM's Working Process

Murad Bayar, Undersecretary of SSM, stated that until 1985, the procurement process had been conducted by the military personnel of the MSB. After the establishment of SSM, this process was managed for the first time by a civilian body which is SSM. He also noted that during SSM's first years, the process was not always successful with delays. During that time, the military intervened in the decision-making process. Bayar characterized such actions as professionalism; stating that "[t]he main approach of TAF is this: I need this equipment. When you acquire this item for me in time, I will not interfere with your decision making process. Otherwise, for the sake of my urgent needs, I will

[200] Cakmakoğlu, "Değişen Savunma Stratejileri ve Türkiye", p.19

interfere with the process."[201] Moreover, such intervention is not in the sense of a coup or the like. Bayar likened this intervention as "filling the gap in the process".

4.2.4. Organization Structure

SSM was re-arranged its organizational structure to deal with some problems. During its first years, SSM was not able to organize its structure completely. Organization was divided into three branches. The Deputy Secretary for Administration and Finance was responsible for SSM's internal matters, such as personnel, administrative functions and financial administration. Deputy Secretary for Defense Services directed Land, Navy, Air and Electronic Equipment Offices. Deputy Secretary of Industry Services handled relations with defense firms. This body was responsible for the R&D, quality management functions and offset policies. A Legal Advisory body was also set up within SSM. In accordance with Law 3238, a supervision system was established within the organization to oversee the functions of each body. However, this structure has been revised according to sustain an effective bureaucracy. For example, in 2001,

> [D]eputy Undersecretaries have been created for the Defense Industrial and Administrative/Financial Services. Furthermore, the Directorates of Land, Sea, Air, Electronic Warfare and Command and Control, Weapons Ammunition and Rockets have been given the responsibility of project management in their respective areas, subordinated to the Deputy Undersecretariat of Defense Services. Offsets, Local Content, ATIP (Advanced Technology Industrial Park), and R&D, Quality Control, Foreign Affairs and promotional activities will be carried out by the Deputy Undersecretary for Industrial Services.[202]

In 2004, Public Administration Law provided for the reorganization of the undersecretaries, except those that are directly subordinated to the Prime Minister.

[201] Interview with the author, 23 February 2006, SSM
[202] Prof.Dr. Ali Ercan, "TSK'nın Modernizasyonu ve Ulusal Savunma Sanayiinde Yeni Hedefler-Modernization of TAF and New Targets in National Defense Industry", *Savunma ve Havacılık* Vol. 2:1 2000

The SSM was also affected by this reorganization. In this sense, SSM has focused on the project management groups, with each project being discussed in these project groups. These may include specialists from Ministry of Treasury, Trade and as well as personnel from SSM. Besides, there are TAF members. Representatives of the defense industry can also participate in these groups. This enables private defense companies to present both their capabilities and problems regarding a project.

. Organization model, which focuses on project groups, is a widely known and applied. For example, in France, DGA was organized according to specific type of weapons and forces. The project management groups are another important branch for DGA. Some undersecretaries of DGA are directly linked to other related ministries. For example, DIR is directed by the Ministry of Foreign Affairs.

4.2.5. Technology Policies of SSM

Innovations and improvements in the defense market have the potential to promote technological development in the country. In the past, Turkish defense industry was not successful in keeping up with international progress in this area. However, the procurement process has evolved to enable the country to catch up this race. In the developed countries, this issue has been dealt with not only through procurement policies but also through cooperation between universities and defense sector. For example, universities set up cyberparks to encourage the development of new ideas and technologies. The first science park, Cambridge Science Park, was set up in United Kingdom in 1970 at Cambridge University. Technoparks or cyberparks can be explained as follows;

> [Is] a space, physical or cybernetic, managed by a specialised professional team that provides value-added services, whose main aim is to increase the competitiveness of its region or territory of influence by stimulating a culture of quality and innovation among its associated businesses and knowledge-based institutions, organising the transfer of knowledge and technology from its sources to companies and to the market place, and by actively fostering the creation of new and sustainable innovation-based companies through incubation and spin-off processes.[203]

During the globalization process, developed countries are increasing the number of their cyberparks. Turkish practice did not quite follow the international one, although, the importance of cyberparks was realized: with the passage of Law No. 4691[204] in 2001, TGNA laid the basis for the establishment of cyberparks at Turkish universities. Several incentives are granted to these establishments. For example, R&D personnel are exempted from income taxes for 10 years. Companies in the cyberparks received a corporate tax reduction. Various privileges are also granted to academicians. As of 2007, fifteen cyberparks were established in Turkey. These are TUBITAK MAM Research Center, METU Teknokent, Bilkent Cyberpark, ITU Arı Teknokent, İzmir Teknoloji Teknopark, Gebze GOSB Teknopark, Konya Selçuk Teknopark, Hacettepe Teknopark, Kocaeli University Teknopark, Istanbul University Teknopark, Eskişehir Teknopark, Yıldız Teknopark, Kayseri Erciyes Teknopark, Karadeniz Teknik Teknopark, Antalya Akdeniz Teknopark. The first one was the METU Technopark, a large facility that has spawned several innovations of interest of the TAF.

> METU Technopolis has developed very fast between 2001 and 2005. Currently within 61,000m2 closed areas, there are 157 companies. 2.148 R&D staff and 127 faculty members are involved in R&D activities. In 2004, the

[203] Regis Cabral, "Science Parks and Technology Business Incubators as the Interface for Defence-University-Industry Collaborations", *SSM and International Defense Industry Conference,* 14-15 November 2005, Bilkent Hotel Conference Center
[204] Law 4691 Law On Technology Development Zone

> companies in METU Technopolis obtained revenue of $55 million from the R&D activities, and they have exported goods and services worth $16 million. 28 of these companies are in the defence industry sector. By giving great importance, METU established a sub-zone (SATGEB) which deals with research and technologydevelopment for defence industries. Turkish Armed Forces, Defence Industry Companies, universities, research centers, SME's and public are all the stakeholders.[205]

Bilkent University has also some projects regarding defense technology. The university opened a nanotechnology laboratory. This is the first laboratory in this sense. In 2003, Ankara Cyberpark was established, and Bilkent University is a shareholder of this establishment. In Cyberpark there are four companies that are related with defense industry.

4.2.5.1. Problems Related To Technology

Despite some developments in technological aspects, Turkey has still relied on R&D capabilities of other countries. During a conference at the Bilkent Conference Center, Dr. Akbulut emphasized that "[t]here have been lots to do in order to sustain technological developments in Turkey. First of all procurement agencies and those that determine the technological requirements of military equipments should be in harmony for the decision of weapons' technological level."[206] SSM should serve as the single organization empowered to sustain this harmony. Moreover, technological infrastructure of universities and research centers should be updated. Despite the existence of twenty technoparks in Turkey, the R&D process is not enough to develop high-tech weapons. It could be said that quantity does not engender their quality.[207]

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[205] Prof.Dr. Ural Akbulut, "The Role of University in Defence and Development" *SSM and International Defense Industry Conference,* 14-15 November 2005, Bilkent Hotel Conference Center

[206] *Ibid.*
[207] *Ibid.*

Another urgent step is to increase the quality of human resources in Turkey and which again; related to updating technological infrastructure in Turkey. There are 72 universities in Turkey, from which 1.5 million students graduate every year. In European countries, this number is lower than a half. However, because of inequalities in the education system, every graduate does not have the same capacity. For research projects in the defense and other sectors, the human factor is the most important element. It was emphasized during the SSM conference in 2005 that if the quality of this capacity is increased, then Turkey will be able to produce its own defense equipments. In line with the human capacity, the funds devoted to R&D in Turkey are not in line with the financial resources spent on R&D in European countries. The figure below depicts this difference.

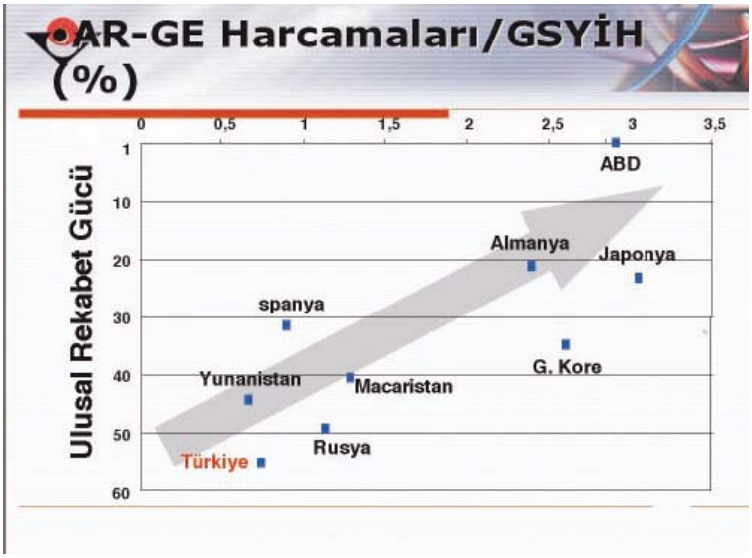

Figure 3. R&D Funds[208]

Despite these disadvantages, the number of R&D projects that were presented to the General Staff increased. Six hundred projects have been concluded through the collaboration of SSM, MSB and TUBITAK. The Chief of

[208] Bayar, *Opening Remarks*

Staff approved ninety defense projects and forty five space projects for the year 2005 of which sixty two of them will be supervised by SSM. However, there remains much to do in order to increase SSM's influence in the R&D process. Methods that have been employed by its counterparts in other countries could be of use. For example, as mentioned earlier, DGA in France is able to influence the content of engineering courses offered in universities. The SSM could make suggestions about the curricula of especially engineering faculties for the purpose of developing defense technology in Turkey.

4.2.6. SSM's Offset Policy

The importance of offsets is increasing globally, and this practice was reflected itself in Turkey, where policy makers have also accentuated the usage of offsets. Until the 1990s, offsets were applied only to large military contracts in the area of maintenance services. However, in 1983, Turkey experienced the advantages of the offset practice and used it for the joint project of F-16. As TÜSİAD reports on offsets indicated

> [The] F-16 project was the first real offset experience in Turkey. With this project, a modern airplane factory (TAI) and airplane engine factory (TEI) were established. The employment force was sustained and trained. The production, installation and testing of airplane and their component parts were maintained in the terms of agreement between contracting parties. Through this offset, ASELSAN acquired production technology for Lethargy Line of Navigation and started to produce this capability for F-16.[209]

Moreover, in the course of this project Turkey has learned about making quality control assessments during production.

[209] TUSIAD, *Türk Savunma Sanayiisinde Offset Uygulamaları-Offset Regulation in Turkish Defense Industry,* (TÜSİAD:İstanbul.1999), p.23.

The SSM has the responsibility for the administration of offsets. In its first years, SSM concluded 31 offset agreements. However, with the Turkish Defense Industry Politics and Strategy document[210] (1998) states that the MSB has the task of administering the offsets. This did not mean that SSM has been totally disengaged from the process. SSM and MSB work together to conclude these types of agreements with the MSB responsible for domestic applications and SSM was given the task of looking over agreements concluded with foreign companies. SSM is also responsible for increasing local contribution to these projects.

SSM prepared a "Handbook of Offset Regulations" in 1991 which systematizes SSM's procedures concerning offsets. It is periodically revised according to international conditions. The most recent revision was of in 2003. This book helps both executives of defense companies and bureaucrats such as members from MSB to conform to Turkish offset practices. The handbook stresses direct offsets more than indirect ones and also deals with matters such as penalties for failure to follow these regulations, application in areas other than the defense industry and their coordination. In addition to this, in 1991, an Offset Department was established within SSM with the mission of overseeing offset agreements in Turkey.

There are seven criteria to fulfill offset obligations. These are the ratio of offset contracts, time for realizing offset agreements, the ratio of local contribution, penalties, the offset letter of intent, the resolution of disagreements and increasing the number of offsets. As of 2005, SSM began implementing offset agreements on the basis of their quality not quantity. Until that time, the number

[210] MSB, *Turkish Defense Industry Strategy,* p.4

of offset agreements was regarded as a way to indicate success in obtaining international cooperation. However, with the professionalization of defense industry, looking at offset agreements from the perspective of quality became an important benchmark. The degree of offsets contribution to local industry is another point of reference for a good decision. However, the number of offsets is also mentioned in all articles and in interviews. According to statistics, until 2005, SSM signed 59 offset agreements. 18 of projects regarding offsets were concluded.

Undersecretary Murad Bayar underlined the utility of offsets as follows:

> [80%] of our defence companies' exports are made through offset. If we didn't have offset, we couldn't achieve this. This accounts for the majority of the turnovers of both TAI and TEI and if we didn't have this offset support these companies would likely be closed. Are we the only country doing this? No... Every country in Europe does this and Turkey must follow this method. It is essential for the survival of our companies, especially in a country such as ours, which realises most of its defence needs through imports. We have generated US$4.3 Billion in offsets to date. As a result of SSM projects we can now talk about the existence of a defence industry in Turkey. Those who have taken part in this process since the beginning can observe this.[211]

According to the former Undersecretary of SSM Dr. Ercan, offset was significant in terms of promoting more balanced trade. He stated that "[Turkey] procures 20 units equipment from outside in contrast with Turkey's one unit of export. There is an imbalance that worth one to twenty. In the short term, we are trying to balance this inequality with offsets."[212] The purpose of offsets is to replace funds spent on imports with defense industry equipments. SSM has prioritized some areas for offset applications so that foreign partners can more easily comprehend Turkey's needs in the area of defense equipments. In Turkey, when executive managers criticize offsets, they contend that Turkey did not

[211] Murad Bayar "Opening Remarks"
[212] Prof.Dr. Ali Ercan, "Ulusal Savunma Sanayii'ne Doğru -Towards a National Defense Industry" *Savunma ve Havacılık,* Vol.3:1. 2000.

benefit from offsets that there have been no real gains from offsets. Ali Ercan also discussed this issue stating that Turkey had not fully obeyed the rules of offset. The companies were only focusing on real gains. As a result of this, when there were some overloaded duties, these industries did not fulfill their obligations. "For this reason, [defense companies] put forward cash payments, they did not follow regulations in full sense and the benefits to national policy did not occur in full sense." [213] Despite this critique, the figure below depicts which national companies export in 2005 by using offsets.

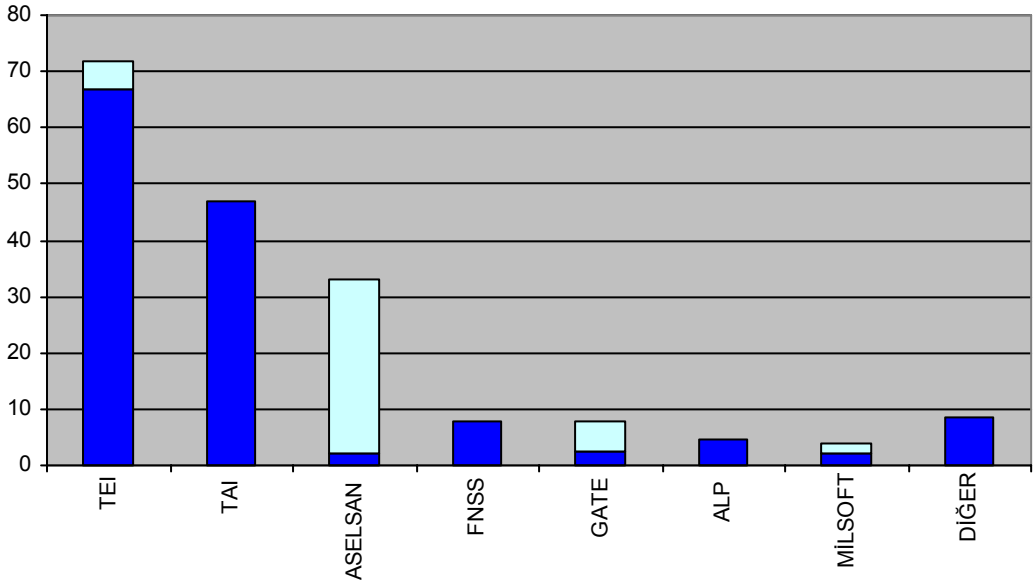

Figure 4. The Scale of Offsets[214]

[213] Prof.Dr. Ali Ercan, "Ulusal Savunma Sanayii Güçlü Bir Gelecek İçin Mücadele Veriyor - Defense Industry Struggles For a Powerful Future", *Savunma ve Havacılık,* Vol. 3:2, 2003.
[214] Bayar, *Opening Remarks*

4.2.6.1.Problems of Offset Administration

Another issue concerning offset usage is the development of technological and industrial infrastructure in the country. Developed countries with high-tech infrastructure can easily manipulate the new system's advantages with the R&D process upgrading the technology that comes with offset requirements. However, in Turkey, this is not the case: Turkey did not devote enough funds to R&D. Not only were the funds inadequate, but national policy was not formulated. In addition to this, Turkish cyber parks, which are an area that can benefit from offsets, were only established in 2001.

Another problem concerning the improper use of offsets is the lack of independent and reliable technology assessment centers in Turkey. These centers are usually responsible for determining the life cycle of a product that will be procured through offset agreements. The procurement mechanism without such centers may not be able to determine life cycle properly. For example, some equipment that are at the beginning of their half life may be developed according to new technologies. In addition to this, their price will be less than that of another technology. In this case, the risk situation of such equipment enters into the decision making process. These assessment centers are entrusted with the task of detecting the risk aspect of this kind of weapons. "[In Turkey] the procurement of weapons is performed during the second life of these weapons both in direct procurement and in domestic procurement. The reason is that this type of mechanism does not take part in the procurement mechanism."[215]

[215] TUSİAD, *Offset Regulation in Turkey,* p.30

4.2.6.2. International Cooperation by Offsets

As mentioned in the second chapter, offsets are one of the ways in which international cooperation takes place in defense sector. With the development of international defense market, cooperation became essential. Although participating in international consortiums and benefiting from this experience is not an easy task, any country with sufficient economic base can take part in these projects. According to SSM, Turkey's aim to participate in such projects was to improve its local defense industry. Turkish defense industry strategy is based on obtaining its needs from the domestic industry. However, according to government officials, this should not disentangle Turkey the international market. Turkey started benefiting from the process of international cooperation with F-16 projects. Murad Bayar, in a conference, emphasized that Turkey wants to continue to work with international counterparts as in the case of A400M. Six partners are cooperating in this project which will produce one hundred eighty aircraft. Moreover, he emphasized that

> [We] buy 10 aircraft and our share is 5-5.5%, this takes our contribution to Euro5.5 Billion. What do we get in return? Turkish industries have taken responsibility in the design of subsystems for the first time. In the A400M Project, a team of over 100 engineers are designing the central part of the aircraft body. The aircraft is designed by the consortium, but this part is under our responsibility and the detailed design is being drawn up in Turkey. The proportion of our contribution dictates our share from sales in the future, and this project totally supports our objectives. How? Our contribution return is 100% in this project, meaning we get back everything we have put in.[216]

4.2.7. SSM's Export Policies

In developed countries, as mentioned in the first chapter, defense companies that export are supported by the government. For example, French

[216] Murad Bayar, "Opening Remarks", 14-15 November 2005

government/DGA did not stop arms exports to various Third World countries despite international embargoes against these countries. An instance of government support in the case of a developing country is that Brazilian exports to international arena sustained by Brazilian diplomatic representatives abroad. During its first phase, IMBEL, Brazil's War Material Company, initiated the commercialization of exports by state. As a result of these efforts, Brazil strengthened its influence in its region. The export of armament is not interpreted only as an economic issue. The policy can also enable states to export political influence to an importing state. Turkey as an importing state was on the receiving end of such policies, during the establishment of its defense industry. Development of one's own defense industry will make the country more independent from such influences. Moreover one of the aims of Turkish defense industry, as discussed in the second chapter, is to be strong enough to survive in a destabilized region. If SSM is successful in promoting export of the products of the domestic defense industry, Turkey will in turn be able to influence its region.

Despite this, Turkish defense companies criticized SSM and other government agencies not to put emphasis on this issue. Turkish companies have exported their products to Third World countries on their own initiative. Yalçın Burcak, a former Undersecretary of SSM, stated that SSM's contribution to the exporting companies was minimal when compared to the case of Western counterparts. SSM lent little support for assisting the attendance of these firms at international arms exhibitions. He also mentioned that there had been an initiative in cooperation with Ministry of Foreign Affairs and Undersecretariat of Treasury to analyze international exhibitions and to design Turkish exhibits accordingly. As a result of this initiative, SSM won two prizes during the IDEX'93 in Abu

Dhabi. A large number of Turkish firms participated in this exhibition. Studies had also been conducted concerning the possibility of diverting some portion of SSDF to provide assistance to exporting firms.[217]

4.2.7.1. International Defense Exhibition (IDEF)

Another innovation in the export policy was SSM's organization of the International Defense Exhibition (IDEF) in Turkey. The expectation was that many international companies would attend the event. The first IDEF was conducted in 1993. However, this exhibition did not satisfy the expectations of defense firms in Turkey. For example, the F-16 aircraft was not shown during the exhibition as a sign of the level of Turkish defense industry. Also, the number of participants was lower than expected. Despite these disadvantages, OTOKAR[218]'s performance at the exhibition was considered successful, in that it concluded agreements with Turkey's gendarmerie force.[219] Following this experience, SSM and TSKGV chose the route of professionalization to organize IDEF, which became a biennial event. TSKGV selected the main contractor to organization the exhibition by means of a tender. The most recent IDEF[220] took place in 2005. As the latest, IDEF 05 was yet more professionalized with various improvements being implemented.

It was expected that professionalization would help make Turkey's IDEF competitive among international defense exhibitions. The organizing committee also set up offices for attendees, in order to provide them with a place where they

[217] Yalçın Burçak, "Savunma Sanayii Faaliyetlerinde Yeni Bir Dönem-A New Area in Defense Industry Activities" *Savunma ve Havacılık,* Vol. 4:1 1993. p.78.
[218] OTOKAR belongs to the Koc Holding. It has started to produce defense equipment in 1987. It is specialized in land equipments.
[219] Savunma ve Havacılık, *OTOKAR's Performance,* (Vol:4. 1,2003)
[220] These exhibitions are designed by The Foundation of Turkish Armed Forces(TSKGV).

could discuss their products with potential buyers, also conclude agreements and hold ceremonial signings. Not only major defense companies but small defense companies[221] as well participated in IDEF 05. To compare with

> […] the exhibition in 2003, the number of attending countries increased by 27 percent to 42. The number of firms increased by a percentage of 26 to 400. There were 218 commissions from 47 countries. Nine of them were at the level of the Minister of Defense; four of them were headed by the Chief of Staff.[222]

Besides IDEF, Turkish companies' attendance to two international defense exhibitions is directly supported by SSM. These are IDEX and DSA[223]. These exhibitions are important for Turkish companies because Turkish exports are directed generally to Asia, Middle East, Gulf Region, Far East and North Africa. The most recent DSA took place in Malaysia in April 2006. For the first time, thirty-one Turkish firms attended an international defense exhibition. Moreover, the cost of attending some prestigious European exhibitions is much higher than that of those just mentioned.

4.2.7.2. SSM's New Export Initiatives

Another way of supporting exporting companies is through SSM conducting official visits to other countries. This is a new method which was implemented by Murad Bayar. The visits were designated as "Official Visits for Exports", the first one made to Gulf countries on 2-11 October 2005. Besides Undersecretary Bayar and personnel from SSM, thirteen representatives of Turkish defense firms went on that trip. The countries where such visits will be made are determined, *inter alia*, according to Turkish foreign policy and international politics. "From this

[221] These small companies did not directly produce defense goods. Rather their products were used in weapons production
[222] *Ibid. p.*85
[223] IDEX was held in UAE, Abu Dhabi; DSA was held in Malaysia. The most recent one took place in Malaysia in 24-27 April 2006.

perspective, Middle Eastern countries and especially Gulf countries were determined as priority countries for Turkish defense exports. We are also examining North Africa, Far East, Central Asia and Eastern Europe as important regions to be focused on."[224] During an interview, an official of SSM, Mahmut Şener speaking about the above-mentioned visit stated that the individuals they spoke with in Gulf countries were surprised by the improvement and capabilities of the Turkish defense industry.

The latest official visit was conducted to Pakistan in 21 May 2006. Besides SSM, seventeen defense companies' executives attended this trip. SSM concluded an agreement with the Pakistani Ministry of Defense. With this agreement, Aselsan and Havelsan would be able to export electronic warfare systems to Pakistan. It was also emphasized that "Pakistani officials are interested in Turkish high-tech electronic warfare systems. Pakistan, which devotes large funds to its defense, will be a productive market for Turkey."[225]

4.2.8. SSM Personnel and the Appointment of the Undersecretary

The SSM personnel are subject to the provisions of Civil Servants Law No: 657. Concerning matters that require specialization, SSM can hire contractual personnel. "[…] Law No: 3238 allows the transfer of personnel from other public institutions and to the Undersecretariat on leave without salary and contract"[226] The Undersecratariat currently employs 246 personnel, of which 189 are

[224] Asuman Vangölü & Mahmut Şener, "Doğru Hedef, Doğru Planlama, Doğru Organizasyon - Right Target, Right Planing and Right Organization", *Savunma ve Havacılık,* Vol.111:1, Aralık 2005, p.69
[225] Anadolu Ajansı, "Türkiye ile Pakistan arasında Savunma Sanayii İşbiliği Güçleniyor- Defense Industry Cooperation Between Pakistan and Turkey is Strengthening", 21 May 2006
[226] SSM, *SSM ve Türk Savunma Sanayii*, p.20

employed in project management groups and 57 in administration/technical support.

The appointment of the undersecretary may at times become a power game between the military and the civilian decision makers. The undersecretaries have always been civilian. However, it is possible for officers at the rank of captain or above to be selected as undersecretary. Military candidates are usually retired officers. The civilian undersecretaries have mostly been closely associated with the governments in power at the time of their appointment. For example, former SSM Undersecretary Vahit Erdem was known to be close to then President Turgut Özal.

Appointments of military officers were depicted as the result of the military's efforts to have an active role in the decisions of SSM regarding procurement issues. As Sarıibrahimoğlu emphasized "[the] appointment of two retired senior generals as SSM deputy undersecretaries was part of the military's scheme to bring the SSM under its direct control."[227] For example, Prof. Ercan was appointed before the implementation of attack helicopter projects. Another result of the appointment of Mr. Ercan was that "[h]is appointment may have meant dealing a serious blow at the very fundamental principle underlying the SSM which was established in 1985 to break a 50 year national public sector monopoly to encourage the local and foreign private sector."[228]

Moreover, Lale Sariibrahimoglu, who is an experienced journalist on defense matters, stated that the civilian character of SSM tended to decrease by

[227] Lale Sarıibrahimoğlu, "Military Seals Its Authority On Defense Procurement" *Turkish Daily News*, 02-02-2000.
[228] _____, "Turkey Helicopter Tender a Political Choice" *Turkish Daily News,* 02-06-2000

the appointment of retired generals and other military officers. [229] Regarding the same issue the Undersecretary Murad Bayar, states that military personnel were working closely with the SSM because of their expertise on the technological aspects of the projects. As Jenkins noted Turkey is still quite poor regarding civilian expertise in defense matters[230].

4.3. The Defense Industry Support Fund (SSDF)

4.3.1. The Contents of Fund

As part of the effort to develop Turkey's defense industry, through the establishment of SSM, a special type of fund was placed under the authority of SSM. As indicated in the SSM's book "[This] fund acts as a highly flexible mechanism to guarantee a constant flow of financial resources, free from bureaucratic formalities and under the full and independent control of SSM itself."[231] The revenues of this fund are annual appropriations from the national budget revenues from the sales of alcoholic beverages and tobacco products; transfers from the Turkish Armed Forces Support Foundation; from national lottery and other forms of gambling and betting; from all kinds of transfers from other funds; from the fuel consumption tax; from income and corporate taxes; from the fund's own assets; from the military service compensation fees; donations and aids; from light arms sales and foreign credits. According to the decisions of SSIK, the payments from this fund are made as credit payments, contract payments, and direct procurement payments. "In this context, payments from the Fund are as follows: transfers to the national budget; transfers to SSM

[229] Interview with author via e-mail, 22 February 2006
[230] Gareth Jenkins, "Context and Circumstance: The Turkish Military and Politics", *Adelphi Papers* Vol. 337, 2001
[231] SSM, *SSM ve Türk Savunma Sanayii*, p.20

administrative budget; payments to the SSM partnership; investments towards nationalization; contract payments; direct procurement payments."[232]

The items that are indicated by law may be changed or removed according to the government's decisions. For example, revenues from the fuel consumption tax no longer go into the fund. "[The fund] has acquired 1.7 billion dollar income from this tax over 14 years. In other words it represented 16% of total income. Beside this, there are SSM's property holdings. However, with the decision made in 1998, this income was also removed."[233] Such changes have been made as the result of economic problems in Turkey.

In 2001 the rate of exchange in Turkey decreased dramatically affecting the receipts and expenses of SSDF. In order to compensate for the decrease in the SSDF's revenues, funds were transferred from the budget of MSB and TSKGV. "[M]oreover, because of the crisis, the government was unable to increase the SSDF by adding new resources." [234] In addition, when the entire annual fund is not spent, the remaining money is kept in the Treasury as dollars and this amount is transferred to the following year. It is because outlay for the procurement of weapons is generally made in terms of foreign exchange and by this the value of the money is preserved for following next year.

The SSDF is exempted from the supervision of Court of Audit. However, a type of commission was established inside SSM in order to review the expenditures of the fund. Members of the committee are from the Prime Ministry, Ministry of Economy, and MSB. As Karaosmanoğlu and Kibaroğlu emphasized

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[232] *Ibid.* p.21
[233] Prof. Dr. Ali Ercan, "Türk Savunma Sanayii Politikası ve NATO'nun Savunma Yetenekleri Girişimi-Turkish Defense Industry Policy and NATO's Defense Capability Initiatives", *Savunma ve Havacılık,* Vol.6.1, 2001,p.15.
[234] Sabahattin Cakmakoglu, "Değişen Savunma Stratejileri ve Türkiye", p.65

"[i]n addition to the government control, the Auditors of the Court of Public Accounts audit on behalf of Parliament the proper use of all of the items of the central government's consolidated budget to ensure that they are used in accordance with the Budget Law." [235]

4.3.2. SSDF and Defense Budget Calculation

Another issue concerning this fund is its implications for the defense budget. Turkey has always been criticized for having a very large defense expenditure compared with other NATO countries. The SSDF, however, was not included in these assessments. As an extra budgetary fund, the expenditures from this fund were not added to the national budget statistics. "Finally in the case of defense expenditures partly financed by extra-budget sources, like the Defense Industry Support Fund of Turkey, actual defense expenditures are underestimated by the defense expenditures item in the government budget (i.e. the budget of the Defense Ministry)."[236] However, incorrect estimations of the defense budget are not only the result of the SSDF being an extra-budgetary fund.

> Within the context of Turkey's highly inflationary financial environment and ongoing revisions introduced into the government's budgetary accounts, measurement of the relative as well as the absolute size of national defense expenditures poses a number of difficult statistical issues […][237]

4.3.3. Changes in the Structure of SSDF

Along with the latest changes in Turkish administrative system in order to harmonize with EU laws, Turkey has also tried to arrange its defense budget

[235] Prof. Dr. Ali L. Karaosmanoglu&Asst. Prof. Mustafa Kibaroglu, "Defense Reform In Turkey" in Istvan Gyrami&Theodor Winkler(2002) *Post-Cold War Defense Reform:Lessons Learned in Europe and the United States,* US:Brassey's Inc.,p.125
[236] Gülay Günlük Şenesen, "Measuring the Extent of Defense Expenditures: The Turkish Case With Turkish Data" *Defense and Peace Economics,* Vol:12.1, 1999, p.30
[237] Prof. Dr. Ali L. Karaosmanoğlu & Asst. Prof. Mustafa Kibaroğlu, "Defense Reforms in Turkey" p.123

according to the EU practice. In European countries, having extra-budgetary funds for defense is not a general practice. Moreover, these countries have also decreased their general defense spending whereas this is not the case in Turkey. Nevertheless, for the first time in 2004, defense spending ranked second in the 2004 budget. The largest government expenditure was on education.

This position seems to change. "Nevertheless it is almost certain that Turkey will return to high defense spending levels in 2005"[238] Moreover, according to speeches delivered by top commanders, Turkish threat perception from its vicinity is increasing. For example, the Chief of General Staff, Yaşar Büyükanit, emphasized that "Turkey is facing both symmetrical and asymmetrical threats". Tehran's ambition to acquire nuclear weapons, ongoing conflict with Kurdish nationalist and PKK terror, political turmoil in Iraq had policy-makers to increase the ratio of Turkish defense budget in 2007.

> Turkey […] spends more than 3.7 billion for defense procurement annually. The defense ministry spends about 2.7 billion or about one-third of its entire budget for new equipment and modernization program […] In some cases, the Treasury also contributes funds for defense. But since Turkey's budgetary spending is subject to the consent of IMF due to a stand-by loan agreement, the Treasury's financing of defense program may be limited to a few high-priority contracts.[239]

The status of SSDF was altered according to EU reform packages. Previously, SSDF was exempt from the parliamentary control. The Court of Audit, which is responsible for examining public expenses, could not control the SSDF. Instead of this mechanism, a body was established inside SSM to be

[238] Stephen Lanier, "Military Trends in Turkey: Strengths&Weakness", *Arleigh A. Burke Chair in Strategy Program,* at Center for Strategic and International Studies, 14 October 2004.
[239] Lale Sarıibrahimoğlu, "Turkey Expected to Increase Defense Budget Due to Multiple Security Threats" *Turkish Daily News,* 05 September 2006.

responsible for SSDF's oversight. However, in order to harmonize its structure with European laws, Turkey changed this practice. The changes in Law on the Court of Auditors,

> [E]nables Court of Audits, on behalf of TGNA and its inspection committees, to scrutinize all types of public expenditures, the revenues, expenditures, and property of institutions without any exemptions and without exempting any institute, from being accountable. Then, the Court of Audits reports to the related Parliamentary Committees[240].

Not only the changes in the Law on the Court of Auditors but also the changes in the Law on Public Financial Management and Control Law affected the status of SSDF. SSDF was formulated as an extra-budgetary fund in order not to be affected by the economic situation in the state. However, with the changes in the Law on Public Financial Management, "extra-budgetary funds and defense funds are to be brought into the defense budget and into the overall state budget. Therefore, these funds are subject to auditing not only by the Directorate General of Foundations and the Court of Audits but also by the parliament now."[241] However, this fund will in fact not totally be dissolved. Despite these amendments, the fund will continue under the auspices of SSM and there will be some financial flexibility.

These financial flexibilities have to do with the expenditures of the fund. The revenues of the fund will not change. However, the spending from this fund will be under some new constraints. The first financial flexibility is the need to keep the fund in the form of foreign exchange. In Turkey, in general, no public administration is permitted to keep its funds as foreign exchange. However, if SSM were not allowed to do this, it would go bankrupt.

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[240] Ayşe Nilufer Narlı, *Aligning Civil-Military Relations in Turkey,* p. 13
[241] *Ibid.* p.14

The second flexibility is needed in order to be able to transfer money from one year to the next year. Bayar described the necessity of this flexibility by pointing out that "[%1] of this fund is for SSM's administrative spending, %99 is for its project. SSM administration could assess its administrative spending but it cannot calculate the value of projects in the next year"[242] These flexibilities are granted to SSM.

An additional issue regarding defense spending in Turkey concerns the public reaction to the high level of spending. Turkey is ranked among the world's first fifteen countries in terms of defense spending. However, the general reaction to the large defense expenditures is not as it is expected. As Lanier pointed out

> [High] defense expenditures are rarely challenged by Turkish people, who expect the military not only to protect them from foreign threats but also to intervene and restore order if a corrupt civilian government goes astray. For many Turks, defense spending is more important than social services, since the military is viewed as principal guardian of Turkish identity.[243]

Until 2001, it was the radical groups (radical leftists) who opposed to the high defense budget came from radical groups. With the economic crisis of 2001, academicians, journalists started to question not only proportion of the military expenses but also civilian control over these expenses. For example, during an interview with Neşe Düzel[244], an economist Osman Ulugay emphasized that

> [M]ilitary expenses must be subject to inspection like other expenses. I do not agree to the statement that every sent spend in defense is for the well-being of motherland. We should discuss if these defense expenses are rational or if there are alternatives to them. I do not trust the publicly announced figures on the defense budget. Because not all military expenses are transparent. Nobody knows the accurate amount

[242] Interview with the author
[243] Stephen Lanier, "Military Trends in Turkey: Strengths&Weakness", p.5
[244] Neşe Düzel is a journalist working at *Radikal* newspaper

> of the money spend on military expenses. Military expenses cause higher public spending that is detrimental to anti-inflationary policy. [245]

An external impetus for this reaction could be underlined as Turkish integration process to the EU. TGNA has amended several reform packages for the harmonization of Turkish practice to the EU laws. The seventh package and tenth package were mainly elaborated on civil-military relations. Most of the exit guarantees[246] for military in the constitution was lifted by these packages. These reforms created more democratic sphere than before. As a result of this, most of the intellectuals criticized high military spending and civil-military relations more freely.

For example, in his column[247], Güngör Uras, journalist, reacted to spending on AWACS by equating it to the money necessary for the construction of forty factories worth one billion dollars. Other examples can be listed as follows:

> [A] columnist Prof. Dr. Ahmet İnsel wrote another article on the need for transparency in military expenses and democratic control of military budgeting. Hasan Cemal, one of the leading columnists has also joined the voices and wrote an article asking about "the military to be under civilian control". Then in 2004, the leading union KESK (Kamu Emekçileri Sendikası-The Union of Public Workers) published a report criticizing the 2004 budget by pointing out the problem of the lack of transparency in military budgeting and the lack of parliamentary control of defense budgeting in practice. The second point it made was the inverse relationship between the lower proportion of the money allocated for the education and health expenses and the higher level of military expenses.[248]

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[245] Nese Duzel, "Yine askeri harcamalar-Military Expenses Again", *Radikal,* 10 July 2000.
[246] Exit guarantees are the legal ways by which military can control politics. Ergun Özbudun, *Contemporary Turkish Political Challenges to Democratic Consolidation,* (London: Lynne Rienner, 1999)

[247] Güngör Uras, "40 Fabrika 1 Milyar$, 4 AWACS 1.5 Milyar$- 40 Factory 1 Billion$; 4 AWACS-1.5 Billion $" *Milliyet,* 30-04-2003
[248] Ayse Nilufer Narlı, *Aligning Civil-Military Relations in Turkey: Transparency Building in Defense Sector and EU Reforms,* Available online at: http://www.bmlv.gv.at/pdf_pool/publikationen/10_wg9_taf_110.pdf

Despite these reactions, the SSDF has gathered 15.7 billion US dollar since its foundation. From this revenue, 14.3 billion dollar till 2005 and 324 million dollar in 2005 was spent for the SSM projects. Besides this, 23.44 million Turkish liras were budgeted for the expenses in 2006.[249] The SSDF's revenues and costs till 2003 depicted in the figure below.

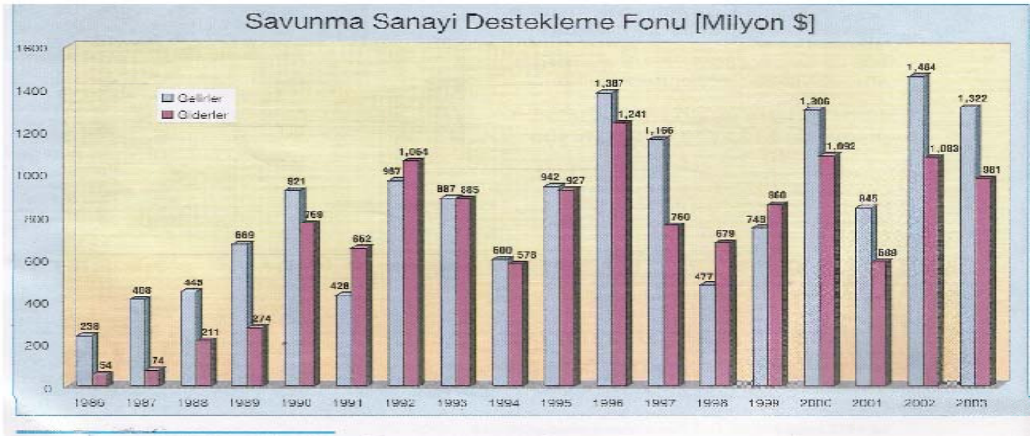

Figure 5. The SSDF in 2003[250]

4.4. SSM's New Program to Reorganize Defense Industry in Turkey: Turkish Defense Holding

Under its new undersecretary Murad Bayar, one of the projects SSM launched is the reorganization of the defense industry in Turkey. Bayar indicated that the scale of Turkish defense companies is the most important problem to deal

[249] TBMM Bütçe Tasarısı, 11 November 2005, Available online at: http://www.tbmm.gov.tr/butce/htm/pbk11112005.htm
[250] Vecdi Gönül, "Hedef: İstikrar ve Güvenlik İçin Güçlü Savunma-Target: Strong Defense for Stability and Security" *Savunma ve Havacılık*, Vol.98:4, 2005, p.20

with. This view was also backed up by the Minister of Defense, Vecdi Gönül. In their interview, the scale of Turkish defense firms should be large enough to compete in international defense sector as well as to meet the requirements of TAF.

> [O]ur defense industry, with its existing capabilities, is able to meet only 25% of the modernization requirements TAF. If we do not develop approaches somewhat different from those at we have been applying up to now in the determination of the three principal components in the field of defense industry, being requirement, procurement method and sectoral structuring, we will not be able to increase this 25%local content level.[251]

Mr. Vecdi Gönül underlined that "[t]he main problem of our defense industry is the scale. Today the products and services that our firms have produced are equal to 1 million dollars and this amount is equal to a small-scale foreign firm."[252] The AKP government made an attempt in 2006 to solve this problem through the consolidation of firms in Turkish defense industry. This program is known as the "Defense Industry Reorganization Project" or "Turkish Defense Holding". The firms in which SSM and TSKGV are shareholders will be merged according to this project. The reason for this consolidation is to create a viable infrastructure based on high technology in defense industry.

4.4.1. The Project

The first phase, the consolidation of TSKGV's and SSM's firms has been initiated. They will be administered by a single center. This firm will be a holding company. The first phase started with the consolidation of the domestic aerospace and system integration sectors. For this purpose, TAI and TUSAŞ were

[251] Murad Bayar, "Turkish Defense Industry", *NATO's Nations,* Vol.4.1, 2005, p.23
[252] Vecdi Gönül, "Hedef: İstikrar ve Güvenlik İçin Güçlü Savunma-Target: Strong Defense for Stability and Security" *Savunma ve Havacılık*, p.15

merged. On 12 January 2005, TUSAS acquired those shares of TAI that were owned by the foreign firms. The result of this collaboration is expected to create a kind of "Aerospace Center" in Turkey. The next phase in this project will be to encourage synergy in the private sector and the supplier firms.

When this project is completed, defense firms in Turkey will be largely owned by Turkish corporations. In fact, similar solutions successfully tried in the Western countries. European countries consolidated their national firms under one umbrella and called this approach as "National Championship". These national firms will protect European countries from possible US' hegemony in their defense markets. This new Turkish plan can be seen as following the European prototype.

Another question that was raised concerned the status of the MKEK. The MKEK was reshaped as part of the EU reform packages. The corporate body was abolished and it was linked to a Directorate General. However, as part of the new project, MKEK will also be integrated to the new holding. "The integration of MKEK into the National Defense Industry infrastructure will be realized in the second phase of the SSYY Project, and certain evaluation studies are being carried out."[253]

Not only TAI and TUSAŞ but also other semi-government owned companies such as Aselsan, Havelsan and Roketsan will also be brought under the roof of the new company. This new structure will be in the form of holding company and it will be directed by a professional CEO. Upon the completion of the project, according to Mr. Bayar, shares of the company will also be offered on the stock market. According to experts, if this structure is processed regularly,

[253] Murad Bayar, "SSM and Its Twentieth Anniversay" *NATO's Nations,* Vol. 4:1, 2005, p.8

than Turkey will meet the expenses of main systems in the ratio of %50. Another feature of this holding company is that its structure will not be in the form of state economic enterprise. The firms under the holding company will be able to act unilaterally during tenders. "The administration of holding which has approximately 500-600 million dollars in capital will be given to the current shareholders of the firms. However, in order to give the company a professional management system, a CEO[254], who is an expert on these issues, will work with an extended authority."[255] After the integration of system, 15% of the company shares will be sold on the stock market.

However, along with the new project, new questions have arisen. One concerns the administration of this new holding. Murad Bayar stated that "The state sector integration should be well defined. The state's intervention should be made in a systematic way. In this proposed administration, we have taken some precautions regarding state intervention."[256] One is the administration of this new holding.

Another criticism is that this company will monopolize the defense industry. Since it will be a large firm owned by state organizations, it was also believed that competition during tenders could be spoiled. Regarding this issue, it was stated that there should be no competition within the country. The competition should be global. While Europe and America have only three major defense firms, having twenty firms in Turkey is not logical. He added that private firms will have an important role in equipping the land forces. The new firm will

[254] It was decided that Ayhan Gerçeker, former Vice-President of ASELSAN, was attended as the CEO of new firm.
[255] Barkın Şık, "Savunmada Dev Şirket Modeline Geçiliyor- Large Company Model Will Be Applicable In Defense Industry", *Milliyet,* 22-06-2005
[256] Murad Bayar, "Yapacak Çok İşimiz Var-We Have Lots To Do" *Military Science and Intelligence,* Vol.7, 2005, p.41

not enter this sector. As a result of this, there will be room for private firms in the market. Moreover, SSM will also encourage these firms to collaborate among themselves. The reason is that unless they are able to attain a larger scale, private firms will not be able to compete in the international arena. Small and Medium Size Enterprises in the sector will also benefit from the new system. "In large projects, the large firms will act as the main contractor and 50% of the project will be opened to the SME's. I will guarantee this to the SMEs."[257] He gave the example of IAI and Elbit firms in Israel, stating that IAI is similar to the new Turkish Defense Holding. Elbit, a small firm, has despite this grown during the course of ten years and is now able to compete with IAI. It can similarly be said that the aim of new firm in Turkey is not to compete with to their detriment, but rather to improve the position of the entire Turkish defense industry.

[257] Interview with the author

CHAPTER V

CONCLUSION

The defense industry is the main branch of the economy in a state. It has a special status because of its linkage with national security. Despite liberalization in the world economy, states are hesitant to apply these principles to their defense industries. With the evolution of states and changes in military strategies, defense industries have also been reshaped according to the needs of the armed forces. However, one factor that has remained constant is the importance of technology to the defense sector. This factor can also be classified as a problem for a country. As a result of this, most developed countries have devoted a large amount of funding to R&D. International cooperation has been applied as a way to reduce the costs of weapon production. The types of cooperation in the defense industry literature may be listed as international collaboration, the usage of offsets and licensed production.

Another way to decrease the cost of R&D is to export. However, powerful countries use arms export as a way to gain influence over other states. The most important examples occurred during the Cold War. This situation was not

welcomed by any sovereign country. Western European countries, as a reaction to the US' influence over their defense industries, set up their own industrial complexes.

Arms procurement mechanisms in the states are also another factor for the development of a defense industry. States generally prefer to set up an independent mechanism for the performance of this duty. These agencies are composed of civilian bureaucrats who are knowledgeable on this issue. Moreover, these civilians co-act with the military in order to fulfill military's demands. The main function of these bodies is to act as a bridge between defense companies and requiring agencies. The establishment of these agencies will facilitate states' influence over the defense market in a coherent way like in France, the DGA. Their roles in defense markets and their influences are analyzed in this thesis.

The main theme in this thesis is the development of Turkish defense industry and the role of SSM. The Turkish Republic, despite being the successor of a strong empire, did not inherit a substantial defense industry. However, with the industrialization period in Anatolia, the Turkish government focused on an indigenous defense industry. For this purpose, one third of the budget was devoted to R&D process in the 1920s. Private companies were also set up during this process. As a result of the devotion of money to the R&D, Turkey could produce sophisticated systems, especially in the aircraft sector.

In spite of these improvements during the early Republican period, the Turkish defense industry entered a period of stagnation because of NATO and US aid to Turkey. The weapon systems that were acquired by this aid were more profitable than those from domestic production. As a result of this, only indigenous maintenance and continuance services have been kept in Turkey.

However, the reliance on US/NATO aid did not go on long enough. In 1964, President Lyndon Johnson prevented Turkey from landing its troops in Cyprus. After this crisis, the motto in the Turkish defense sector became "produce your aircraft yourself". Several defense companies started to function in this area, such as ASELSAN, OTOMARSAN and so on. Moreover, a military foundation for domestic defense industry in Turkey, the Armed Forces Foundation was established. As a result of these developments, the Turkish defense industry entered in a boom period.

In the 1980s, the Turkish economic structure was overhauled. Liberalization entered the Turkish market. Private companies would act in the defense market, which had been previously forbidden by Turkish law. In order to control its defense market, the Turkish government decided to set up a civil agency, the SSM, in 1985. The SSM would be able to act as its counterparts in the world. Besides domestic changes, international conjuncture also affected the development of the defense industry in Turkey. The post-Cold War environment led Turkey to restructure its defense policy. As a result of this, the modernization of the TAF became a must. Military elites emphasized that these efforts should have been met by domestic weapons production and as a result, defense companies intensified their production.

Despite these improvements, there are still some problems regarding the defense industry in Turkey. These failures may be summarized as follows; duality in the arms procurement system, the lack of investment to R&D, the lack of categorization of defense firms, competition policy during the tenders, Turkish defense companies' inability to produce software systems, structural deficiencies in defense market, the lack of independent test centers, the lack of governmental

support for exporting companies and so on. Despite some improvements in the defense market, such as the categorization of the defense market, these failures still occur in the Turkish defense market.

The SSM is also responsible for the procurement of weapon systems. In order to conclude a defense agreement, low costs for the projects is the main criteria in Turkey. Another criterion is the proposal's level of degree. This criterion is related to the proposal's investment in the local defense industry and the technical sophistication of the system. Moreover, as a procurement agency, the SSM focuses on the projects' contribution to Turkish defense industry. However, the agency in the MSB responsible for arms procurement places emphasis on the low cost of the proposal. This is also indication of duplicity during the arms procurement process.

Technology is an indispensable element of the defense industry. Technoparks are a way to intensify technological improvement in a country. Turkey realized their importance early on. Despite this, the SSM tries to configure Turkey's technological policies. For example, the procurement policies have been reshaped by putting emphasis on technology. However, there are still some problems regarding R&D in Turkey, such as a lack of funds for R&D.

Another important policy that the SSM oversees in the defense market is the offsets. During the interviews conducted for this thesis, the SSM Undersecretaries put emphasis on the utility of offsets. They emphasized that offsets are a way to balance trade for weapons production. However this concept is not imbibed by Turkish defense companies' executives.

These policies, whether successful or not, enabled Turkish defense industry to improve its capacity. After the year of 2000, there have been some

positive steps to intensify these attempts. For example, Turkish defense industry has started to produce unique weapon systems. Coordination inside the sector and some positive developments regarding civil-military relations empowered Turkish defense industry capacity. It could also export its products. However, the level of these exports is not satisfying when we considered international defense industry.

According to governmental elites, the main problem within the Turkish defense market is the scale of defense companies. The SSM initiated a new policy to overcome this deficiency. The small scale companies would be gathered under a holding company. The military is the shareholder of these small scale companies. It was foreseen that this company would be able to act in international defense market.

Besides these developments, not only the SSM but also the Turkish military has a role in the development of the defense industry. Despite being a civilian body, the SSM is under pressure from the military. For example, the undersecretaries are appointed as a result of their closeness to the army. The military also might have influence during the arms procurement process.

To conclude, the development of the defense industry is an early phenomenon in Turkey. Not only the aim of self-sufficiency in weapons production but also the Turkish geographical position creates an underlying tension for developing a domestic defense industry. Turkey has been facing several threats within its vicinity, such as Tehran's ambition to acquire WMD, political turmoil in Iraq, crises situation in the Caucasus, and so on. However, Turkish companies have not yet been able to fulfill this aim. Some policies such as establishing the SSM resemble the efforts of Turkish political elite. The SSM tries to act as a bridge between defense industrialists and government. It also

formulates mandatory policies for an indigenous defense industry. However, there should be more efforts to develop the Turkish defense market. Formulating national policies regarding defense companies, devoting funds to R&D, decreasing the level of arms procurement from outside, intensifying relationships between the requiring agency (military) and the manufacturing side (defense companies), increasing the level of arms export and co-acting with the Ministry of Foreign Affairs for these exports, and putting emphasis on the production of national software systems can be listed as major reforms needed to upgrade the Turkish defense industry.

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