AN EXCLUSIVE INTERVIEW WITH MR.AHMET TAŞKIN – GENERAL MANAGER OF MKEK

DEFENCE TURKEY

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Ascending Global Naval Market and Turkey

Ayşe Evers
Publisher & Editor in Chief

According to ASD analysis, rising global tensions, territorial expansionism, rise of non-state actor-led conflicts, and the associated displacement of population have fueled the expansion of naval deployments. As many nations face vessel obsolescence in the next few years and others have to deploy new, advanced naval assets to counter rival fleet expansionism, the market is on an upward curve. There is renewed emphasis on stealth, automation, multi-mission capability, and modular ship design by operators. Companies should be cognizant of long-lead programs initiated by navies/MoDs worldwide and also the products they prefer to be ahead of the competition.

Global naval vessels and surface combatants market is valued at US$36.4 Billion in 2017, and will grow at a CAGR of 2.97%, to a value of US$48.8 Billion by 2027. The cumulative market for global naval vessels and surface combatants is anticipated to value US$446.7 Billion over the forecast period. The demand for naval vessels and surface combatants is anticipated to be driven by high levels of expenditure by emerging economies in the Asia Pacific region, such as India and China.

$650.83 billion will be spent for the procurement of new ships. Mainly driven by surface combatant and submarine programs, the market will peak in 2021, with a valuation of $72.33 billion. Many programs—those that are already underway and those that are planned in the short term—will peak during 2021–2022, after which the market valuation will taper off. With the average age of warships being 25 years globally, more than 180 procurement programs are underway in various nations. Several high-value procurement decisions will be taken in the next 3 years and opportunities worth approximately $285.92 billion will be created.

In terms of segments, the naval vessels and surface combatants market is split into five segments: aircraft carriers, amphibious ships, corvettes, destroyers, and frigates. During the forecast period, corvettes are expected to account for the largest share of spending, accounting for 25.7% of the overall global market. Spending in this segment will be largely driven by procurement programs in the North American region, followed by investments in Asia Pacific, Europe, and the Middle East.

In recent years Turkey has thrived to push up its naval system policy. A total of 530 Projects Executed by the Undersecretariat for Defense Industries Reaches Nearly $40 Billion. 300 of these projects are bound by contracts and the remaining 230 projects are under proposal evaluation and signing stages. While the turnover of Turkish Naval industry reached 21 billion TL from 1.6 billion TL, its rate of fulfilling the requirements through domestic resources increased to 60% from 25%. The resources allocated to R&D yearly reached $1.3 billion and with this figure we became the industry that invests the most in R&D and technology among the leading sectors in Turkey.

The design activities concerning the long-awaited TF-2000 Anti-Air Warfare Frigate are scheduled to be launched soon., The contracts of the Emergency Rescue and Diver Boat were signed on October 13th and the New Type SAT and Fast Patrol Boat contracts were signed on October 6th. The activities in respect to the Turkish Type Assault Boat and Oil Carrier are underway."

Mr. Alper Köse stated that projects such as the Harbor Tug Boat, Landing Craft Air Cushion, Unique Design Submarine Conceptual Design, Search and Rescue Boat, Minesweeper Coastal, New Type LCT, 600 Class Coast Guard Boat will be brought to the agenda.

Within the scope of this policy, Turkish defense companies and Shipyards have gained momentum in Naval technology. 5 leading shipyards Anadolu, İstanbul, Sedef, Sefine and Selah merged their power under the umbrella of TAIS and it has acquired a leading position by using the best know-how and state of art technologies and aspire to be among the world leaders in all segments that demand the advanced navy solutions. STM, Aselsan, Havelsan, Meteksan and Milsoft have strengthened their presence in global markets.

Enjoy this issue… ■

MKEK Building Competitive Strength in a Changing World and Dynamic Economic Conditions

In this exclusive Defence Turkey interview, Mr. Ahmet Taşkın General Manager of MKEK discusses MKEK investments, transformation and restructuring activities that are positioning Turkey to join the league of very few countries with “Modern Explosives and Munition” production capability. MKEK’s Steel Plant will be launched at the end of 2017, fulfilling defense industry requirements through a maximum level of national industry participation

Defence Turkey: You've been in your position nearly a year as General Manager at the Mechanical and Chemical Industry Corporation (MKEK). With the new era that has begun with your assignment, which strategies will you engage and what type of a vision will be formed? Do you have a more dynamic, competitive and effective structure on your agenda that adopts a production model based on R&D and design that will elevate MKEK from its existing status?

We identify our mission as "Fulfilling the Turkish Armed Forces' (TAF) and Security Forces requests based on the defense industry in conventional areas through the delivery of competitive products manufactured via the highest local content rate possible, while providing cost-effectiveness with quality and on-time delivery. We focus on accomplishing exports in line with enhancing capacity, promoting innovation and R&D activities."

The overall vision of our sector can be identified as a focus on unique research, developing and manufacturing systems and technologies that are mindful of the protection of national interests on a global scale and those that fulfill national security requirements, creating competition and an environment of robust cooperation on a global scale, taking a leading role in the development of our country's science and technology while achieving a national defense industry with an unequivocal contribution to social welfare. To this end, the vision of our institution is to become a notable entity that manufactures technology and novel products in the areas of weapons and munitions, to become an entity that is sought after within the global market as well.

If we touch upon our 2020 strategic goals, these include the manufacturing of weapons, munitions and explosives that fall under the activity area of our institution and that are required with significance by the TAF and security forces in cooperation with the local industry, developing and diversifying our production capabilities in line with up-to-date technologies, strengthening the R&D infrastructure for the manufacturing of modern products that will prepare the TAF for future combat readiness and enable our institution to compete in international markets. Our goals also include enhancing MKEK sales through an efficient sales policy in our country as well as abroad and developing our institutional capacity.

We will continue to contribute to our National Defense Industry with our leadership role by bringing forth innovative products containing outstanding technology with our R&D activities. I would like to express that the total resources allocated to R&D has reached 50 million TL and the total budget of our ongoing R&D projects has reached 350 million TL.

In addition, I would like to state that we are under the process of gaining autonomy and restructuring in order to achieve a more active and dynamic role in the defense industry with our new products which we will accomplish with the help of our R&D and investment projects. We will do this by overcoming the obstacles that often face governmental institutions.

Defence Turkey: It seems that MKEK is on the rise especially within international markets. You have an efficient marketing network that spans quite a wide region. Within this context, your export figures have grown 40% in 2015 compared to the previous year. How did your growth figures develop in 2016? Moreover, what type of a policy will you implement to achieve sustainable growth in the next five-year period?

As MKEK, we are currently active in various regions and markets on a global scale. Our goal is to cater to the defense industry requirements of friendly and allied nations and to increase our market share by increasing our efficiency in these regions. In this context, Middle East, South East Asia, Africa as well as US civil markets stand out as our primary markets.

Our exports increased by 25% in 2016 compared to the previous year. Defense industry product sales to countries in the Middle East contributed the most toward the growth in our export figures. As you know, considering the warm relationships established between the Middle East countries and Turkey, our country's position as a leading industry among the Middle East countries, and with its strategic location in the region, we are poised to lead many more and significantly greater projects in the near future.

In addition, the effective promotion and marketing activities conducted by our institution in numerous locations around the world in line with the demands and requirements of our customers constitute an essential contribution to our country in increasing our exports. In light of these developments we came in third as companies that exports Defense and Aerospace industry related products. In addition to the direct export of end products within the next five years, we envision certain developments comprising of technology transfer, training, turn-key facility establishment and the export of raw materials and semi-finished goods.

Defence Turkey: Within the scope of the mass production of the MPT-76 Turkish Modern Infantry Rifle, you have received an order of 20,000 rifles as MKEK in the previous period and you have delivered a lot the Turkish Armed Forces in January 2017 as part of the mass production program. How many of the lot of MPT-76 do you aim to deliver within this year? Besides, when will the delivery of these 20,000 rifles be completed?

Within the framework of the Modern Infantry Rifle Project Serial Production Period (Period – 2), the Undersecretariat for Defense Industries has placed an order total 20,000 MPT-76s to MKEK, the production of the first lot of 500 MPT-76s were delivered to the Turkish Armed Forces on 11th January 2017. The deliveries continue in accordance with the planned schedule and we currently have attained 3,000 rifles. By the end of this year, 6,500 deliveries will be completed, and the rest of the order will be delivered within the first half of 2018.

MPT-55 Infantry Rifle

Defence Turkey: As part of the potential new contracts, which will be signed in the upcoming period in line with the TAF's requirements, what type of a road map do you foresee for the workbench investments and toward increasing the utilization of the sub-industry's infrastructure to increase the capacity of mass production line usage?

Regarding the fulfillment of the weapons requirements of the Turkish Armed Forces and Security Forces, we will initiate the mass production of our unique products such as the MPT-76 in particular, the MPT-55, "Bora" Sniper Rifle and machine guns which were designed by MKEK. Our investments on workbenches with new technology that will speed up our production continue in order to fulfil the high demand volume that we receive. In this way, our production capacity will expand as a result of the increased technological level of our production infrastructure.

Moreover, regarding our product group, we aim to increase the utilization of sub-contractors that currently remain in the level of 30% up to a rate of 70% within two years. We rely on the fact that the Weapon Specialized Organized Industrial Zone will make a serious contribution in reaching this goal. It is being established in Kırıkkale and is the founding partner of our institution.

As a result of all these efforts, our light weapon production capacity will almost be tripled within two years.

Defence Turkey: You have recently developed the MPT-55 version of the MPT-76 Modern Infantry Rifle and it attracted attention with the onset of its usage by security guards of the Ministers. Could you please inform us on this development?

We completed the development activities of the MPT-55 and launched its mass production this year; this rifle is designed as an operation weapon with an effective range of 400 meters and either short or long gun barrels used for 5.56 x 45 mm NATO calibers. As you know, MPT-76 was developed by MKEK (main contractor) for the Undersecretariat for Defense Industries (SSM) and all rights of the rifle belong to SSM. The MPT-55 was developed with the resources of MKEK and all rights of the MPT-55 belong to our institution. Upon SSM's assignment, the MPT-76 is being manufactured by the remaining weapon manufacturers of our countries as well whereas the MPT-55 will only be manufactured by MKEK. In order to fulfill the additional requirements of our Armed Forces and Security Forces, we determined the product range of the next two years as a result of the negotiations held with the Undersecretariat for Defense Industries. We aim to organize two out of three of our capacity for the MPT-55 production to this end. Due to the enormous requests coming from our domestic market, for the time being we will manufacture the MPT-76 and the MPT-55 rifles only for our domestic requests. Of note, our MPT-55 weapons are being used by the security guards of our Presidency and this is a source of pride for us as well.

Defence Turkey: You have recently launched the shooting Shooting Range and Test Center. Which type of innovative capabilities will Turkey acquire with this test center? Could you please share your assessments?

The Shooting Range and Test Center was established under the Armory Directorate of MKEK was inaugurated on 11th January 2017. Thanks to this center, we will be able to conduct the test and verification activities of our national projects that are launched with the Modern Infantry Rifle Program and bear great importance for our institution and our country through local facilities and capabilities. Moreover, we will conduct these test and verification activities within global standards at the center. This will enable the execution of the test and verification activities of both our institution and the local weapons manufacturers in a swift and reliable fashion.

At this stage, though they have different usage purposes, the numerous weapons newly developed in various calibers must be tested according to the international test standards for performance measurement under the most stringent conditions in order to render them more superior over rival weapons.

The product range of our institution is constantly expanding, building upon the current range consisting of machine guns, infantry rifles, shotguns, sniper rifles and grenade launchers in the product range of our institution; through the unique designed projects such as the 9x19mm machine guns, 5,56x45mm infantry rifles and their different versions (carbine and squad team type sniper rifles), 7.62x51mm infantry rifles and their various versions (carbine and squad team type sniper rifles), shotguns and machine guns, 40mm grenade launcher and 12,7x99mm Sniper rifles etc.

This modern Shooting Range and Test Center with its technological infrastructure makes us very proud. It is designed so that tests of the aforementioned new products are seamlessly carried out according to the international test standards and enabling their subsequent delivery to the Turkish Armed Forces.

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Defence Turkey: You are conducting the production of the 120mm 55-caliber smoothbore main gun as the MKEK as part of the Altay Main Battle Tank program. How are activities proceeding towards the period of mass production? Could you briefly summarize your investments to this end and the development and production activities accomplished so far?

As you know, during the development stage of the "Altay" Main Battle Tank, the Main Gun System was successfully manufactured by MKEK. SSM have indicated in the specifications that the main gun system would be manufactured by our institution during the mass production phase of the MBT program. Our institution that is currently manufacturing the 155mm 52caliber weapon system of "Fırtına" Self-Propelled Howitzers in greater sizes and operating under higher pressures, will successfully produce the main gun systems within the scope of "Altay" MBT program.

Within the scope of the protocol that was signed between the Undersecretariat for Defense Industries and MKEK, various CNC workbenches and Heat Treatment Equipments were procured for the MKEK Heavy Weapon and Steel Factory at Kırıkkale and the existing infrastructure was reinforced. As part of the same protocol, the procurement activities are ongoing for the Open Die Forging Press with its high capacity to be procured for our institution by the SSM. As soon as this investment is accomplished, the procurement of the infrastructural investments stipulated by the protocol will be completed as well.

At the new Steel Plant that will be launched at the end of 2017, also the raw materials of the Main Gun System will be manufactured through our own facilities.

With the inauguration of the Open Die Forging Press and the new Steel Factory, all components of the main gun will be manufactured entirely through local resources. Moreover, we will submit our offers to our main contractor, the bidding companies, for the production of the components of the platform main guns, final drive systems, running gear parts and tracks of the "Altay" tank currently under tender process.

Defence Turkey: Dear Mr. Taşkın, as part of the program to enhance the shooting range of the munition fired from 120mm 55 caliber artillery, what activities are being carried out at this time? On the other hand, will the Altay MBT have the capability to fire munition in various categories such as laser guided missiles? Could you please summarize the current status?

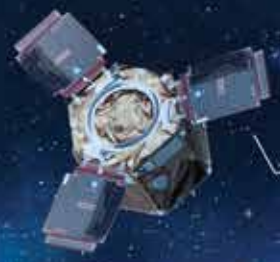
Nowadays the operations occur mostly in urbanized terrains. Therefore, the product concepts developed accordingly are transformed into those optimum for the operations in urbanized terrains. The conventional munition designed to be engaged from Tank to Tank is inefficient at or behind the walls of buildings. As a result, instead of enhancing the shooting range of the munition fired from 120mm main gun, the priority was attached to the development of a munition with a reinforced nose portion that aims to destroy the hidden terrorists in the buildings, such a munition capable of penetrating the walls and to destroy, it's an impact/delay fuse model.

In respect to developing the Laser Guided Tank Gun, our concept determination activities are carried out in company with the Turkish Armed Forces as well. Moreover, most of the indigenization activities regarding the components of the 120mm armor piercing munition models in cooperation with the Undersecretariat for Defense Industries have been almost completed.

In this way, our 120mm main gun integrated tanks will seize the opportunity to utilize the aforementioned munition models in that various tasks to which they are assigned.

Defence Turkey: T-155 Self - Propelled "Fırtına" Howitzers within the TAF inventory are successfully conducting their missions. To this end, will there be new plans in the upcoming period for more improved and reinforced New Fırtına Howitzers with new capabilities to be used in the operational field?

THE SKIES AND BEYOND



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"Fırtına" Howitzers, developed by Military Factories and Aselsan and mass produced by MKEK, were used very effectively and successfully throughout the Euphrates Shield operation in Syria. Our activities for enhancing the capabilities of "Fırtına" Howitzers are ongoing in coordination with the General Directorate of Military Factories and Aselsan. Within this scope, various activities such as developing new munition types, increasing their ranges and adding guidance to the munition are being conducted under the auspices of MKEK. Besides, with the new technology plating methods that we will superimpose on the barrel, we aim to prolong the accuracy life as well.

As you know, in order to export such a top-caliber "Fırtına" Howitzer to friendly countries, the merchandising rights belong to MKEK. The only obstacle regarding the overseas sale of the power group is subject to the export license. To overcome this obstacle, we have been conducting two different activities with the local production alternative power group adaptation and the "Yavuz" Howitzer project displayed at this year's IDEF, in which the "Fırtına" Howitzer is integrated over a wheeled vehicle.

Our "Yavuz" Howitzer attracted the interest that we expected in the international markets and we are already conducting sales negotiations with certain countries.

Defence Turkey: Upon the completion of your new Steel Plant investment, Turkey will gain a crucial capability. In which areas will Turkey's foreign dependency diminish with the activation of this investment? What would you like to say about the added value to be brought about by this investment to our country's economy?

With this facility which will be able to produce 120,000 tons of liquid steel per year, MKEK will be capable of executing the production of high quality steel that bears strategic importance for the production of the weapons and heavy weapon systems requested by the Turkish Armed Forces. The annual requests for high quality steel within our country, in the defense and aerospace industries primarily, is approximately 350 thousand tons. Since there still isn't a sufficient amount of high quality steel to fulfil such demands in our country, a significant portion of the aforesaid amount is being imported. With the steel plant currently being established at Kırıkkale with an investment of nearly 300 million TL, one-third of the aforementioned request could be manufactured through our country's resources.

Additionally, MKEK, which is currently a monopoly in respect to the open die forging manufacturing in large scales and tonnages, will terminate the external dependency thanks to existing open die forging capabilities considering the forged steel required by the market and a considerable portion of the forged steel could be procured by MKEK. Upon the acquisition of this capability, a crucial added value will be brought to the Turkish defense industry and economy.

The facility is expected to be completed and become operational in the upcoming period.

Defence Turkey: You signed a Memorandum of Understanding with Rheinmetall Company at IDEF in 2015, especially for conducting joint studies in the area of R&D. How are the activities that were launched for the establishment of a joint R&D company proceeding? On the other hand, as part of your cooperation, which products are you concentrating on for development?

The activities launched for the establishment of a joint venture located in Turkey based on R&D and engineering by Rheinmetall Company and MKEK reached their final stage. The complete documentation required for the establishment of the company is expected to be submitted to the relevant authorities within the first half of 2018. Following the establishment of the aforesaid company, the aim is the execution of production through MKEK's infrastructure without any additional investments and swiftly launching 100% national products to markets at home and abroad.

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Defence Turkey: At the Eurosatory 2016 Fair, MKEK signed a Memorandum of Understanding for the development of new generation pyrotechnic products launched with the CS chemical used in the lachrymatory products between one of Brazil's well-known companies Condor Tecnologías Nao-Letais (CONDOR). What is the current status of this cooperation?

Our activities are proceeding in cooperation with the CONDOR Company and focus on manufacturing high quality products preferred both in domestic and international markets. As you also mentioned, an MoU was signed between MKEK and CONDOR at the Eurosatory International Defense and Security Fair held in France on 13- 17 June 2016.

CONDOR Company and products containing CS chemical are preferred by numerous institutions in different markets around the world, and primarily by the National Police and Gendarmerie Forces of our country. Within this context, we are about to finish the technical assessment of the products and feasibility studies in the present stage. As MKEK, we aim to cooperate with the CONDOR Company in this area and offer high quality products to the market.

Defence Turkey: We know that you have been attaching priority to crucial investments such as Air Transportable Light Towed Howitzer, New Generation Mask and Smart Munition that will attract considerable attention in our country and abroad. Within this context, could you please inform us on the recent status of the R&D projects regarding the related products?

In line with the existing novelties in the world and as per the request of the Turkish Armed Forces, a need for developing a new generation gas mask against the CBRN (Chemical, Biological, Radiological and Nuclear) threats has emerged. To this end, activities for the development of the aforementioned new generation gas mask were launched in the previous period through utilizing MKEK's own resources. A part of the regular size production molds of the gas


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105mm Air Transportable Light Towed Howitzer (BORAN)

mask has been completed and the prototype production has been accomplished as part of the project. 40 gas masks were delivered in order to be tested during the Toxic Trip-16 military drill held in Antalya and we received positive feedback regarding the product. New Generation CBRN Panoramic Gas Mask was registered with the brand MKEK "Nefes".

We launched the 105mm Air Transportable Light Towed Howitzer (BORAN) project in the recent period in order to fulfil the operational requests of the Commando units who will execute Airborne Operations. The conceptual, preliminary design and critical design stages were accomplished. Prototype production and firing tests have been accomplished and qualification activities are underway.

Our existing project activities towards the development of the munition features and especially the development of smart munition continue expeditiously. One of the most crucial examples of this is our R&D Project on the Penetrating Bomb which has a high piercing efficiency in reinforced concrete targets, available for firing from all aircrafts capable of carrying General Purpose Bombs and has the potential for utilization with all guidance kits that could be installed at General Purpose Bomb. The project was accomplished successfully and the mass production phase was initiated.

In the "Korkut" Self-Propelled Air Defense Gun System developed by MKEK, Aselsan and TÜBİTAK-Sage partnership, a 35mm Airburst Munition is used which basically creates a cloud of particles which have high kinetic energy and penetration capability on the path of the threat and be able to hit targets with accuracy that are very difficult to hit with conventional ammunitions. The product and production line qualification of the munition that is effective against targets such as fighter jets, helicopters, unmanned air vehicles, missiles etc. was completed and the contract negotiations towards serial production were launched. With the help of the experiences gained within the project, the new generation munition alternatives are being reviewed. Within this scope, we initially started the development activities of the 40mm Airbust Ammunition.

The studies conducted on the "Insensitive Munition" that fulfils the performance and operational requirements in the best way when required, yet minimizing the potential danger and accidental firings that the weapon-logistical systems and the staff may face are being carried out in the world at a rapid pace each passing day. MKEK, as the main manufacturer of the munition requested by the Turkish Armed Forces, launched the required

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New Generation CBRN Panoramic Gas Mask

activities regarding the "Insensitive Munition" that nowadays started to replace the conventional munition and completed the installation of "Insensitive Explosive Manufacturing and Filling Facility" through its own resources. With such facility, the mass production capability regarding the explosives with castable plastics in three types has now been acquired.

Additionally, to fulfill the requirements of the Turkish Armed Forces and covering the requirements of customers at home and abroad in line with the future projections and market analyses, we determined a road map toward forming our own insensitive munition product group. Moreover, we aim to conduct the production of energetic material of different features in the very near future.

When the existing status of the market and urgent requirements are evaluated, and by envisaging that we need to immediately attain a place in the market with a new mobile weapon system, activities regarding the project on the development of a 155mm weapon system mounted over a 6x6 vehicle with high maneuver capability was inaugurated through MKEK's own resources and in line with the requirements of the Turkish Armed Forces. Besides, at IDEF 2017 we have unveiled the "Yavuz" Howitzer System that was entirely developed in an armored version, available for carrying 18 munitions and propulsion system, capable of deployment in maximum 3 minutes and displace after six firings, able to fire a range of 40 kilometers, capable of reaching 80km/h, increasing the operational capabilities of the Turkish Armed Forces.

Defence Turkey: In which areas do you plan to invest regarding R&D to increase your capacity in the upcoming period?

The security environment surrounding our country requires holding powerful and deterrent armed forces and the development of a national defense industry capable of supporting such deterrent policies in all areas. Fulfilling the defense industry requirements through a maximum level of national industry stands out as an essential goal. Within this context, regarding the new generation energetic material that started to replace the conventional explosives and munition systems nowadays, we have to keep up with the developments in the world. As MKEK, we took crucial steps towards entering the league of a few countries with "Modern Explosives and Munition" production capability with our recent investments. The qualification processes of such explosives and munition were successfully completed as a result of the accomplished R&D studies and they were approved for mass production. Then again, I would like to underline that we will continuously conduct the production of new generation energetic material and the activities for gaining products with high technology for our country.

Defence Turkey: Could you please inform us on the current status of your other activities and programs conducted in our country and abroad?

We conduct our domestic activities in coordination with the related units for fulfilling the weapon and munition requirements of mostly the TAF, Ministry of Interior and other security forces in a timely and effective fashion. With the launch of the procurement contracts that span years related with the projects with completed R&D studies and of which the mass production process started, the rate of capacity usage will increase as well.

Speaking of the remaining export and business development activities conducted by our institution; in order to benefit from the vast experience of our institution in the defense industry area, we determined a goal for making a move in the marketing of these experiences in the establishment of production facilities specialized in heavy weapons, rockets, light weapon munition and heavy weapon munition, know-how, technology transfer and training and consultancy areas.

In addition to our longstanding relationships in our target markets in the world, our commercial relations increasingly continue. The products of our institution are being promoted aggressively in the new target markets.

Our institution plays an influential role in recent years, particularly in countries such as Saudi Arabia, United Arab Emirates and Qatar in the Middle East region. Our cooperation projects in turn-key facility establishment, technical assistance and training along with the finished products continue. Philippines being in the first place, Vietnam, Malaysia, Indonesia and Thailand are our target markets in the Pacific region and we attach great importance to the promotion and marketing activities in this region.

We are conducting our activities without interruption in the US market where a severe competitive environment is dominant. In addition to the cartridges manufactured by MKEK, we conduct the sales of 10 different shotguns designed and manufactured by MKEK in line with the requirements and demands of the US civil market.

We are providing consultancy services in the production of light weapons and spare parts, light weapon munition and light weapon munition production areas in Africa which is another target market of our institution. Moreover, we accomplish the sales of our products such as gunpowder and cartridges to many African countries.

Defence Turkey: Lastly, would you like to share any messages with our readers?

As in the past, MKEK will steadfastly continue to manufacture the products required for defending our country for maintaining the continuity of our nation by following the technological developments in the world in the future. Bearing strategic importance, MKEK will have to go through a transformation and a restructuring process in accordance with the changing world and economic conditions for the full accomplishment of the aforementioned tasks. In order to overcome all types of issues regarding the legal regulations, inefficiency and human resources caused by our status as a governmental institution, we have to manage this change well and make good use of our resources.

We would like to thank Defence Turkey magazine for giving us the opportunity to talk about our projects and our institution

Turkish Fighter in TuRAF Inventory Beyond 2030s

In order to meet Turkish Air Force (TurAF) requirements beyond the 2030s, a unique design and development program has been launched by the Turkish Government which aims to replace the aging F-16 fleet of the TurAF.

Within the scope of the Turkish Fighter Program, Turkey will become one of the few countries possessing the necessary technologies, infrastructure and production capabilities, once the engineering activities for the critical technologies are accomplished, which are needed for a 5th generation (or beyond) jet fighter aircraft.

The prime contract between the Undersecretariat for Defense Industries (SSM) of Ministry of Turkish National Defense and Turkish Aerospace Industries Inc. (TAI) was signed on the 5th of August 2016.

TAI and BAE Systems signed a Letter of Agreement during IDEF 2017 (in line with Heads of Agreement dated the 28th of January, 2017) to record the current agreement reached between the Parties and TAI initiated the remaining review/approval process to be performed by SSM.

The prime contract covers the initial four (4) years which will end up with completion of the preliminary design phase. Within this period beyond the design and development of the Turkish Fighter, engineering capabilities, technology development activities (for key sensors like radar, electronic warfare...etc.), test infrastructure establishment and certification processes will be performed and extensive capabilities for a new generation jet fighter design, development and production will be gained by the Turkish industry. Following the completion of the PDR stage, the additional contract extending 8 years is expected to be signed with BAE Systems and TAI

TAI President & CEO Temel Kotil,Ph.D assessed on the current status of the program during the day of the public visit to TAI facilities on 27 September 2017. Kotil, Ph.D “We aim to complete the architectural studies of the 5th generation aircraft within 3 years. We aim to accomplish the maiden flight in 2023 within the framework of our ambitious vision of 2023 year and deliver it to the Turkish Air Forces in 2029. In 2031, we plan to be fully operational by overcoming the deficiencies of the aircraft of the aircraft.” Temel Kotil said that the government has allocated $1.3 billion only for the engineering studies of the program and the intensive activities to increase the number of engineers are continuing.

The Turkish Fighter will be a multi-role aircraft; it will be designed mainly for an air-to-air role with a consideration for air-to-surface roles as well. Upon engineering analysis, preliminary calculations, based on received information of suppliers of candidate engines, the decision was made for the Turkish Fighter to have a twin-engine configuration.

With the selection of twin-engine design, in the increasingly competitive environment among the companies, the related offers of bidders are to be clarified as a part of program. Kale Group and Rolls-Royce had announced to shake hands to develop the unique engine of the Turkish Fighter Program with Joint Venture company (TAEC) that is to be established with the partnership between Kale Group with 51% of the shares and Rolls-Royce with 49% shares the day just before IDEF 2017. Within the collaboration, the parties aim to achieve the jet engine design capabilities in the first stage.

The Director of the Strategy & Future Program, Rolls Royce Mr.Alex Zino pointed out the broad education & research capabilities of Rolls-Royce and shared the Rolls-Royce approach and what they offer to Turkey via our magazine throughout the IDEF exhibition.

“The first step is to get design capability into Turkey through the joint venture, getting 350 engineers trained working on the TF-X program raising that unique capability, using those to then to work alongside universities to do research. I believe there’s already research going on in Turkey on gas turbines, we need

Güçlü Gelecek için
Güçlü Ortaklık

Kale

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to better understand that, what's in the ecosystem, and then in time collaborate with these parties. The AMTC will be a key part of this and enable research across various areas of manufacturing, clearly we need to work to win the TF-X competition and have the joint venture secure the contract first, then we can start building from there. It's a unique capability that we recognize is required, and we will work together with Turkey to create the ecosystem that delivers this. We have experience of doing this in various countries, including for example Singapore, and we also support a global network of 31 University Technology Centers, which position Rolls-Royce engineers are at the forefront of scientific research around the world" he said.

With the line of this statement, it seems that Kale Aero and Rolls-Royce are planning to strengthen their position with their long-term far-reaching industrialization model as well as the unique designed engine joint development program for the Turkish Fighter.

On the other hand, the other bidder, the Consortium of Eurojet Turbo GmBH simultaneously made an offer for a portion of the program to related parties. Eurojet CEO Mr.Clemens Linden gave information about their approach and presented it as well via our magazine in the beginning of May.

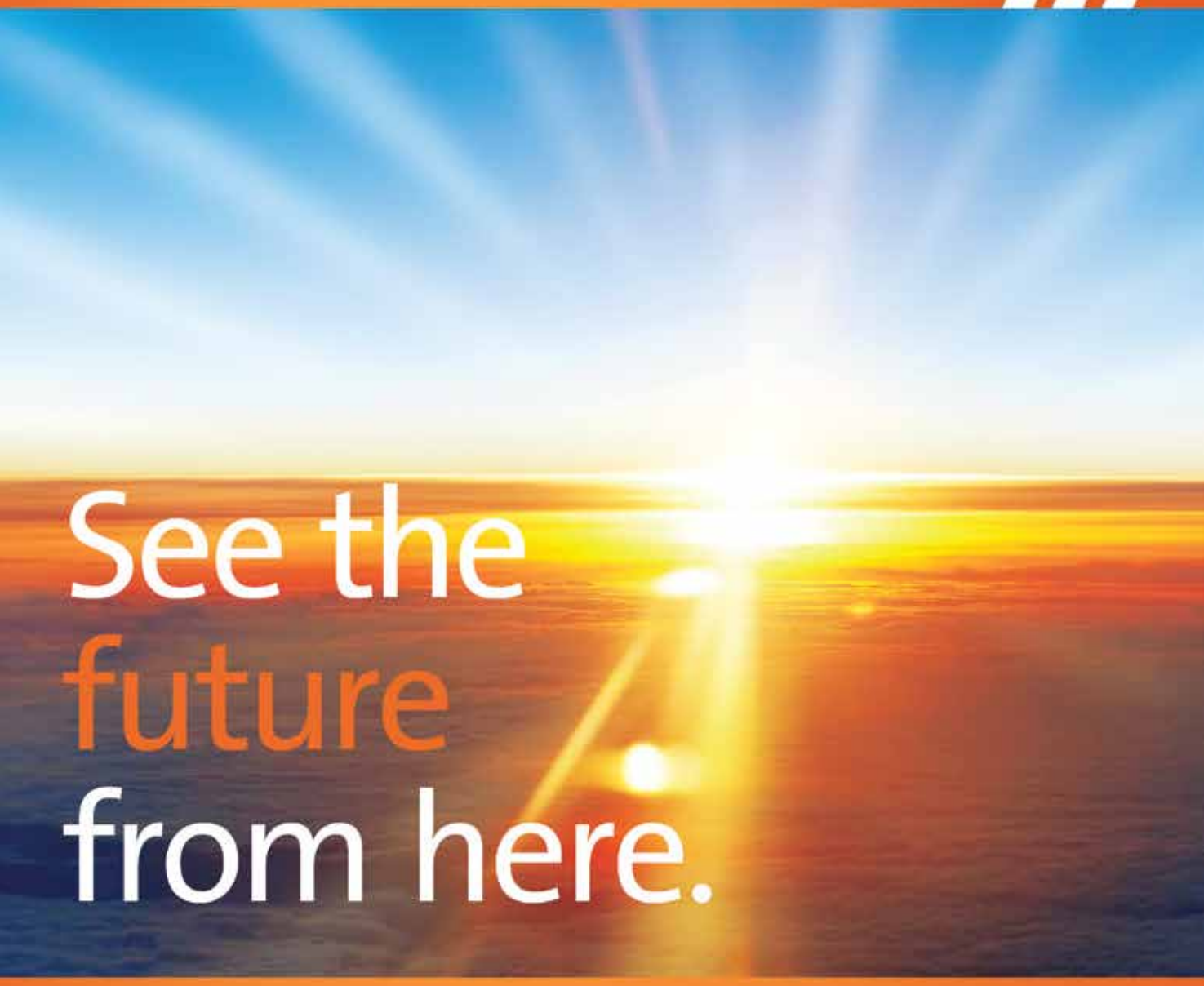
"We have already made various offers in which, we have offered variants from 3% thrust growth up to 30% – we have really come up with a variety of offers which we have grouped into 2 packages. One package is from an engine inlet diameter point of view where you could still achieve a thrust growth of up to 25% and this engine can be retrofitted in a Typhoon. Which of course gives a business case and you could achieve a higher number of production engines, i.e. it's another perspective. If you were to develop and enhance this engine and then only apply this engine in the Turkish Fighter Program, the budget would be really under pressure, but if you were able to sell this engine to Typhoon users, and we have 8 Typhoon users, as a retrofit option then there's a payback on the development costs. That's the reason why we have grouped our options into Package A retrofittable in the Typhoon and Package B 30% thrust growth if the optimization workshop ends up with a 30% thrust requirement. It means we are trying to give as many options as possible to TAI who in the end will make the aircraft," he said.

With the explanations form the senior officials of both companies in May, and the proposals on the table, created an expectation that the final decision on the engine selection was one step closer. However, it was noted that following the silent summer, according to the defense sources, the proposals on the table would be invalid, that there are significant changes in the requirements, and that a new tender is planned to be realized by the end of this year. We will see in the coming days which companies will submit their bids for the tender that is scheduled to be realized before the end of this year. The engine thrust was expected to be 2X23.000lb previously, while the new engine thrust is expected to be 2X25.000lb.

The Turkish Fighter is expected to be comprised of the following main requirements; Multi-Role, Extended Combat Radius, Low Observable, Precise Targeting Capability, Internal A/A Missiles and SDBs Carriage, External Weapon Carriage, Interoperability with AEWs-UCAVs, AARs, Advanced Avionics for sensor fusion, High Maneuverability, Independently Operations Capability.

The Turkish Fighter is anticipated to be kept operational in the 2070s and will be interoperable with other critical assets such as F- 35As. The Turkish Fighter is scheduled to replace the F-16 aircrafts that are planned to be gradually displaced from the Turkish Air Forces inventory in the 2030s.

Basic Configurations	
Engine Thrust Class	>2 x 20,000 lb.
Service Ceiling	>55,000 ft.
Max Speed	2 M
Max Range	> 600 NM
MTOW	> 60,000 lb.
Length	19 m (60 ft.)
Wing Span	12 m (39 ft.)
Wing Area	~60 m^2 (670 ft^2)



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8th Naval System Seminar in Ankara Highlights $40 Billion in SSM Projects and Turkey's Prowess in Global Military Vessel Market

The 8th Naval Systems Seminar was held on 16-17 October 2017 at the METU Cultural and Conventional Center in Ankara with the support of AFCEA, ODTÜ-BİLTİR, TSS News Group, Undersecretariat for Defense Industries and Naval Forces Command.

Commander of the Naval Forces Vice Admiral Adnan Özbal and Undersecretary for Defense Industries Prof. İsmail Demir remained at the first day of the seminar, in addition to many senior military and defense executives, domestic and foreign industry representatives and company executives who gathered at the center. 1,200 individuals were registered for the seminar as participants and compared to last year's seminar there was an increase in high-level participation. Technical presentations from various levels of the Undersecretariat for Defense Industries, Naval Forces Command as well as 48 technical presentations in total were accomplished in parallel sessions.

The opening remarks started with a short speech from the organizer of the seminar Ret. Certified Engineer Senior Captain A. Zafer Betoner. Betoner noted that the seminar became a regional brand with its unique structure and added that they are taking firm steps towards becoming a worldwide brand. Betoner closed his speech by thanking everyone who had contributed to the seminar.

A total of 530 Projects Executed by the Undersecretariat for Defense Industries Reaches Nearly $40 Billion

In his opening speech, Head of the Naval Platforms Department at the Undersecretariat for Defense Industries Mr. Alper Köse delivered a presentation covering the current status of the Naval Platform Projects and their strategic targets.

Pointing out that as of today they are executing 530 projects as the Undersecretariat for Defense Industries and that the total amount of these projects reached approximately $40 billion, Mr. Köse continued: "300 of these projects are bound by contracts and the remaining 230 projects are under proposal evaluation and signing stages. We used to have 66 projects in 2002, yet today this figure reached 530 and increased to $40 billion from $8.25 billion. While the turnover of our industry reached 21 billion TL from 1.6 billion TL, our rate of fulfilling the requirements through domestic resources increased to 60% from 25%. We provide employment opportunities to 35,000 people in our industry. The resources allocated to R&D yearly reached $1.3 billion and with this figure we became the industry that invests the most in R&D and technology among the leading sectors in Turkey. As our defense industry has reached manufacturing strength that exceeds $5.9 billion with the domestic and foreign sales in 2016, our exports reached $1.9 billion."

Mr. Alper Köse - Head of Naval Platforms Department at SSM

SSM Naval Platforms Department Head Mr. Köse: "Naval Platforms Department - Volume of 28 Projects Reaches $12 billion"

Stating that as the Naval Platforms Department of the Undersecretariat for Defense Industries, they are currently executing 28 projects bounded by contracts, Mr. Köse continued: "We have signed the contracts of the 3 projects out of these 28 projects quite recently, on 6-13 October. The approximate amount

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of these projects conducted under the auspices of our Department exceeded $12 billion. While we are accomplishing the acceptance of some of the platforms of these projects, the construction and outfitting activities of some are underway and we are newly launching some of them. Expressing that there are projects with contracts that were signed as part of the Amphibious Project Group consisted of Landing Ship Tank (LST), Logistic Support Ship, Landing Helicopter Dock (LHD) and Landing Craft Tank (LCT), Mr. Köse added that the preparations as part of the floating dock program were completed and are ready to be presented to the Defense Industry Executive Committee. Mr. Köse also shared that crucial developments emerged regarding the Logistic Support Ship Projects and added, "The Seismic Research Vessel" built for the Mineral Research and Exploration Institute (MTA), the MTA "Oruç Reis" and MOSHIP-Submarine Rescue Mother Ship TCG "Alemdar" ships were delivered to the related purchasing authorities. Currently, only the test activities of the Rescue and Towing TCG "Akın" ship continue. We planned to deliver it in October, but we faced a slight delay, so we expect to deliver it within November."

Mentioning that the proposal evaluation process of the Research Ship was also completed, Mr. Köse added that the activities concerning the Fleet Replenishment and Support Vessel will also be completed within November, and that the proposal evaluation process considering the Multiple Purpose Open Seas Trailer Project was launched under the auspices of the Undersecretariat for Defense Industries.

SSM Naval Platforms Department Head Mr. Alper Köse: "We will present the MILGEM-İ Class Frigate Procurement Project to the Defense Industry Executive Committee depending on the developments in the Main Propulsion System Procurement"

Within the scope of the Battleship Projects, proposal evaluation of MILGEM-I class, procurement of the main propulsion system, vertical launching system and Preveze "Barbaros" class semi-modernization projects constitute most of our workload. As far as we know, the renewal and modernization project of our Preveze "Barbaros" class vessels were presented to our esteemed Prime Minister. As part of the semi-modernization of these vessels, we will negotiate with STM, Havelsan and Aselsan. By coordinating these negotiations with the Naval Forces Command, we wish to launch these modernization and retrofit activities. We completed the tender related with the vessel regarding the MILGEM-I class frigates, and depending on the developments considering the main propulsion system, we will present both issues to the executive committee."

Turkish Naval Forces to Change the Balance in the Region with MILGEM-I Class Frigates

MILGEM-I Class Frigate will be equipped with 16-cell MK-41 Vertical Launching System,64 ESSM Missile, Sixteen Harpoon Block II Anti-Ship Missiles or unique designed "Atmaca" Anti-Ship Missile. In addition, the network-enabled GENESIS ADVENT combat management system is planned to be integrated into the MILGEM-I Class Frigate. The envisaged additional three ships to be constructed by the private sector shipyards are scheduled to be inaugurated respectively in 2022, 2023 and 2024.

Design Phase Starts with TF-2000 Project

Following the extraordinary contribution to be acquired by the MILGEM-I Class Frigates to the Naval Forces Command, the design activities concerning the long-awaited TF-2000 Anti-Air Warfare Frigate are scheduled to be launched soon. During his presentation as part of the seminar, SSM Naval Platforms Department Head Mr. Alper Köse said: "We will soon launch the tender for the design of the TF-2000, currently we are completing our preparations." Mr. Köse also shared the activities accomplished as part of the other Battleship Projects with the participants. "Within the scope of the Boats group; New Type Patrol

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Boat, Fast Patrol Boat Contracts have already signed. The Contracts of the Emergency Rescue and Diver Boat were signed on 13th October and the New Type SAT and Fast Patrol Boat contracts were signed on October 6th. Our activities in respect to the Turkish Type Assault Boat and Oil Carrier are underway."

Mr. Alper Köse stated that projects such as the Harbor Tug Boat, Landing Craft Air Cushion, Unique Design Submarine Conceptual Design, Search and Rescue Boat, Minesweeper Coastal, New Type LCT, 600 Class Coast Guard Boat will be brought to the agenda.

Global Market for Military Vessels Reaches $838 billion

SSM Naval Platforms Department Head Mr. Alper Köse shared valuable information with participants about the current status of world's Military Vessel industry and about the future path for the Undersecretariat for Defense Industries. Mr. Köse: "We presume that the worldwide military vessel market size will attain $838 billion by the year 2032. Patrol Boats make up the largest share in this figure and they are followed by Amphibious Vessels and Submarine Platforms. There is a crucial market in the Military Vessel Industry of the world and we, as Turkey, wish to reinforce our position in this market."

Underlining that one or two companies stand out in each country when global ship industry establishments are analyzed, Mr. Köse added, "Many of the shipyards in our country currently constitute the backbone of the sector with various competencies. We believe that there is also a need for a joint synergy and cooperation in our country. We support our companies in order to increase our exports. We prefer our companies to unite towards becoming a worldwide brand and we also expect our shipyards to achieve the required infrastructure in respect to logistic support. Amongst our primary objectives is having companies that are open to international cooperation, that have a highly qualified workforce, that adopt a differentiation system putting the design and engineering capabilities to the forefront, and that manufacture critical systems, sub systems and equipment."

Which Technologies will Stand out in the Operation Fields of the Future?

Mr. Köse noted that by taking the eight different reports of the Naval Forces Command as a reference, they projected that Wide Area Reconnaissance Surveillance, Sensor Networks, Laser Weapons, Electromagnetic Defense Systems, Unmanned Systems, New Generation Sonar System Suites, Cyber Defense and Network Enabled Systems will stand out in the operation environment of the future and continued, "The projections of the Naval Forces are fully compatible with the strategies of NATO. According to NATO's Future Alliance report, Advanced Fire Power, Advanced Electromagnetic Protection Systems, New Generation Network Enabled Command Control, Advanced Decision Support and Information Systems, Unmanned Systems operating in flocks will define the operational environment of the future."

Stating that Turkey had deficiencies in the Main Propulsion and Drive Systems of Naval Platform Systems and noting that there is a foreign dependency in this area, Mr. Köse said, "We wish to overcome this deficiency as soon as possible. We own capabilities in combat management systems but as a whole, our capabilities do not constitute integrity. We must form systems that will contribute to the industry through gathering our institutions such as Havelsan, Aselsan, MilSOFT and TÜBİTAK. We also need to improve ourselves in areas of integrated platforms and monitoring systems, surface and submarine vehicles and composite material."

MSB Shipyards Deputy Director General Rear Admiral Mehmet Sarı: "We will launch the construction of the 3rd Ship's Hull within the scope of the New Type Submarine Program"

In his opening remark, Ministry of Defense (MSB) Shipyard's Deputy Director General Rear Admiral (Lower Half) Mehmet Sarı extended to participants critical information on the tasks and responsibilities of the newly established Shipyards Directorate, its structure and the executed projects. Rear Admiral Sarı said, "As the Shipyards Directorate, we are working in coordination with the Naval Forces Technical Department and Logistics Department. İstanbul, Gölcük

Ministry of Defense Shipyard's Deputy General Director Rear Admiral (Lower Half) Mehmet Sarı

and İzmir shipyards are affiliated with our Directorate and we have 6500 personnel. We have been conducting the MILGEM project at the İstanbul shipyard. The tests of the 3rd vessel continue while the 1st and 2nd vessels have been commissioned. The Hull of the 4th vessel was completed, and its outfitting activities are ongoing at full speed. We are working in close and effective cooperation with the design project office in lieu with the Technical Command and with the Research Center Command. We launched the National Submarine (MILDEN) Project in 2004 with the contributions of the project office. On the other hand, the construction activities of the 6 New Type Submarines with Air Independent Propulsion Systems, which we carry out jointly with Germany, continue at full speed. The construction of the 3rd submarine's hull will start soon. We wish to hold the ceremony with the participation of our Minister of Defense. Our private shipyards have crucial design and construction know-how regarding battleships. Whereas, regarding submarine construction, our shipyard at Gölcük is the only shipyard in Turkey that has this expert know-how. We exert efforts in order to gain a more comprehensive capability in this regard."

Underlining that regarding the MILGEM-I Class tender, all requirements set forth by the Naval Forces Command were quite clear, Rear Admiral Sarı said, "All issues regarding the Command Control Combat Management Systems became clear, we are only waiting for the main propulsion to be clarified."

Technical Commander of the Naval Forces Command, Rear Admiral Ahmet Çakır: "We accomplished the first test fire of the Atmaca Anti-Ship Missile which will replace the Harpoon Missile"

Technical Commander of the Naval Forces Command, Rear Rear Admiral (Upper Half) Ahmet Çakır stated that in the last fifteen years Turkey has been achieving unique products within global standards in system and sub-system areas, in addition to Military Ship design and construction,


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and he added: "We accomplished essential developments in sensor technologies. We covered an amazing path in the area of guided munition. The development and manufacturing of weapon systems with superior technology is not a dream anymore. We are working on achieving the manufacturing of a Multifunction, Phased Array Radar System (ÇAFRAD) relatively soon and to integrate it to the Anti-Air Warfare Frigate. Similarly, we assess that we have passed significant milestones in respect to sonar technologies. We seized the opportunity to closely observe the capabilities of our companies in this area at the recent submarine workshop; our companies are keeping up with the latest high-tech sonar technologies in the world. They introduced their projects and these developments pleased us greatly. On the other hand, the point we reached in the guided missile area heralds that our country will be one of the leader countries in this area as well. The first firing test of the 'Atmaca' project was accomplished. We will be conducting the launching tests of the ship platforms within next year. Today, we aim to render the 'Atmaca' Anti-Ship Missile intended to replace the Harpoon Missile with superior capabilities and longer ranges compared with the existing munitions."

Technical Commander of The Naval Forces Command Rear Admiral (Upper Half) Ahmet Çakır

Technical Commander of the Naval Forces Command, Rear Admiral Ahmet Çakır: "We expect our companies to unite their power and competencies in system and sub-system technologies"

Technical Commander of the Navy, Rear Admiral Çakır mentioned that the system and sub-system capabilities achieved by the Turkish Naval Construction Industry please them and said that all companies active in this area need to operate together also by touching upon the importance of the efficient utilization of the limited resources. Rear Admiral Çakır said, "When we launched the MILGEM project, there were only 2 radar manufacturers in the world, this number increased to 5 throughout the project and 3 of them were Turkish companies. Unfortunately, these companies failed to unite in collaboration and as a result of such competition some of our companies were excluded and they failed to receive the outputs of their investments. We observe in the world that companies operating in this area join their forces through merging or acquisitions or through forming consortiums. The R&D, marketing, finance and human resources need to be planned and implemented within global standards. At this point, I would like to underline once again the importance of the guidance and structuring of the industry by our Undersecretariat for Defense Industries."

"We see and hear that higher prices compared to ones offered by European manufacturers are being given particularly in electronic systems. This causes the main contractors to make proposals with European originated systems instead of preferring unique domestic systems and in the end our country suffers. This type of behavior reduces both the competitiveness of the Main Contractor and the technological products of our system provider domestic companies experience difficulties in finding a place in international markets. In new projects, preferring the products of different companies including foreign companies with merely the concern of costs, instead of domestic companies with certificates of systems that completed the certification processes, damages our domestic companies while narrowing their visions."

Pointing out that the utilization of numerous platforms by similar systems was essential in respect to the cost efficiency of the supply support and lifecycle management of the platforms, Rear Admiral Çakır added, "Utilization of various systems by different platforms will cause both an increase in the spare part stocks and significant problems in the logistical procurement processes while bringing an additional financial burden to our country."

Underlining that at least a 15-20 year-long projection should be established regarding the development activities of the Sensor Systems, Weapon Systems, Command Control Systems and Electronic Warfare Systems, Rear Admiral Çakır continued: "Within this vision we need to utilize our resources in a limited manner, we have to manage the development processes well. Some of our development projects are merely based on platforms, but we should revise this, and within the identified road map we should integrate the products to the constructed platforms when they are ready for utilization. We need to provide a standardization at this point. Our top priority should be acquiring the superior technologies for our country that will increase the added value, the critical technologies that are indigenous. Then again, as I mentioned previously, following the execution of the long term national development projects independent from the execution of the Military Ship construction projects and the technological level of the products reaching to acceptable levels, their adaptation to the ongoing ship construction projects would be the most suitable solution."

Rear Admiral Ahmet Çakır: "We assess that our shipyards that are heading for foreign partners will be more appropriate within the scope of the TF-2000 Project to minimize risks"

Stating that the Naval Forces Command will continue to support and contribute to the realization of military projects in private sector shipyards, Rear Admiral Çakır continued, "Within this process, it is of great importance that the accomplishment of the design and integration of the components with high combat effectiveness will be constructed for the first time by the project design office of the Naval Forces Command through maximum utilization of the facilities. The Naval Forces will be in charge of the design and performance, building the first vessels in military shipyards then after testing and trial processes the construction of the consecutive ships in private sector shipyards will proceed. We assess that this will be the most effective solution in respect to developing the experiences acquired through the design and construction of national ships, promoting the sustainability of this capability and maximizing the utilization of the domestic resources."

Underscoring that when this method is not implemented in projects with high costs, such as with the Anti-Air Warfare Frigate, the risk costs will be too high and that the private sectors will go through great risks in a technical sense especially in cases where all processes including the assignment of design and integration to the private shipyards, Rear Admiral Çakır said, "In order to minimize the risks, we assess that our shipyards can participate in tenders with foreign partners and go for proven foreign designs. If we think of the $3.5-4 billion budget of the TF- 2000 project, we do not assume that the existing ship construction industry will take this risk."

Naval Forces Technical Commander Rear Admiral Ahmet Çakır said that the support they had provided so far toward the development of the national defense industry in coordination with the SSM will increasingly continue in the upcoming future and that they will keep on giving complete support to the defense industry companies including testing the indigenously developed systems in the platforms. Rear Admiral Ahmet Çakır continued, "However, the risks to a battleship in operation, caused by the integration of systems that are technologically insufficient, are known by all of us. I presume that we are all aware that our Naval Forces Command will not take such risks under the circumstances endured by our country except for very special conditions. The development and manufacturing of indigenous national systems in the upcoming period and their preference by the world and the Turkish navy is our

most fundamental wish."

In his opening remark, the Undersecretary for Defense Industries Prof. İsmail Demir noted that 20% of a naval platform consists of the ship construction activities and the remaining 80% is composed of Combat Management Systems, Weapon Systems and Various Integrated Systems and added: "When we take the system and sub systems of a naval platform into consideration, this goes beyond the responsibility area of merely a shipyard or the Naval Forces Command. Here, we are speaking of a very complex concept such as the integration of the Air Defense Systems, Command Control Systems and Combat Management Systems over the platform. We attach great importance to the integration of the Turkish Defense Industry's experiences and capabilities to the platforms. Today, the level of competence reached both by our industry and the Turkish Naval Forces is a source of pride."

Pointing out that they need to make crucial moves in the sales of naval platforms to foreign countries, Prof. Demir continued: "With 170 items, speed boats are our most important export item within the naval platforms. Considering the vessels of great sizes, we only take part in the Fleet Replenishment Ship program under construction and installation in Pakistan and with some various modernization programs. We are not able to show a single address to the question of which institution, company or enterprise should be the one to market the MILGEM platform which is the leading platform as part of our marketing and introduction activities. STM company seems to be the leader considering this subject. Then again, comparable to the foreign countries, we need an admiral ship, an enterprise like the maritime sectors of other countries."

Stressing upon the fact that there are numerous shipyards active in the construction of civil and military ships in Turkey, Prof. Demir said, "Presently, we have 7-8 private shipyards only at the Tuzla region. The capacity of the sector is not big enough to feed all these shipyards, besides when

Prof. İsmail Demir - Undersecretary for Defense Industries

the exports are considered, we face certain bad examples from time to time. Our companies sometimes give proposals to the same project in the same country, as a regulating and coordinating institution we do not wish to have a structure in which the companies block each other. We prefer the establishment of an encouraging structure that forms synergy and provides support to each other in international markets. Without doubt, the support provided from our system supplier companies and enterprises to this structure within the ship construction industry and their establishment of a competitive structure is essential. When we place a bid to a platform in a foreign country, our system provider companies have to offer cost efficient prices so that we could become more competitive in the tenders realized abroad."

Undersecretary for Defense Industries Prof. İsmail Demir: "From now on Developing Cost-Efficient unique Systems regarding the Defense Industry will be one of our Priorities"

Underscoring that until today they primarily aimed to develop unique technologies technologies in the projects conducted in Turkey, Undersecretary for Defense Industries Prof. İsmail Demir said to that end they failed to focus on the costs and added: "From now on, we will handle the cost analysis issue more delicately. Exports are quite essential for building a sustainable industry, if we fail to conduct sales to foreign countries we will end up with expensive unique systems and therefore we will face obstacles in the development and sustainability of the products as well."

Stating that Naval Forces made crucial contributions to the development of the industry, Prof. Demir assessed that an establishment in charge of identifying the requirements, managing the design and construction processes of the requirements and conducting the acceptance and controls would not last long and added: "Even if the role of the Naval Forces is undeniable and essential in these processes, we need to find ways to execute this role in a more integrated fashion. Reinforcing the internal structuring of the industry and establishing a more long-lasting structure are of vital importance."

Touching upon the importance of planning throughout the development process of the Indigenous Systems, Prof. İsmail Demir said, "We have to increase our coordination with the Naval Forces Command so that we can have the foresight to identify future needs 10-20 years ahead and to launch the studies toward developing national systems of the future."

Following the opening remarks, presentations of the sponsor companies commenced. Throughout these sessions, STM Combat Systems Manager Mr. Enver Küçükerman on behalf of STM Company made a presentation entitled "A General Overview of the STM Submarine Projects and Submarine Projects". Naval Systems Group Head of Aselsan which is one of the sponsor companies of the event, Mr. Behçet Karataş made a presentation entitled "The Naval System Solutions of Today and Tomorrow."

During the second half of the day, the technical presentations of the sponsor companies were given in parallel sessions. The event in which 48 presentations were accomplished lasted two days and ended with the noteworthy participation of the military and defense industry officials.

The 9th Naval Systems Seminar is scheduled to be held on 7-8 October 2019 at the METU Cultural and Conventional Center in Ankara

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With exports steadily on the rise as a result of strategies implemented to face the challenges of today's world, Aselsan's Marketing Director – Mr.Ahmad Hamed Marar shares the success of their vigorous export campaign, their focus on local engagement, strengthening the performance of Joint Ventures in new and expanding markets

Defence Turkey: Dear Mr. Ahmad Hamed Marar, first of all thank you for your time. Recently, you adopted a new format in your organizational structure as Aselsan's Marketing Directorate. Could you please bring us up to speed on your responsibilities and personnel structure within this newly established institutional structure?

Today, Aselsan is much bigger in terms of organization and more active in different fields and geographies than it was 10-20 years ago. In order to carry out its activities in conformance with the challenges in today's international markets, continuous updates are implemented in terms of organization and responsibilities in each division. International Marketing Directorate is one of the key elements in Aselsan's structure. As a result, we must keep ourselves up-to-date in terms of organization, responsibilities and personnel structure.

Defence Turkey: Mr. Marar, Aselsan implemented a corporate marketing strategy for foreign markets in the past. However, Aselsan recently discontinued this strategy and each directorate has organized its own marketing team and is working in coordination with the corporate marketing department. What would you like to say about this operational method of this newly formed structure and the advantages it has brought to the marketing strategy?

It is not correct to say that Aselsan discontinued its corporate marketing strategy for international markets. Aselsan is implementing today's methods and strategies to keep up with the international market requirements. The new marketing organization exploits synergy of divisions in harmony. This is also a reflection of increased sales and broader access to variety of markets compared to the past. In the last couple of years, Aselsan entered about 10 new countries for the first time. Another very important improvement in international markets is the fact that Aselsan increased its export sales more than 300% in the very competitive South American Region and Asia-Pacific Region. These positive changes are all a result of Aselsan's capability to adopt its strategies to meet today's challenges.

Defence Turkey: Aselsan's total defense turnover reached the amount of $1,195 billion in 2016, which is an increase of 17% when compared to the previous year. According to 2016's data Aselsan's total turnover consisting of commercial and military projects reached a total of $1,243 billion. Additionally, Aselsan continued its ascent in the Defence Top 100 list and climbed up to rank number 57th. Within this context, how do you assess Aselsan's export performance in 2016 and 2017? Could you please inform us about the financial size of Aselsan's overseas sales according to the data of 2017 and its main areas of activity?

In 2016, the value of our export contracts was 55% higher than 2015. In 2017, we expect to keep this level around the same value. In terms of areas of activity, as anticipated, the main share of the export sales is from our main areas. On the other hand, we are very glad to see that the variety of products and systems that we export is increasing. For example, in 2016 we realized the export of Submarine Systems to Indonesia, Electronic Warfare Systems to Chile in 2016 and 2017 and Toll Collection Systems to Macedonia in 2015.

Defence Turkey: Mr. Marar, the equilibrium between local and overseas sales is crucial for a company with a global reach such as Aselsan. When the overall sales figures of the last five years are analyzed, what kind of a picture emerges regarding the future within such a framework? What type of a strategy should be adopted in order to increase the growth curve and to increase it in a sustainable and controllable fashion?

The last 5 years have been an important part of our international business strategy. In this period, we established Joint Ventures (JVs) in Kazakhstan, Jordan, United Arab Emirates, Saudi Arabia and also established offices in South Africa, Malaysia and Qatar in addition to the national investments like the Sivas Electro-Optics Facility. The main idea behind these investments comes from the need to increase the existence of local identity in international markets. As a result, in order to strengthen our competitiveness and to keep a sustainable increase in exports in different markets, we have to carry on our investments.

Defence Turkey: In the recent period, countries such as Qatar and Saudi Arabia that remain in Turkey's focus are included in Aselsan's marketing strategy and Aselsan has a tendency towards a permanent structure in these countries, launching Aselsan offices in order to render marketing activities more effective. Which requirements and deficiencies have steered Aselsan towards opening such offices in these regions? What are your corporate expectations following the launch of these offices?

Middle East is one of the most active defense markets in the world. Looking at the current situation in the region, it is not difficult to anticipate the continuation of defense expenditures for the Middle Eastern countries in the near future. Aselsan's existence in the Middle East has a long history. In recent years, we have focused more in this region. JVs in Jordan and the United Arab Emirates can be deemed the first steps of our new strategy. The Qatar office and Saudi Arabia investment should be regarded as successive steps. The aim is to enhance our relations and establish long-lasting cooperation with these countries.

Defence Turkey: It is clear that critical strategic decisions were agreed upon institutionally in preparation, based on the feasibility study, prior to the launching period of these offices and prior to the commencement of their operations. What type of a long-term strategy was established corporately to build such formations? Will there be comparable initiatives in other regions in the upcoming period?

It is important to directly contact the customers, introduce capabilities of your company, brief them on your products, provide solutions to their problems, as well as respond quickly to their requests and necessities. This is only possible through local offices or companies. As one of the global defense players, Aselsan will continue to grow a local presence in international markets when and where there is potential.

Defence Turkey: In line with the joint production and joint development strategy, Aselsan possesses JV (Joint Venture) companies that are active in countries such as Jordan, the United Arab Emirates, Kazakhstan, Azerbaijan and Saudi Arabia. How do you assess the 2016-2017 performance of these JV companies that were established in order to cater to the requirements of all the neighboring countries in these regions?

Aselsan Baku is the oldest international affiliate of Aselsan, followed by Aselsan South Africa (ASA). With the establishment of Aselsan Middle East in Jordan, IGG Aselsan in the U.A.E. and SADEC in the Kingdom of Saudi Arabia our existence in foreign countries expanded and the capacity of the former three increased. While total sales of these JVs were $ 7 Million in 2013, this figure increased to an average of $ 40 Million per year within recent years. In this respect, I can confidently say that we are on the right track.

Defence Turkey: Can you provide an update on the progress of the construction and infrastructure activities of your facility that will enable the design, development, production and sale of the Radar, Electronic Warfare and Electro-Optical Technologies in Saudi Arabia, which is to be built by Aselsan and the Saudi Arabian public corporation TAQNIA Defense and Security Technologies (DST)? This facility is expected to have technological infrastructure and equipment similar to your facility in Gölbaşı. When will this facility officially be launched and operational?

Aselsan's latest joint venture company, Saudi Defense Electronics Company (SADEC), began its operations in the Kingdom of Saudi Arabia as of April 2017. The mission of SADEC is to provide high-value-added, reliable defense electronic products and solutions to both local and foreign customers as well as fostering innovation and contributing to the technological independence of the Kingdom of Saudi Arabia. SADEC will play an important role to support the Kingdom's plan to localize over 50 percent of its military equipment spending. In addition, SADEC will support and establish the ecosystem of Saudi Small and Medium Enterprises (SMEs) in the defense electronics field in the Kingdom of Saudi Arabia. Construction of the main facility is planned to start in 2018. The main facilities and infrastructures for SADEC is expected to be operational within the next 2-3 years.

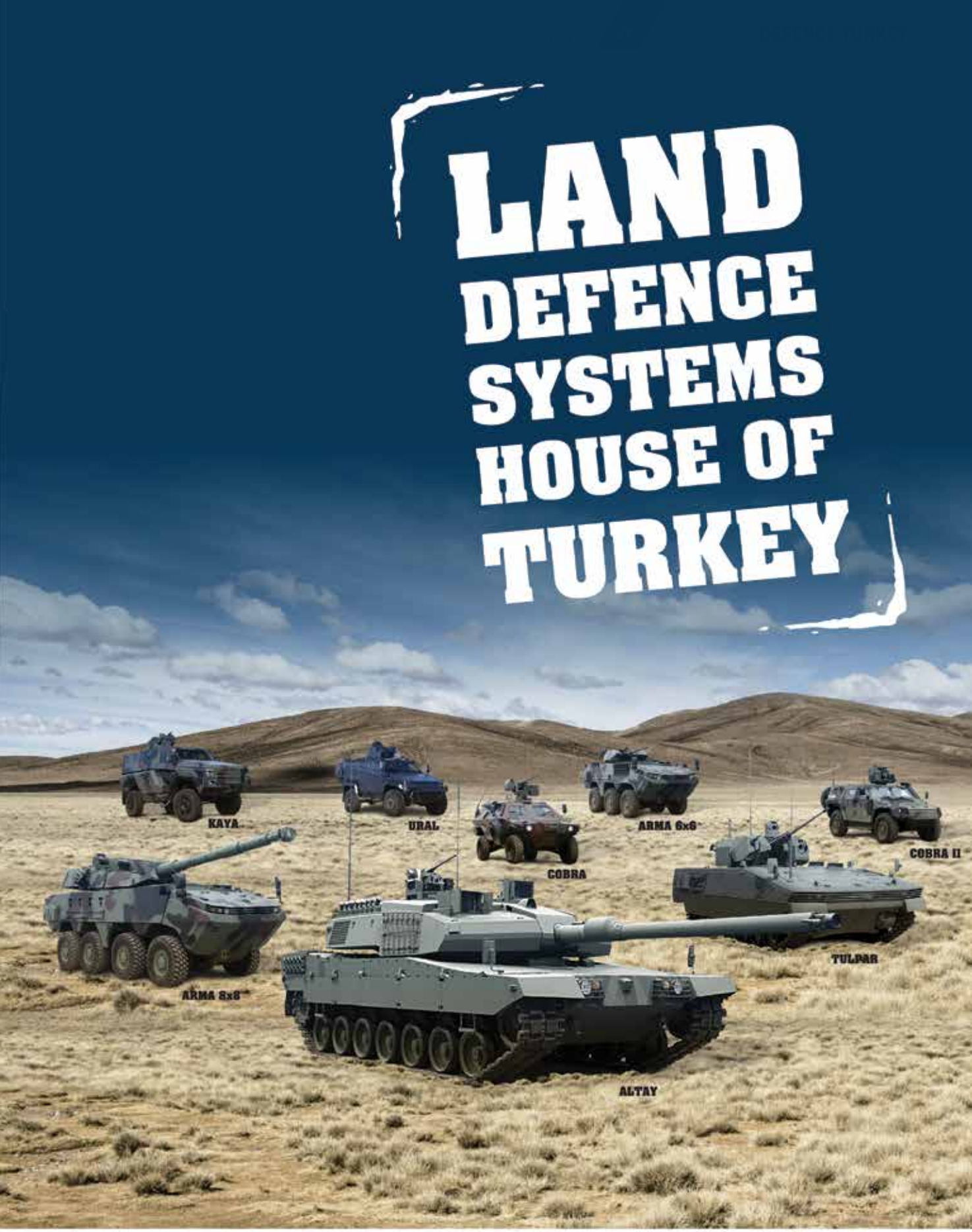
Defence Turkey: Aselsan has accomplished export activities in various areas in to two significant countries, Chile and Uruguay, in the South American market in recent years. Moreover, we are aware of the fact that you have been executing efficient marketing activities in other South American countries such as Brazil, Colombia and Peru. What are your remarks on the programs that you closely follow and the projects that you conduct in these regions?

Aselsan has been actively conducting its marketing activities in South America for more than 10 years and recently we are absolutely delighted to witness that these efforts have been generating favorable results on our part. Although, not only the geographical distance and financial matters such as after-sales logistic support costs but also the political and economic turmoil that emerge often in the region might present themselves as challenges for South America, we have adopted diverse approaches to tackle these obstacles. Our strategy in the region has been to establish long term local representation that have strong connections with the procurement authorities in each country. We also have regularly participated in the principal trade exhibitions, namely FIDAE in Chile and LAAD in Brazil, in order to showcase our capabilities and to enhance the recognition of the Aselsan brand. Moreover, in our international marketing departments, we have preferred to employ personnel who speak the local language and are familiar with the culture of the region.

The above-mentioned efforts have helped us secure four contracts in Uruguay regarding military communication and mobile border surveillance systems. In 2015, Chile was named our second customer in South America, which opted for Aselsan's Electronic Warfare Self Protection Systems for their "Cougar" helicopters. The mutual trust we have managed to build with governmental and military authorities in Uruguay and Chile not only enables us to increase our involvement in the ongoing and upcoming projects in these countries, but happens to be an essential reference for other markets that we aim to penetrate such as Brazil, Colombia and Peru as well. We will effectively continue monitoring the region for further opportunities in the military and security domain and minimize our risks by closely observing political, economic and social circumstances. We should continuously and consistently proceed with what we have done right until now in order to have a sustainable presence in South America.

Defence Turkey: Intergovernmental relations and state subsidies play essential roles in the establishment of an efficient structure in the South American market. The Medium Weight Modern Tank Development Program namely "Kaplan" was initiated through a local partnership built by FNSS

LAND DEFENCE SYSTEMS HOUSE OF TURKEY



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and PT PINDAD companies in line with a Government to Government model formed by the Indonesian and Turkish governments. It has been one of the very first programs to be constituted by Turkey in accordance with the G2G model. In the upcoming period, within the scope of such intergovernmental cooperation programs, in which Aselsan will also be involved in, will you launch initiatives for the implementation of such activities in other regions or continents? Perhaps South America being of priority, with the inclusion of the knowledge transfer model? To this end, do you have any contacts with both Turkish authorities and the authorities of the relevant countries?

In the international arena, Aselsan has always been open to communication, to share the technology it possesses with friendly countries and to discuss the extent of local industry participation where the dynamics of the specific market requires us to do so. The demand for the technology transfer and the incorporation of local content has been an increasingly common requirement for a majority of developing countries in their procurement plans and is one of main factors that affects the final decision. In South America, for example, Brazil obligates foreign bidders to form partnerships with local companies and deems local joint production compulsory for their big budget programs. Speaking of South America, government support is also solicited and offering a G2G model plays a crucial role during the evaluation process of the decision makers. In such territories, we base our strategy on proposing to the customer a complete package including the technology transfer, local industry participation and the support of the Turkish government. The contract we signed in Chile regarding the EW Self Protection Systems for helicopters is a good example for a G2G model where Chilean Armed Forces specifically asked for government support. And this is what happened. We are grateful for the support of the Turkish government when needed and the G2G model will always be a part of our strategy while negotiating with the customer independent of the region.

Defence Turkey: Several technical threat reports have indicated that with threat perception increasing each passing day in the Asian- Pacific countries and the countries of the Far East, there will be a considerable increase in defense budgets in the upcoming period. This will surely create a significant share for major companies with technological infrastructures such as your company. What type of a road map will Aselsan embrace in an effort to get a slice of the cake? Could you please share with us your strategies regarding this issue?

The Asia Pacific Region will be the focus for variety of fields in the upcoming years. Aselsan has already been active in the region, with involvement since the end of 1990s. In the last couple of years, we increased our activities and as a result our sales in the countries of the region. We aim toward increasing our export activities through different methods and tools in the region. Our main advantage is that Aselsan has a variety of field of activities that can couple with a market share. We can provide every sort of electronics equipment that an army may require. Our primary strengths are our engineering force and capability to provide tailor made system solutions based on the customer requirements with very competitive costs. In addition, our doors are wide open to transfer of technology and cooperation with local industries for our allied countries. In this region, this gives us a huge advantage compared to our competitors. As a result, Aselsan is looking forward to becoming a major defense supplier in the Asian Pacific Region.

Defence Turkey: What are your comments on your existence and activities in the African market especially in the North African countries and in South Africa?

Aselsan has long served the North African market and continues its activities with the same aspiration. As a result of our marketing and business development efforts, we signed significant contracts in this region.

The South African defense market has long been suffering from budget restrictions. New procurement programs are pending on the agenda. During this period, we are strengthening our relations with local companies in terms of developing joint programs for South Africa and third countries.

Defence Turkey: Lastly, is there a message that you would like to convey to the readers of Defence Turkey magazine?

I have great ambition to glorify Aselsan's name in the global defense market.

The right strategy and dedication is my lighthouse. I am confident that you will witness new success stories from Aselsan in the upcoming years.

Finally, I would like to thank you for giving me the opportunity to publicize my opinions

Mr. Ahmad Hamed Marar - Aselsan's Marketing Director; Ms. Ayşe Evers – Editor in Chief of Defence Turkey Magazine

RUNFLAT systems

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When the vehicle is traveling, the explosion of the tire caused by various reasons can not fulfill the crushing wheel function of the vehicle's weight and the rim comes into contact with the tire. With the effect of the friction on the wheel rim and the effect of the rutting which occurs after the wheel rim rotation, the rubber heats up, crumbles and the vehicle is completely out of control. The vehicle that has lost control can open doors to possible disasters. In order to prevent this danger, it is very important that the control of the car is not lost and can go to the target when the tire bursts. The system that allows a certain distance to go without losing control is called run flat.

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Turkey Ramps up T129 "Atak" Attack Helicopter Production

by Cem Akalın - Managing Editor

Within the scope of the "Atak" program, the procurement of 50 T129 "Atak" Advanced Attack and Tactical Reconnaissance helicopters within two-phases, the contract that was signed in 2007 between TAI and the Undersecretariat for Defense Industries as part of the requirements of the Land Forces Command, a total of 25 "Atak" helicopters comprising Phase-1 and EDH configuration were delivered to the Land Forces Command as of the end of October 2017

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The Joint Development and Production Contract were signed between the Undersecretariat for Defense Industries (SSM) and TAI in 2007, procurement of 50 T129 "Atak" helicopters in Phase-1 and Phase-2 configurations and the activities to this end were launched. The contract that was signed on 7th of September 2007, became effective on 2nd June 2008 and the System Requirement Review of the helicopter in question was completed in January 2009. In 2010, within the context of Turkey's urgent attack helicopter requirements, in addition to the 50-lot package in the basic configuration, 9 T129 Early Delivery Helicopters were added to the contract and the total number of helicopters to be delivered reached 59.

Following the integration and installation activities of the "P6" prototype, which is one of the three prototypes to be manufactured at TAI facilities and utilized in flight tests, as the prototype became ready for flight, the maiden flight of the T129-A configuration was accomplished on 17th of August 2011.

In 2010, first of the T129 EDH (Early Delivery Helicopter) or the helicopters identified as T-129-A Configurations planned to be procured as part of the urgent requirements, to be delivered in three (3+3+3) packages, were delivered to the Land Forces Command on 22rd April 2014 following the acceptance tests. The remaining 2 helicopters of this package were delivered at a ceremony organized at TAI in June 2014 and the final EDH Helicopter of the fleet was included in the Land Forces Inventory on 31st of July 2015.

At Least 29 "Atak" Helicopters Planned to be Delivered by the End of 2017

Upon the delivery of the Early Delivery Helicopters, the activities concerning the 29-lot package in T129 Phase-1 configuration and 21-lot package in Phase-2 configuration were ramped up at TAI facilities. While the first helicopter in Phase-1 configuration, equipped with additional capabilities such as the Missile Warning System, Counter Measure Launcher System, Infrared Counter Measure System, MXF-484 and 9651 Handheld Radios and unique missile systems, was delivered to the Land Forces Command by the end of the last quarter of 2015, the number of helicopters delivered in Phase-1 configuration reached 9 in December 2016.

It was announced that 25 T129 "Atak"Helicopter (16 helicopters in Phase-1 configuration and 9 Early Delivery Helicopter), were delivered to Land Forces

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Command as of October 2017 and over 11000 flight hours were accumulated as they are providing the required firepower and helicopter support in operational theatre. In his interview published in our magazine in July 2017, Head of the Helicopters Department of SSM Mr. Hüseyin Avşar conveyed crucial information regarding the program. Mr. Avşar disclosed that with the EDH helicopters, the number of delivered helicopters will be 24 in the third quarter of 2017 and currently they were making an effort to ramp up activities to increase the number of deliveries to two in a month from an average of one helicopter per month. Moreover, Mr. Avşar said, "We expect the total number of helicopters to reach at least 29 helicopters (9 EDH and 20 Phase-1 configurations) by the end of this year. In light of these developments, it is recorded that the number of helicopters in the mass production line at TAI facilities reached 20 as of October 2017.

As the delivery of the entire 29-lot package in Phase-1 Configuration is expected to be accomplished by the first half of 2018, delivery of the 21-lot package in Phase-2 configuration, which will be equipped with additional Electronic Warfare systems such as Laser Warning Receiver, Radio Frequency Jammer, Radar Warning System, 9681 V/UHF Radio, is planned to be launched upon the completion of the deliveries of Phase-1 configurations. In accordance with the project schedule, the number of delivered helicopters in Phase-1 and Phase-2 configurations including EDH Helicopters is expected to exceed 50 by the end of 2018. Delivery of the entire 59-lot package in EDH, Phase-1 and Phase-2 configurations is planned to be completed in 2019.

The project schedule of the 9 (6+3 optional) T129 "Atak" helicopters, which are planned to be procured as part of the requirements of the Ministry of Interior, is proceeding simultaneously under the responsibility of the Undersecretariat for Defense Industries.

While the configurations of the platforms to be procured by the Ministry of Interior are expected to be equipped with the identical capabilities of the existing configurations, the air-to-ground image transfer system is planned to be fitted in this configuration merely as part of the user requirements.

Accelerated Indigenization Activities for Critical Technologies of T129 "Atak" Helicopters

The activities for the indigenization of the critical systems as part of the T129 "Atak" Helicopter mass production program are being conducted simultaneously. While

the integration of the "Cirit", UMTAS and LUMTAS missile systems uniquely developed and manufactured by Roketsan is accomplished and the missile systems' utilization has started, the indigenization activities of the Turreted Gun procured from abroad are on-going in the charge of TAI.

Additionally, the development activities of the TS 1400 Turboshaft Engine was initially launched to be utilized by the T625 Multi-Role Helicopter and then the derivative configurations were decided to be outfitted by the T129 "Atak" Helicopters in the following stages, these are being conducted at TEI facilities. Within the scope of the program, a contract was signed in February 2017 between SSM and TEI and the program was officially launched.

Helicopter-MILDAR

Helicopter-MILDAR Successfully Integrated to the "Atak" Helicopter

An important milestone within the scope of the indigenization activities concerning the fire control radar which is a crucial power factor of the attack helicopters and which will acquire a critical capability to the T129 "Atak" Helicopters was accomplished. The acceptance of the Helicopter - MILDAR which was developed by Meteksan Defense, featuring Target Acquisition and Surveillance and Terrain Profiling characteristics, Turkey's first fire control radar operating at millimeter wave band was accomplished by the Undersecretariat for Defense Industries' Acceptance Delegation on 23rd June 2017. The Helicopter - MILDAR is expected to enable critical operational advantages to the Turkish Armed Forces such as demonstrating high performance under harsh weather conditions in which the performance of the electro-optical systems insufficient, gaining electro-optical systems in aiming at their targets and in weapon engagement, raising position awareness of the pilot under low altitude and low visibility operations. Helicopter - MILDAR with two primary functions such as Target Acquisition and Surveillance and Terrain profiling enables crucial advantages such as multiple target acquisition in high angular and range resolution, target acquisition and surveillance in slow scanning mode up to a 12-km range, navigation support and terrain profiling at a 2.5 km range.

For Helicopter – MILDAR, the flight tests of which were completed over the T129 "Atak" Helicopter, the radar's position on the platform is aimed to be clarified and its integration activities with the weapon systems are planned to be launched in the following stage. Upon the completion of these activities, the serial production of the Helicopter - MILDAR fire control radar will be launched.

T129 "Atak" Serial Production Line

Advanced Atak-2 Program Launches

At the opening ceremony of the Alp Aviation Helicopter Business Center, it was announced that the activities for the Advanced Atak-2 Helicopter were launched. Undersecretary of the Defense Industries Prof. İsmail Demir said, "We launched the design activities of a weightier configuration of the T129 "Atak" Helicopters and I would like to share this good news with the public" and he added that they launched the design activities of the "Atak-2" Helicopter which is expected to weigh approximately 6 tons

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2.75” Laser Guided “Cirit” Missile Goes Thermobaric

“Cirit”, the 2.75’’ Laser Guided Missile with the longest range in its class, continues to expand its capabilities by adding a Thermobaric Warhead to its warhead options. Accordingly, the number of alternative warheads offered by the company has increased to three. Previously there were just two options including the multi-purpose warhead with anti-armor, anti-personnel and incendiary functions and the high explosive warhead,

The Cirit’s integration capability with various platforms is also noteworthy. Work continues on the integration of the “Cirit”, which is already being used on the T129 “Atak” and AH-1 “Cobra” Attack Helicopters and for the “Tiger” Helicopter. The latest memorandum of understanding signed between Roketsan and MBDA Germany during the ILA 2016 was about this integration.

While work on the integration of the “Cirit” to the” Black hawk” helicopters progresses, there is also ongoing work on its integration to light helicopters. The most recent development in this field was the memorandum of understanding, signed during Farnborough 2016 between Roketsan and Airbus Helicopters, on the integration of the “Cirit” to the H135M and H145M helicopters and with Airbus Defense and Space for C295 Gunship Aircraft.

While on one hand, working on the integration of the “Cirit” to various Unmanned Aerial Vehicles continues unremittingly, on the other, Roketsan has shown that the missile can be integrated to land vehicles through the Pedestal Mounted “Cirit” (PMC) System and can be used as an effective weapon. Roketsan also demonstrates to its customers how the “Cirit” is launched from fixed and mobile land systems. The “Cirit” missile system, integrated to a towed land platform, was ordered by a customer abroad, which is now already in use.


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“Cirit”, which was previously integrated to the AT-802 border patrol aircraft, will be integrated to the C295 Aircraft in accordance with the memorandum of understanding signed with Airbus Defense and Space during Farnborough 2016. Meanwhile, work on the launching of the “Cirit” from fast patrol boats and corvette sized ships is also ongoing. The missile has been already used on some of these platforms during various operations and has also proven itself during combat.

Emphasizing that the “Cirit” All Up Around Missile is a system that can meet a variety of user operational requirements, Mr. Selçuk Yaşar, President & CEO of Roketsan, said “The ‘Cirit’ is taking the concept of the ‘2.75” guided rocket’, which emerged from the idea of having a cost-efficient missile, to a much higher level. The ‘Cirit’, which is the leader in its class with a range of 8 km, has also shown that it is capable of carrying out some of the missions of other missiles in higher classes. It is now possible to meet the guided missile needs of land, air and naval forces with a single missile production line. I can confidently say that there is no other missile on the market that can offer such flexibility with these costs.”

Technical Specifications of the “Cirit” Missile	
Length	1,9 m
Weight	15 kg (without canister)
Range	1.5 km (Min) – 8 km (Max.)
Warhead	High Explosive Warhead Multi-Purpose Warhead Anti-Armor Anti-Personnel Incendiary Thermobaric Warhead
Guidance	Mid-course Guidance with MEMS-IMU
	Terminal Guidance with Semi-Active Laser Seeker
Propulsion	Min. Smoke Composite Solid Propellant
Platforms	All Platforms with MIL-STD-1760 Interface (Fixed and Rotary Wing Aircrafts, Land Vehicles, Naval Platforms and UAVs)
Target Types	Light Armored/Unarmored Vehicles Infantry
Laser Designation	Compatible with STANAG 3733

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Inauguration of Helicopter Business Center Facilities with an Investment of $90 Million by Alp Aviation

Alp Aviation Helicopter Business Center Facilities to make production within the scope of the Turkish Utility Helicopter Project (TUHP) for Sikorsky Helicopters launched at Eskişehir's Organized Industrial Zone with an investment of $90 million with an inauguration by Prime Minister Mr. Binali Yıldırım. The Business Center Facilities is expected to be contribute a value of $500 million toward business volume in the long-term, specifically related to gear and gear boxes, rotary components, rotor assemblies, flight command system and landing gears will be manufactured for helicopters, with priority for the T70 Turkish Utility Helicopter

Prime Minister Mr. Binali Yıldırım, Minister of Science, Industry and Technology Dr. Faruk Özlü, Undersecretary for Defense Industries Prof. İsmail Demir, Mayor of Eskişehir Mr. Özdemir Çakacak, Alp Aviation Chairman of the Board Mr. Tuncer Alpata, officials from the Undersecretariat for Defense Industries, executives and representatives of Defense Industry companies and many invitees attended the opening ceremony of Alp Aviation Helicopter Business Center Facilities.

With 15 years of expertise in manufacturing critical/rotary components, assembly and sub-systems under high quality, engineering and production standards for aerospace industries, Alp Aviation will now be executing production for the Sikorsky Helicopters as part of the Turkish Utility Helicopter Program (TUHP).

Approximately 400 personnel are expected to be employed at the facility with a production area of 11.000 square-meters entirely consisting of local technology in which engineering, production, assembly, testing and maintenance support services will be provided under a single roof for the first time in Turkey.

Prime Minister Mr. Yıldırım: "Eskişehir will be one of the Leading Cities Regarding Our Ambitious Vision of 2023"

Addressing the participants at the opening ceremony, Prime Minister Mr. Binali Yıldırım said that the world has been rapidly moving into an era of information and technology. "This facility we launch today will be executing production within the framework of Turkish Utility Helicopter Program. Most of the crucial components, powertrain systems, propeller shafts and running gears will be manufactured at Alp Aviation, some of them will be produced by TAI and Aselsan and Lockheed Martin and under full cooperation. The sub-systems manufactured here will not only fulfill Turkey's demands but also cover the requirements of many countries of our region and the world. These facilities with superior technology are unique in the world. The fact that the young minds of our country and our Turkish engineers will be operating at these facilities is also source of great pride for us. We aim to increase the number of such facilities containing integrated and advanced technology. The leading city within the scope of our ambitious goals for 2023 will be Eskişehir through such investments," said Mr. Yıldırım.

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Mr. Binali Yıldırım – The Prime Minister of Turkey

Stating that extremely crucial components for Sikorsky helicopters will be manufactured at the center as part of the Turkish Utility Helicopter Program, the Minister of Science, Industry and Technology Dr. Faruk Özlü said: "Technologies developed in Turkey for the first time will be utilized at this facility, in which $90 million was invested additionally. The fact that this facility is located at the Organized Industrial

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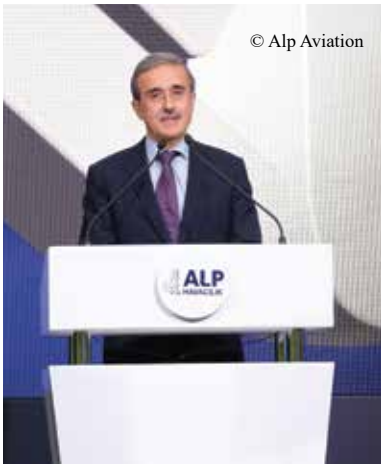
Dr. Faruk Özlü -Minister of Science, Industry and Technology

Zone of Eskişehir also pleases us. A business volume of $500 million will be developed in these facilities where over 400 qualified staff will be employed. With the Turkish Utility Helicopter Program, the utility helicopter requests of our country will be fulfilled and to be valued at an estimated business volume of $ 3,5 billion for our local industry. This program will play a significant role in the fulfillment of our military and government agencies requirements. The finalized contracts with the Sikorsky will be executed in conjunction with the beginning of the partnerships for the Turkish industry and will last for many years. We assess that this facility that we open today will be utterly essential in showing the distance covered by Turkish companies and engineers. We must underline once more that our companies, engineers and qualified human resources are the greatest foundation of the Turkish industrial revolution. We reached the capacity to manufacture the most advanced technologies in our country. We are proceeding towards the goals we could not reach 15-20 years ago. The essential goal of Turkish industry will be the manufacturing of high technology products and exporting them. In this sense, I would like to express that the Turkish Utility Program is one of the most important steps towards our goal of becoming an industrially advanced country".

Sikorsky Aircraft President, Mr. Dan Schultz, qualified the facility launch as "a unique facility with advanced technology" and added: "This new facility will pave the way for the accomplishment of Alp/Sikorsky responsibilities regarding the SSM, TAI and Turkish Utility Helicopter Program. I hereby congratulate the Turkish government for their vision and lead the way in the realization of this program."

Prof. İsmail Demir: "We initiated the Unique Utility Helicopter Program of 10-Ton Class"

Undersecretary for Defense Industries Prof. İsmail Demir stated that the TUHP was launched with the sub-contractorship of Alp Aviation and that the gear and gear boxes will be manufactured for the first time by a Turkish company within the scope of the program to be executed with Aselsan. Underlining that this Project will bring important advantages to the development of the local industry in Turkey, Prof. Demir continued, "In the projects we assumed in the past years, we collaborated with Sikorsky programs merely through labor and today we accomplish 63% of our local content rate through the Turkish Utility Helicopter Program. TAI will be responsible for manufacturing, final assembly operations, tests and integrated logistics support of all airframe structures and composite rotor blades, TEI will build engines under a license from General Electric (GE), Aselsan will develop and integrate basic avionics and will co-develop with Sikorsky an enhanced digital cockpit known as the Integrated Modular Avionics System (IMAS) and Alp Aviation will carry out production and assembly



Prof. İsmail Demir – Undersecretary for Defense Industries

Mr. Tuncer Alpata -The Chairman of Alp Aviation

of landing gears, gearbox and dynamic components.

The production of the gear wheels and dynamic components will be accomplished at this center within the scope of the Project. In our opinion, this high business volume of our companies will be a great advantage for Turkey to actualize its unique helicopter design and production. Hereby, I would like to announce that we have initiated the 10-ton Unique Utility Helicopter Program here and express to Sikorsky and our other partners that our doors are always open to them if they are willing to be involved in in this program. I would also like to announce the good news that we have initiated a brand-new program concerning helicopters heavier than our T129 "Atak" helicopters in addition to this program."

The Chairman of Alp Aviation Mr. Tuncer Alpata: "Helicopters to be Used Jointly by Security Forces will be Manufactured Through this Project"

Hosting the ceremony, The Chairman of Alp Aviation Mr. Tuncer Alpata stated that they covered a long path for this project, recalling the numerous contributors and continued: "As part of the Turkish Utility Helicopter Project, in accordance with the 109 Sikorsky T70 helicopters contract, Alp Aviation will be manufacturing the gears and gear boxes, rotary components, rotor assembly, flight command system and landing gear of these helicopters. On account of this new technology to

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Alp Aviation Helicopter Business Center

be implemented in Turkey for the first time, Sikorsky helicopters can be utilized jointly by the Land, Air and Naval Forces, Special Forces, Gendarmerie, National Police and the Ministry of Forestry. Through the mass production soon to be launched at this new facility, in addition to providing support to the Turkish Utility Helicopter Program, these products can be exported to the US Sikorsky company as part of the contracts signed".

After Sales Support of the Black Hawk Helicopters to be Provided through National Resources

The Helicopter Business Center Facility of Alp Aviation launched as of October will be the high technology production, assembly and test center of all gear wheels, entire gear boxes including the main transmission module, flight critic and dynamic components and their assembly groups, flight control mechanisms and landing gear components of the T70 Black Hawk Helicopters to be manufactured within the scope of the Turkish Utility Helicopter Project executed under the main contractorship of TAI. Since the work share of Alp Aviation within the scope of the project contains numerous critical components and sub systems as spare parts, the spare parts and after sales support of all users (Land Forces Command, Air Forces Command, Gendarmerie General Command, Special Forces Command, National Police, Directorate General of Forestry) could be fulfilled through national resources.

Alp Aviation's Business Volume Exceeds $7 Billion

Manufacturing mostly flight critical/rotary components, assembly and sub-system for aviation and space industries under high quality engineering and production standards, the long term contractual total business volume of Alp Aviation will exceed $7 billion. As the sole supplier in the world that manufactures such components (TRDS), Alp Aviation will be creating employment opportunities for 400 people in its new facility of 11 thousand square meters. With the influence of new investments, Alp Aviation aims to increase its yearly technological product exports with high added value from $100 million to $400 million in 2023.


© Alp Aviation

Alp Aviation mostly conducts the production of flight critical/ rotary components, assembly and sub-system for aerospace industries under high quality engineering and production standards. Their development efforts for the last 15 years have been and remain in line with the industrialization policies and goals of Turkey and the Undersecretariat for Defense Industries. Alp Aviation employs 800 individuals of which 180 are engineers and their long term contractual total business volume, with an infrastructure based on high technology, exceeds $7 billion.

Ranked 167th at the list of 500 greatest exporters list of the Turkish Exporters Assembly for 2016, Alp Aviation entered the İstanbul Chamber of Industry's Turkey's 500 Greatest Industrial Enterprises list for 2016, rising from the 497th row.

Manufacturing with over a hundred new generation multi-axial machine tools, CMM quality control equipment, over 60 special processes rarely found in facilities around the world, coating, non-destructive inspection lines, test and laboratory capabilities at the 50.000 m² indoor area at the Eskişehir Organized Industrial Zone, Alp Aviation has a wide scale and range of experience in the processing of titanium, aluminum, stainless steel, copper alloys and super alloys and is amongst worldwide leading aerospace companies in titanium in particular. Developing sub-contractor programs in components, sub-systems and fixture design and manufacturing, engineering and prototype activities, special processes and production support services areas, Alp Aviation has various sub-contractors, mostly in an SME status as part of its efforts to support the development of aerospace clusters in different cities in Turkey, with Eskişehir being in the first place

Kaplan MT Debut at 72nd Indonesian National Armed Forces Day

The "Kaplan" MT's recent debut took place at the 72nd National Indonesian Armed Forces Day in Indonesia. It was designed and developed by FNSS engineers, in partnership with state-owned PT Pindad of Indonesia, in order to cater to the requirements of the Indonesian Armed Forces' Modern Medium Weight Tank Program

As of 2014, the partnership negotiations were conclude between PT Pindad and FNSS for the development and production of the Modern Medium-Weight Tank, under the auspices of the defense ministries of the two countries and the definitive contract was signed with participation of the Undersecretariat of Defense Industry, Indonesian Delegation, PT Pindad and FNSS at IDEF 15', which included the Intellectual and Industrial rights for the design, production, integration, certification and certification of two prototype medium weight tanks belonging to Turkey and Indonesia and the production of one Modern Medium Weight Tank.

The production process was initiated in the last quarter of 2016 after a one-year preliminary preparation period. The first prototype, with the participation of PT Pindad engineers, was manufactured at the FNSS facilities in 2017 and the first prototype was unveiled and demonstrated for the first time throughout IDEF 17' by FNSS. Within the program schedule, the second prototype is to be manufactured by PT Pindad in Indonesia, according to the 37-month development phase last quarter of 2017.

Following the production of the two prototypes, the vehicle test is expected to be commenced in the last quarter of this year and the testing and qualification process will be completed within the first half of 2018 at the latest. Following completion of the test and qualification process, the aim is to begin serial production negotiations between the parties in line with the requirements of the Indonesian army.

Within the scope of the program, FNSS also provided PT Pindad with technology transfer for vehicle design, integration, body production, testing and verification.

The "Kaplan" MT is powered by a power pack at the rear of the vehicle, which delivers a power-to-weight ratio of about 20 HP/ton. The engine transfers this power to the drive system, which has a six-wheel,

anti-shock suspension system with double-pinned tracks mounted on torsion bars. The vehicle's firepower is provided by a CMI Cockerill 3105 turret, integrated with a high-pressure 105 mm Cockerill gun and an advanced autoloader. Thanks to this turret, the "Kaplan" MT has high firepower power despite its relatively low weight.

The interior of the vehicle was carefully engineered by taking into account the ergonomics of the crew and the different tactical and battlefield conditions, including driving, firing and ammunition loading and unloading. Special type of driver seat enables the operator to have adequate field of view, and to access all cabin equipment. The "Kaplan" MT is also equipped with a battlefield management system and laser warning system that provides tactical awareness to the vehicle commander.

With high-end mine and ballistic protection for its class, the "Kaplan" MT provides adequate firepower against battlefield threats with great speed of response and within a short period of time. This, in turn, ensures superior survivability and mobility on the battlefield.

Technical Specifications of "Kaplan" MT

General	Mobility
Engine: Diesel Transmission: Fully Automatic Crew: 3 (Driver, Gunner, Commander) Mission Equipment › 360º Situational Awareness › Wireless Crew Intercom System › Navigation System › Auxiliary Power Unit › Interior and Exterior Lighting System › Battlefield Management System (BMS) › Laser Warning System (LWS)	Maximum Road Speed: 70 km/h Road Range: 450 km Gradient: 60% Side Slope: 30% Vertical Obstacle: 0.90 m Trench Crossing: 2.00 m Turning Radius: Pivot Operating Conditions: -18°C/+55°C
Protection Systems	**Weapon Systems**
Ballistic Protection (Hull + Additional Armour) Mine Protection (Underbelly Mine Protection) CBRN Protection System Air Conditioning System Automatic Fire Suppression System Smoke Grenade Launchers	Turret: CMI Cockerill® 3105 Main Armament: 105 mm Gun Secondary Armament: 7.62 mm Coaxial Machine Gun

“Anka-S” Accomplishes its First Satellite Controlled Flight

The first “satellite controlled” flight of the configuration within the scope of “Anka-S” program, developed by TAI and currently under serial production, was accomplished in June of 2017. The first UAV system of this configuration is expected to be delivered as the earliest point possible with the mass production contract, which was signed in January 2013

Upon the completion of the qualification tests and acceptance process conducted by the officials of the Undersecretariat for Defense Industries and staff of Air Forces Command, the initial systems within “Anka-S” configuration is expected to be delivered to the Turkish Air Forces within this year.

6 UAV Systems Perform an Operation thanks to the UAV Operation Center

Thanks to SATCOM capability, the ability gained will wipe out the operational constraint caused by line of sight. The configurations to be delivered within the scope of “Anka-S” program will enable critical additional capacities to the Turkish Air Forces in theater.

“Anka-S” expands the control coverage further to TURKSAT 4B’s geographical coverage area. “Anka-S” can be commanded through satellite and land data links such as TAFICS independent of the take-off and landing base. “Anka-S” Operation Center can operate six (6) UAVs simultaneously via Ku Band satellite links with 10 Mbps bandwidth capacity. The center has ability to store, distribute and backup all the data including videos/images coming from all “Anka-S” Systems.

National Cryptographic System to Restrain the Unauthorized Access to Critical Data

Various operational features were added to the system upon the completion of the development activities of “Anka-S” system. While the durability of the air vehicle was reinforced against the peripheral conditions (heat, humidity, rain, etc.), its landing and take-off limits were designed in accordance with the most challenging circumstances of its class. The enhanced security towards the communication systems among the indispensable features of the Unmanned Air Vehicles and operational environments was also launched with this system. The radio and network communication systems within “Anka-S” are being secured with national cryptographic systems and thus the enciphered data access by hostiles or unauthorized persons are intercepted.

The reconnaissance and surveillance system composed of the unique developed night and day camera in full HD resolution, low light camera, laser designator and laser range finder systems will be operating for the first time with the “Anka-S” system as well. The enhanced competence for various tasks with the combat search and rescue capability was acquired with the “Anka-S” systems as part of this program. Upon the development of the remote video terminals, the real-time footage up to 50 km was enabled with the assistance of the terminals developed, enabling an image capture capability that is lighter than 10 kg and easily carried by troops.

Position Recovery through Laser

In addition to the automatic landing and take-off capability, for the “Anka-S” Air Vehicles measures were adopted through adding of “position recovery” with a laser to critical devices generating position data in order to prevent GPS loss and jamming.

Within the context of the program, while the structural improvement of the entire maintenance interface was conducted to increase system efficiency, the Flight Line Maintenance computer with the smart test infrastructure was developed, and the period required for UAV system mission readiness was designed in less than an hour with 3 technicians.

The “simulator system” for reducing the operation and flight readiness period and for the training of the staff utilizing the system in the full sense was one of the most crucial products developed as part of this program. In the system where training is provided over smart software based on various operation scenarios, trouble-shooting operations could be executed as well. Therefore, the objective is to achieve maximum operational harmony of the entire team.

The “Anka-S” project was initiated on October 25th, 2013 to cater to the requirements of the Turkish Air Forces. According to the contract signed between SSM and TAI, ten (10) Air Vehicles, twelve (12) Ground Control Stations (GCS) and related ground support equipment will be delivered in two phases in the upcoming period.

MAM-L Boosts Effectiveness of UAVs

The Smart Micro Munition (MAM-L), developed by Roketsan in line with today's battlefield requirements, attracts attention as a solution that increases the efficiency of air platforms with low payload capacity, especially that of unmanned aerial vehicles (UAV). MAM-L, a variant of the Laser Guided L-UMTAS (Long Range Anti-Tank Missile System) that is also developed by Roketsan, the only difference being that it does not have a rocket motor and glides in the air has already been integrated to the "Bayraktar" and "Karayel" tactical UAVs that are currently being used by the Turkish Armed Forces. The MAM-L, which is being successfully used in various operations involving UAVs, stands out as a munition that has proved itself in the field.

With its low weight of about 50 pounds and a length of 1 m, the MAM-L offers a cost-efficient solution for light attack aircraft as well as UAVs. The MAM-L, with its high explosive fragmentation warhead, is highly effective against light structures, unarmored ground vehicles, radar antennas and soft targets like weapon pits and personnel, in a 25-m radius. The other version with tandem high energy anti-tank warhead is effectively used against heavy armored tanks. The munition can be used efficiently at ranges of up to 8 km, depending on the altitude from which they are released.

Meanwhile, the fact that MAM-L is a member of the same family with Roketsan's medium range anti-tank missile OMTAS and long range anti-tank missiles UMTAS/L-UMTAS, offers a significant advantage to its users in terms of training and logistics.

Roketsan also gained considerable experience in the integration of the MAM-L into air platforms. As long as the air platforms have the required infrastructure, Roketsan can operationalize the MAM-L by completing all the related integration works within a few months. In the event of the infrastructure requiring additional elements, Roketsan also offers its customers integration support.


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Mr. Selçuk Yaşar, President and CEO of Roketsan, states that the MAM-L will soon become the preference of many countries: "The design and application concept of the MAM-L provides its users with the capability of effectively neutralizing time critical targets, particularly those that arise during reconnaissance and surveillance missions. Meanwhile, thanks to its precision guidance and small dimensions, the MAM-L offers a solution with a low collateral damage. When compared with all the other capabilities of the armed forces, a combination of the MAM-L and a tactical UAV is the most cost effective solution. We believe that soon other countries will also start taking an interest in this solution."

Technical Specifications of the MAM-L	
Diameter	160 mm
Length	1 m
Weight	22 kg
Max. Range	8 km
Guidance	Laser Seeker
Platforms	UAV's, Light Attack Aircrafts


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Dassault Systemes Provides Universes of 3DExperience - Embracing Business in the "Age of Experience"

An Exclusive interview with Ms. Elif Gürdal, Dassault Systèmes,Country Manager,Turkey

Defence Turkey: Dear Ms. Elif Gürdal, first of all we would like to thank you for your time. You have been assigned as the Country Manager of Dassault Systèmes. What type of a structure will you adopt throughout this new era that started upon your assignment? What are your comments on the existing personnel structure and responsibilities as well as the vision that you plan to set for this upcoming period?

As you said I joined Dassault Systèmes last year as the Country Manager. When I joined Dassault Systèmes, with no surprise, I found a very innovative company with superior products which have been adopted by many big players in different industries both globally and locally. We have a group of very passionate engineers in our office in Turkey, whose are experts on their fields. In accordance with our ambitious growth plans in Turkey and the region, the number of people in our organisation is also growing. I am happy to lead this very talented team who are the engineers from different disciplines, who are supporting our customers on their transformation roadmap in this digital era.

Defence Turkey: How do you assess your cooperation with the Turkish Defense and Aerospace Industry? Could you please inform us about the projects and ongoing programs carried out with Turkish companies? What are your objectives and strategies to strengthen the cooperation with the Turkish Defense Industry?

Dassault Systèmes was born in the Aviation Industry more than 30 years ago. As a result, we have a deep understanding of the challenges of the Defense and Aerospace Industry. All major players in that industry are already our customers and we are proud to see that the adaptation of our 3DEXPERIENCE Platform in the industry is very significant. In Turkey, the Defense and Aerospace Industry is receiving special attention from the Government and the investors. In order to increase the size of the

industry, the ecosystem needs to be elevated as a whole. It is obvious that the big National projects can be the major driver for this transformation. As Dassault Systèmes, we believe that this kind of transformation can only be possible with the use of the state of the art - innovative technologies. Thanks to our technology and investments in Turkey, we are working very closely with nearly all players and stakeholders, in order to help them achieve their business objectives.

Defence Turkey: In July Boeing announced that it will expand its deployment of Dassault Systèmes' products across its commercial aviation, space and defense programs to include the Dassault Systèmes 3DEXPERIENCE platform. Could you please enlighten us about this partnership?

Dassault Systèmes and Boeing have a very long term history of partnership that has been recently extended. Boeing will expand its deployment of Dassault Systèmes' products across its commercial aviation, space and defense programs to include the Dassault Systèmes 3DEXPERIENCE platform.

This key decision follows a competitive process that included the rigorous analysis of technical and functional capabilities, cost and business benefits across the value chain. Boeing will deploy the 3DEXPERIENCE platform in phases and rely on Winning Program, Co-Design to Target, Ready for Rate, Build to Operate and License to Fly industry solution experiences for aerospace and defense to deepen its end to end digital collaboration, design, engineering, analysis, manufacturing planning and shop floor execution capabilities throughout the enterprise.

The 3DEXPERIENCE platform can reduce integration and support costs, improve productivity, foster new innovation, and aid in the introduction of best practice processes to deliver standard work across the value chain. The 3DEXPERIENCE platform can not only simulate products and processes, but also find and eliminate potential risks and quality issues before production. The platform's single source of data across all applications will provide reliable and actionable real-time information and seamless communication throughout the entire enterprise and supply chain as well as across product generations. This digital continuity will improve data and analytics capabilities.

Boeing not only leads the way in its own industry, but influences the progress of all industries across modern society. We think we are at the turning point of the industrial era, where we are shattering another industry paradigm. The parallel exchange of data between virtual and real operations will transform the value-adding chain into a value creation chain. The entire 'extended' enterprise can

continuously measure and control business processes for maximum efficiency and potential top line growth. This is 'Business in the Age of Experience".

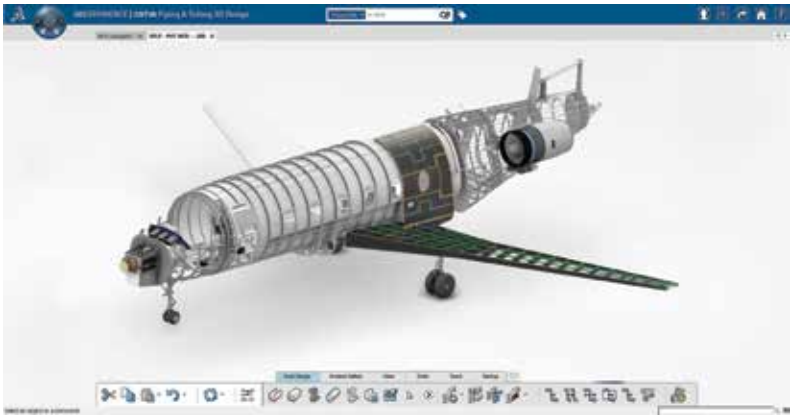
Defence Turkey: Could you please inform us about your Smart City capabilities?

At Dassault Systèmes we refer to "3DEXPERIENCECity" when it comes to smart city capabilities because our approach focuses on "the experience" as the starting point of success for every smart city. A holistic approach to cooperation in various areas relevant to urban life: transport, health, culture, education, etc.

With 3DEXPERIENCity, we offer a city platform that allows users to work on innovation and manage processes. This platform gathers all the information together and makes them available for inventing, planning, designing, building, managing and optimizing the resources of the city and its processes.

For example, Singapore uses a city building system that we call "3DEXPERIENCity" to gain significant benefits not only in management, but also in planning, in the development of territories. This project is named "Virtual Singapore" project. Virtual Singapore is designed to give a whole new meaning to the term "smart city." Powered by sophisticated analysis of images and data collected from public agencies and real-time sensors, Virtual Singapore is designed to give a whole new meaning to the term "smart city."

Dassault Systèmes chose firstly Singapore just for the ambitious 3DEXPERIENCity project. The company created in collaboration with the Singaporean government a hyper-realistic model of the city that is constantly fed with real-time data on population density, traffic, weather, energy consumption and recycling. Analyzing this dynamic digital 'twin city replica' helps policy makers to improve the quality of life.



Defence Turkey: Dassault Systèmes has developed analytics and made it applicable to PLM while leveraging the richness and full potential of product design and manufacturing processes. Could you please enlighten us about your PLM solutions?

3DEXPERIENCE is the next step after Product Lifecycle Management (PLM). It is a business strategy in which companies employ 3D modeling, social collaboration, simulation, and information intelligence technologies to create delightful experiences for their ultimate clients or consumers. 3DEXPERIENCE simplifies the concept and expands the interpretation of experiences beyond engineering perspectives.

Defence Turkey: What are your capabilities on Big data, Augmented Reality and Robotic Technologies?

We as Dassault Systèmes, talk about immersive virtuality (iV). iV is able to deliver value absolutely all along the product life cycle. Our 3DEXPERIENCE platform has the native capacity to display in a VR whatever assembly is currently on screen: in two clicks one can activate an HTC Vive or projection-based system. We are also delivering two solutions as a service in the sales and marketing area. In the automotive world we have Virtual Garage, where we can work for an automotive brand in delivering an immersive sales configurator. The 3DEXPERIENCE platform lets brands from several industries, differentiate themselves and reinvent the event or showroom experiences by infusing gamification, virtual reality, interaction and discovery, as well as real-time consumer tastes and preferences, into the discovery and purchase processes, even before a vehicle is physically available. Another solution that we have and which is very versatile is Homebyme. It can be used by consumers who want to buy either furniture or properties (apartments, offices, etc.).

Robotics is also another interesting topic. Companies everywhere are realizing the power of automation and the value that it brings at so many levels. The latest trends in manufacturing are forcing companies to focus

on technology. This focus is necessary to remain competitive: this is a global trend, so getting left behind is not an option. Today's technologies are making manufacturing more fast paced than ever, and this is evident in the staggering wave of robotics coming on-shore.

Through the 3DEXPERIENCE platform, robot programmers can simulate and validate robot tasks and they are delivered a groundbreaking user experience in robotics. Robotics capabilities in the 3DEXPERIENCE platform enable workcells to be planned with accuracy to design and optimize with greater efficiency. Programmers are able to perform reachability studies, interlock analysis and offline robot teaching to deliver optimized robotics programs to the shop floor. Robot programmers can also create, simulate and validate robots in the context of all manufacturing environments.

Defence Turkey: Could you please inform us about your technologies and R&D activities?

Dassault Systèmes solutions that support a global effort to significantly reduce the development cycles within Aerospace and Defense are all based on the 3DEXPERIENCE business platform. Referred to as Industry Solution Experiences (ISE), each major phase of a program is addressed including the conceptual phase, detailed design, testing and certification, manufacture, sales and operations. Each of the following ISEs delivers significant value individually, but the combined result will further accelerate industry transformation from concept to take-off. To configure the right concept for increased win rates through winning concepts and program proposals, we have created the industry solution experience "Winning Program".

Integrated design from engineering to manufacturing including systems development for prime contractors is addressed with the "Co-Design to Target" ISE. While for aerospace suppliers we have a dedicated solution "Engineered to Fly", that supports specific value streams including machined components, composites, and systems.

To accelerate testing, "Test to Perform" expands the use of virtual testing across the lifecycle to reduce the need for physical tests.

"License to Fly" helps companies accelerate certification to achieve agreed-upon requirements within the 5-year (or 3-year for light aircraft) window and leverages the platform to improve trust between aviation authorities and their suppliers even when driving new innovations to the market.

"Ready for Rate" for production planning helps achieve higher production rate and quality as design engineers and manufacturing planners collaborative early to prove design can be fabricated and production can be executed at expected rate using a virtual factory.

"Build to Operate" for Manufacturing Operations Management (MOM) offers aerospace Original Equipment Manufacturers (OEMs) and large suppliers the ability to implement lean practices and meet demand without sacrificing either quality or schedule.

With digital continuity from engineering through to production and to the shop floor, manufacturing planning and operations are no longer two separate processes. Rather, they are now one continuous improvement process for higher flexibility with quality and safety.

From cabin and product configuration through to virtual cabin validation, "Passenger Experience" helps to better manage customer expectations to accelerate sales and reduce the number of engineering changes by making mass personalization profitable.

Finally, the "Keep Them Flying" Industry Solution Experience allows aerospace OEMs to implement a world-class customer support offering with industry-leading on-line services and the most responsive and personalized support.

Defence Turkey: Would you like to convey any message to our readers?

Our vision is, as perfectly said by our CEO Bernard Charlès: "Dassault Systèmes provides business & people with 3DEXPERIENCE universes to imagine sustainable innovations capable of harmonizing product, nature and life".

Under the light of this vision, we are working rigorously as a team in Turkey, to create and support companies in the Defense and Aerospace Industry to help them to create value for their customers. Our investment to the Industry keeps growing locally and globally, which indicates our commitment to the entire ecosystem

Ms. Elif Gürdal, Dassault Systèmes,Country Manager,Turkey met up with Mr. Cem Akalın - Managing Editor of Defence Turkey Magazine in Paris Air Show.

10th International Conference on Information Security and Cryptology Held in Ankara

The 10th International Conference on Information Security and Cryptology was held in Ankara on the 20th - 21st October, 2017 at the headquarters of the Information and Communication Technologies Authority. Prime Minister Mr. Binali Yıldırım, Minister of Transportation, Maritime Affairs and Communication Mr. Ahmet Arslan, Chairman of the Information Security Association Mr. Ahmet Hamdi Atalay, President of the Information and Communication Authority Dr. Ömer Fatih Sayan and many invitees attended the conference. This year's main theme was "Cyber Security and Artificial Intelligence".

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Artificial Intelligence becoming an Inseparable Part of Cyber Security

In his opening remarks at the Conference, Chairman of the Information Security Association Mr. Ahmet Hamdi Atalay stated that they were celebrating the 10th anniversary of the conference and added, "Back then we gave the conference a thematic title of information security because in those days the problem was perceived merely as related to information security. Yet today, the size of this problem is greater and now we refer it as cyber security. Information security is currently one of the sub-components of cyber security. 51% of the people in the world are users of the internet. We are immersed in the information infrastructure from trade to education and banking transactions. While increasing the effectiveness, efficiency and speed of our lives, information brings with it threats and danger at the same time. We refer particularly the protection activities against such threats and dangers towards critical infrastructures as cyber security. We have been conducting various activities in order to create social awareness ever since our establishment. We can say that we have been creating an essential amount of awareness both within society and among the decision makers. Turkey used to be in the top ten among the list of countries that faced the most cyber-attacks in the past. In the last two years, we can now we can say that Turkey is no longer amongst the aforementioned ten countries, but we still remain within the top 20 countries and we need to change that.

Today, there is a strategy paper established by Turkey and we have a national action plan, the second edition of which was issued this year by the Ministry of Transportation, Maritime Affairs and Communication. We, from the user level to decision makers, still have certain missions to accomplish. Today we will include these missions into discussion within the scope of this event. We identified this year's theme as "Cyber Security and Artificial Intelligence". Now artificial intelligence is being actively used in the cyber security area similar to every area of our lives. The total number of daily threats has exceeded 230 thousand. The destructive power of malicious software has reached an unbelievable level. With malicious software costing just $100, one can cause more destruction than a war plane and destroy critical infrastructures. In a cyber-war it is possible to affect the entire infrastructure of a country through this $100 software, independent from time and location. The human factor is of vital importance in order to prevent this but in cases where human beings fail to suffice, artificial intelligence has to step in. It reacts so rapidly against a multitude and vast array of complicated attacks, it is not always easy to react and achieve this with just human beings, therefore, this year we selected the utilization of artificial intelligence in cyber security. Many academic and international studies will be accomplished throughout the event. Numerous domestic and foreign academicians applied to present their declarations, and following various screenings presented around 30 declarations here. On the other hand, we provided a variety of training to approximately 700 people throughout the event."

President of Information and Communication Technologies Dr. Ömer Fatih Sayan stated that they strived to fulfill the tasks assigned to them as part of the cyber security organization founded in 2013 and added, "We inaugurated our operations in 2016 with this facility

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Dr. Ömer Fatih Sayan -President of Information & Communication Technologies

we launched. We founded the 5G Turkey Forum, 5G Valley and the BTK Academy in order to get prepared for new generation communication technologies and 5G technology. We prepared the real-time map of our country's fiber infrastructure, our 1285 security experts who are members of the USOM (National Computer Emergency Response Center) cyber communication platform are constantly in touch with us to respond to the cyber incidents."

Minister of Transportation, Maritime Affairs and Communication Mr. Ahmet Arslan expressed that presently social life, business life and critical infrastructures become information-based, and that finance centers, power plants, transportation and communication systems, hospitals depend on this information infrastructure and that they proactively cooperate more toward preventing potential losses, in coordination with all institutions.

Prime Minister Mr. Binali Yıldırım: "Turkey needs more than 30 thousand Cyber Security Experts"

Telling that they established the Cyber Security Council in 2012, Prime Minister Mr. Binali Yıldırım continued, "In that period, there were many countries that were aware of the severity of this issue and taking the required precautions. We need to carry forth with these activities that we started so that we can further levels of prevention. Today, Turkey needs more than 30 thousand cyber security experts. We have approximately1000 qualified staff, so we are speaking of a severe gap at this point. We are talking about the Industry 4.0 revolution. This revolution will fundamentally change our habits and Industry 4.0 will accompany us in all aspects of our lives in respect to technology. All the objects that we use as part of our daily lives are becoming smart devices. The objects will start to speak with the human beings in the near future. Experiments with driverless vehicles through smart transportation technologies are underway. 3D printers are now part of our daily lives. Nowadays, manufacturing without labor and only through machines is possible in factories. All machines in a given factory will

Mr. Ahmet Arslan- Minister of Transportation Maritime Affairs and Communication

be able to communicate with each other. With artificial intelligence, all this improved technology and implementation has become natural. Protecting these technologies in our lives is also crucial; we need to be aware of the fact that each cyber security threat against these aspects should be regarded as a threat against our lives. Cyber-attacks are generated at low costs; therefore, we need a lot of qualified people for the protective measures and deterrence against them. Each attack that we face in the cyber area today should be defined as an attack towards the national security of the affected countries. Currently, there are 5 billion people and 5 billion machines connected with the cyber world. This figure is expected to go beyond 20 billion in 2020. Therefore, we have to adopt our measures in advance. The cyber-attacks have severe destructive effects over the economies of countries."

Stating that the information and communication technologies market in the beginning of 2000s reached $21 billion, Prime Minister Yıldırım underlined that currently this figure

Mr. Binali Yıldırım - Prime Minister of Turkey

has exceeded $100 billion. Pointing out that 77 million mobile and 11 million fixed wideband subscribers exist in Turkey, Yıldırım continued, "Uninterrupted internet access is essential in the information society. Issues emerged with the extension of the utilization network in information and communication technologies. Therefore, we must adopt the required measures here. We have to be proactive and identify the potential issues that we may face in the future. Within 5 years, there will be a need of 1.5 million cyber security experts in the world. In Turkey we need 30 thousand cyber security experts. An infrastructure and a legal foundation are imperatives for the management of these human resources. We identified the Ministry of Transportation, Maritime Affairs and Communication as the supervisor. We need to focus on indigenous technologies such as national software, national hardware. As the government, our most primary objective will be to integrate national security with cyber security. Identification and elimination of the threats prior to the cyber - attacks are of critical importance, we took critical steps to that end. Our Information and Communication Technologies Authority, Ministry of Transportation, Maritime Affairs and Communication and Havelsan Company have been conducting crucial activities within this context. We identified our road map that is composed of the necessary steps to be taken by 2019. The test process as part of the ULAK Project (4G/LTE Communication System Development Project) that we launched in order to efficiently maintain Cyber Security is on its course. We need to increase such examples. Domestic Micro Electronics industry, domestic chip production, domestic software and technologies should be multiplied."

Underlining the need to protect governmental data in a high security environment through the launching of the national governmental data integration center, which is considered to be one of the components of cyber security, Prime Minister Binali Yıldırım added that they are continuing the activities to train cyber security experts in collaboration with the Universities and YÖK (the Council of Higher Education).

TEKOM Builds upon Years of Proven Expertise Fulfilling Turkey's Defense Industry Requirements

An exclusive interview with Mr. Mehmet Fidan –The General Manager of Tekom

Defence Turkey: Dear Mehmet Fidan, first of all we would like to thank you for your time. As Tekom, you have been providing services to the defense industry in Armored Vehicle Lighting, Air Vehicle Lighting and Signalization Products, Power Supplies, Limit Switches, Control and Command Systems for Military Vehicles, Electronic Systems, Sensors and Special Purpose Aluminum Works areas. Could you please inform us on your facilities and personnel structure, engineering and design capabilities and product portfolio?

First of all, we would like to thank the Defence Turkey family for giving us the opportunity to introduce our company. Tekom was founded in 2000 and as of 2004, we managed to the success that we continue with today by steering our activities towards fulfilling the requirements of our Defense Industry with a stronger infrastructure and staff.

We do not merely exist with our company TEKOM under our auspices; rather, we have been executing our projects with a total of 55 persons with the Tesav Savunma Sanayi ve Ticaret Limited Şirketi which follows the military tender activities and the Teknosar AR&GE Sanayi ve Ticaret Limited Şirketi conducting our R&D studies at the Teknopark of Kocaeli University.

Our engineering staff is composed of 4 PhD, 2 Master and 7 Undergraduate degrees in Electrics, Electronics, Mechanical, Computer and Mechatronics Engineering branches, and contribute greatly to our R&D studies. In addition to our electronic and mechanical designs we are also capable of conducting Optical Designs, Thermal and Optical Analysis with our own personnel and infrastructure.

Apart from that, we continue to fulfill our sector's requests with our experienced technical staff at the production line and with our CNC Machinery track located at our indoor facility which spans 1500 m^2.

We carry on investing in new machinery and staff in order to keep up with developing requests.

Defence Turkey: You assumed critical responsibilities in crucial programs such as the MKE national chaff system for the Turkish Naval Forces and "Fırtına" program of the Land Forces Command. Moreover, you have been providing various services regarding Armored Vehicle Lighting systems to the main contractors of the Turkish Land Vehicles industry such as BMC, Otokar, FNSS and Nurol Makina. What would you like to say about the programs you have accomplished in the defense industry and ongoing projects?

The National Chaff System was one of the milestones for our company. We have accomplished this system comprising 25 vessels within a short period of 18 months in company with MKE Maksam. Thus, within the scope of Maritime Defense Systems, we brought a domestic system to the Naval Forces Command. We carried out the re-design and production of a good part of the sub-components through local resources in this project in addition to the assembly operations. Thanks to these acquirements, we terminate our external dependency regarding the long-term maintenance of these systems.

Within the framework of the "Fırtına" Howitzer Project, we achieved to design and manufacture numerous products from the control command systems over the Howitzer to sensor groups and to electronic components through local resources. Currently our products are being utilized by various vehicles operating in the field, and this gives us great pride.

By manufacturing numerous products through local resources in the modernization activities of the Leopard 1 Tank, M60 Tank, M44, M48 and M52 Howitzers we got rid of foreign dependency in this area. We are exporting a portion of these products to countries such as Germany, United States of America and Spain at the same time.

The Armored Vehicle Lighting was realized completely according to the requirements of our clients. Where we used to conduct the integration of a few products, currently we are capable of fulfilling almost all of the requirements of the majority of the local manufacturers. Our R&D studies continue regarding the lacking product groups and we will also be launching the production of our new products by the end of this year.

Defence Turkey: Dear Mr. Fidan, in respect to the Armored Vehicle Lighting, Turkish main contractors procure these products particularly from abroad. Which products that were previously imported are currently being developed nationally and produced through local resources and also being procured to our main contractors? Taking into consideration the feedback attained from the users, how do you assess your performance when you bench mark your products with the foreign products in respect to price, performance, timely delivery and logistics as well as after sales services aspects?

Within the context of Armored Vehicle Lighting, we have been manufacturing all types of lighting required; In-Vehicle Roof Lamps, and for the exterior Signal Lamps, Multifunction Rear Lamps, Reverse Gear Lamps, Blackout Lamps, Front Fog Lamps, Led Lighting, Blackout Drive Lights, Convoy Lamps, Portable Lamps, IR Lamps. I rely on the fact that we are advancing swiftly compared to our rivals in the quality of our products as well as in rapidly fulfilling the requests of our clients. In terms of the prices; we are capable of offering our clients more affordable prices coupled with more qualified products.


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Defence Turkey: As Tekom, you are in charge of the design and production of the interior and exterior lighting and signalization equipment regarding the T625 Multi-Role Helicopter program which is considered one of Turkey's most crucial programs. What is the latest status of the activities executed to this end?

We have been involved the T625 Multi-Role Helicopter Program, even until recently as a local manufacture. I would like to thank especially SSM and TAI team for their trust. We are striving to complete the design, tests and documentation of 13 products in a very short schedule. We have accomplished the Electronic, Mechanical and Optical design of the products very swiftly in accordance with the customer requirements. The prototypes were manufactured and even demonstrated over the helicopter at the IDEF' 17. The tests and qualification process regarding the products are at full speed. We will have completed all tests and the qualification process by the end of the year.


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Defence Turkey: In light of the know-how and experiences you acquired through the T625 Multi-Role Helicopter program, what kind of studies are you making to take part in other military and commercial helicopter and aerospace programs and the programs executed by the aerospace giants? What would you like to share about your activities and initiatives to this end?

This project has been a major experience for our company. I can say that developing products for Air Platforms in the sequel Land and Naval Platforms has been a turning point for our company. In this way, we noticed our deficiencies, strengths and weaknesses; accelerated the institutionalization activities and raised our quality awareness. Besides, we launched a significant infrastructural set up for the upcoming projects.

Defence Turkey: Mr. Fidan, your brand is a recognized and favored brand in the Turkish market. In light of the success you achieved, you also provide services in various areas to the companies conducting Armored Vehicle Production in United Arab Emirates, Thailand, Ukraine, Saudi Arabia and Republic of South Africa. With this program that you have been conducting abroad, what would you like to say on your goals and plans regarding foreign countries?

Collaborating with companies manufacturing military vehicles in foreign countries has been a crucial step for us. We have just been collaborating with the companies in the aforesaid countries and we continue to develop our activities in expeditiously. Although we did not attain grand turnovers this year, we have ambitious goals set to be able to achieve our export targets as of next year. We set a goal of least $ 1 million for 2018 and we are discussing the


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enlargement of our business each year abroad. And concerning this point, we are constantly investing in order to remedy our infrastructural deficiencies.

Defence Turkey: Mr. Fidan, as Tekom, you are providing a planning service to your customers in which all the processes from the start of the material inflow until the product becomes a finished good in accordance with the customers' requirements and sales targets as well. Could you please elaborate this model offered to your customers? What are the advantages brought by this model to the program and to the customers?

We attach great importance to this planning service. By conducting constant and qualified production, we cater to the requirements of our customers on a weekly basis. In this way, by minimizing our customers' stock costs we fulfill their requests through a solid planning system in a very short period.

Defence Turkey: Mr. Fidan, what would you like to say about your quality and test laboratories with your production line and supporting units in addition to the capacity and capabilities of your production and assembly lines?

In order to continuously fulfill customer requests in a qualified fashion, one needs to have good planning and a fast production line. Within this framework, we have been constantly developing our tools and equipment in our production line and CNC machine park. We give priority to new machinery and mold investments. Besides, we have quality and test laboratories for developing our quality infrastructure and we are capable of conducting entire test processes starting from the R&D stage to material procurement up until customer delivery. We execute certain tests requiring great investments through outsourcing support from professional companies or universities.


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Defence Turkey: Our companies need to invest in R&D in order to manufacture unique and national products and we are aware that your company has been making crucial investments to this end. With the help of the resources and investments allocated to R&D, in which areas are you aiming to put forth products of superior technology in order to end our foreign dependency?

The R&D activities are our greatest strength and we are fully aware of that. Companies neglecting research and development investments fail to last in our industry. With this awareness, we allocate approximately 10% of our annual turnover to R&D investments. Currently we have quite significant projects in the Defense Industry. At this stage, we will be transferring all of our resources to the Defense Industry for a while more without exerting our energy in the industrial area.

Defence Turkey: Lastly, do you have any remarks for the readers of Defence Turkey?

Speaking on behalf of myself and our company, we chose a challenging yet attainable endeavor. As our Great Leader Mustafa Kemal Atatürk, whom we appreciate more and more every day, once said "Full Independence could merely be achieved through Economic Independence" and these words encourage us greatly. I would like to reiterate that we will be continuing to do our best in order to achieve the aforementioned words, facing all the challenges

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Mr. Mehmet Fidan, the General Manager of Tekom; Mr. Cem Akalın, Managing Editor of Defence Turkey Magazine

Tremendous Transaction for Nurol Makina – 1000 “Ejder Yalçın” Armored Combat Vehicles Sale to Uzbekistan

Nurol Makina, leading armored land vehicle manufacturer of Turkish defense industry, continues to expand abroad with its outstanding product in the sequel its first foreign sales to Tunisia last March, Nurol Makina has signed a memorandum of understanding with the Uzbek UzAuto company on the joint production of 1000 Ejder “Yalçın” 4x4 Armored Combat Vehicles in Uzbekistan.

Uzbek President Mr.Shavkat Mirziyoyev visiting Turkey after 21 years on 26 October 2017 within the scope of the ‘paying official visits’ and Prime Minister Mr. Binali Yıldırım attended the signature ceremony.

As part of the agreement signed between Nurol Makina and UzAuto companies, 1000 Ejder “Yalçın” Armored Combat Vehicles will be jointly manufactured in Uzbekistan. Within the scope of the agreement, the first 20 vehicles will be manufactured at Nurol Makina’s facility. The rest of the vehicles will be manufactured at the UzAuto’s facilities in Uzbekistan through the joint production model as well as the memorandum of understanding also comprising the direct procurement of 24 Vehicles.

Ejder “Yalçın” 4x4 Armored Combat Vehicle is a unique platform that has proven itself at the theater, and was developed by Nurol Makina for fulfilling the operational requirements of the military units and security forces in all types of regional and land circumstances comprising urbanized terrain and rural areas and it has high protection and maneuvering capabilities.

Ejder “Yalçın” 4x4 offers special solutions to the different operational requirements of users with customizations such as; Border Surveillance and Security Vehicle, Air Defense Vehicle, Reconnaissance Vehicle, Command and Control Vehicle, Mine/IED Detection-Clearance Vehicle, Combat Vehicle, Personnel Carrier, CBRN Surveillance Vehicle, Tactical Missile Carriage/Launch System and Armored Ambulance. By its unique design and high payload capacity, different payloads can be integrated; therefore, Ejder “Yalçın” 4x4 can be customized for various applications.

New Contract with Foreign Customer - Meteksan Defense to Deliver Retinar PTR

Meteksan Defense have signed a contract in a non-disclosed foreign country to supply Retinar PTR Perimeter Surveillance Radar as a result of an international tender

Offering high resolution advanced technology for ground and perimeter surveillance radar systems optimized for human detection and recognition, Meteksan Defense was awarded a contract to supply the Retinar PTR Perimeter Surveillance Radar to a new foreign customer.

Agile Surveillance Providing Swiftness in the Field

Retinar PTR is the man-portable model of Meteksan Defense's Retinar Perimeter Surveillance Radar Family. It is small in size and light weight. The high-technology radar system was developed for use in surveillance operations such as perimeter security of critical facilities, border security, and agile surveillance carried by patrolling mobile personnel.

The system stands out with an enhanced user interface, compact structure, lightness and low power consumption. With its total weight of twenty-five kilograms, it can be carried operationally by by two personnel in its special backpacks and can be used in a mobile capacity on a tripod with its batteries. The user can operate it with two battery cartridges for almost 8 hours. This in turn provides swiftness in the tactical field.

It also generates the doppler signature of the target and provides classification information whether it's a vehicle, human or animal with micro-doppler spectrogram analysis. With this specification Retinar PTR can detect and follow mobile objects that are the size of a human or an animal from a distance of 4 km, as well as vehicles from a distance of 10 km with minimum error.

Retinar PTR is operation ready after the completion of extensive field tests. It has also been customer tested in different areas and weather conditions during the tender process, and the radar performed fully successful during all tests.

Austal High Speed Support Vessel

Austal's Proven Sealift Platform İs Redefining Naval Capability

Austal's High Speed Support Vessel (HSSV) is a new naval capability that offers class-leading sealift, logistics and theatre support, with multi-mission flexibility.

The latest evolution in effective military catamaran design and technology, the HSSV platform carries troops, vehicles, equipment and cargo at high speed between ports or other (austere) locations, with a fast turnaround (loading and unloading), at comparatively low cost.

The HSSV's innovative, 'open architecture' design offers multi-mission flexibility and the opportunity to integrate various mission packages and systems that enable additional tasks to be delivered from this one versatile platform, including, for example;

- Mine warfare
- Hydrographic survey and research
- Special forces (swimmer delivery vehicles, raiding craft, forward deployed HQ),
- Humanitarian and Disaster Relief Austal's

HSSV platform is available in various sizes to suit multiple mission requirements - including 72, 92, 101, 103 and 113 meter LOA variants with capabilities including medium lift aviation support.

Proven Success

Austal is the acknowledged global leader in the design, construction and sustainment of high speed support vessels; having successfully developed the original military catamaran, Westpac Express, for the US Army (Marines) in 2001 - to provide logistics and theatre support in Japan.

The success and utility of this vessel (which is still in operation) led to Austal's Joint High Speed Vessel (JHSV) and what is now the 12 x vessel Expeditionary Fast Transport (EPF) program for the US Navy. As of October 2017, 8 x EPF's have been delivered to the US Navy and 5 of these have been forward deployed to US Military Sealift Command (USMSC) operations around the world, including the US, Middle East, Africa and South East Asia.

Austal's HSSV platform, based on the EPF, has demonstrated early success following delivery in 2016 of two 72 metre HSSV's to the Royal Navy of Oman.

Capabilities

Austal's HSSV range includes the proven Expeditionary Fast Transport (EPF) and High Speed Support Vessel (HSSV) platforms that may be customized to meet operator and mission-specific requirements. The HSSV platform is ideal for fast, intra-theatre military support, humanitarian aid

and disaster relief, search and rescue, military exercises, rapid response medical support (field hospital).

The Austal HSSV 72 is a 72 meter, all-aluminum high-speed military catamaran that can deploy up to 260 embarked troops (+69 crew), wheeled or tracked vehicles, equipment and cargo with medium lift aviation support (helicopter deck for NH90).

With a maximum speed of 40 knots, a range of up to 2,740 nautical miles (at 12.5 knots) and a shallow draft of less than 3 meters, the HSSV is an ideal intra-theatre support vessel for a range of military, search and rescue, humanitarian or disaster relief missions in open seas or littoral (coastal) environments.

The Austal HSSV 72's large 900sqm vehicle deck, pivoting roll-on/roll-off stern ramp and crane enables quick payload transfers in any port. A 12-tone boat launch system (gantry crane) also supports a range of additional missions performed by RHIB' s, unmanned underwater vehicles (UUV) and unmanned surface vehicles (USV's).

The Austal HSSV 72's helicopter deck can provide effective, aviation support to military missions (including UAV) and facilitate search and rescue operations or emergency evacuations.

The Austal EPF 103 is a 103 meter all-aluminum, high-speed military catamaran that offers fast, multiple-mission flexibility and (seated) capacity for 312 embarked troops. The 1,800sqm vehicle deck is capable of transporting 600 tones of payload including wheeled and tracked vehicles, equipment and cargo.

At a top speed of 35 knots, the EPF has a range of 1,200 nautical miles, which translates to the rapid deployment of troops and equipment.

Benefits

Austal's HSSV range has a number of valuable advantages over traditional sealift and airlift modes, with the added benefit(s) of multi-mission flexibility.

HSSV's and EPF's transport more troops, vehicles and equipment - more quickly - to remote locations with no or little port infrastructure required. They also offer enhanced fleet capability from multiple mission packages (such as mine warfare or hydrographic survey) that may be integrated into a customized design.

The HSSV and EPF are cost effective (with low acquisition and operating costs) and represent low risk; with proven designs and assured, on-time on budget construction from one of the worlds' leading defense prime contractors, delivering multiple vessel programs for customers including the US Navy.

Austal's HSSV and EPF are operating around the world (with United States Military Sealift Command and the Royal Navy of Oman) in demanding environments including the Middle East, Africa and Asia - and realizing significant savings in operating costs vs airlift (helicopter) of up to 80%.

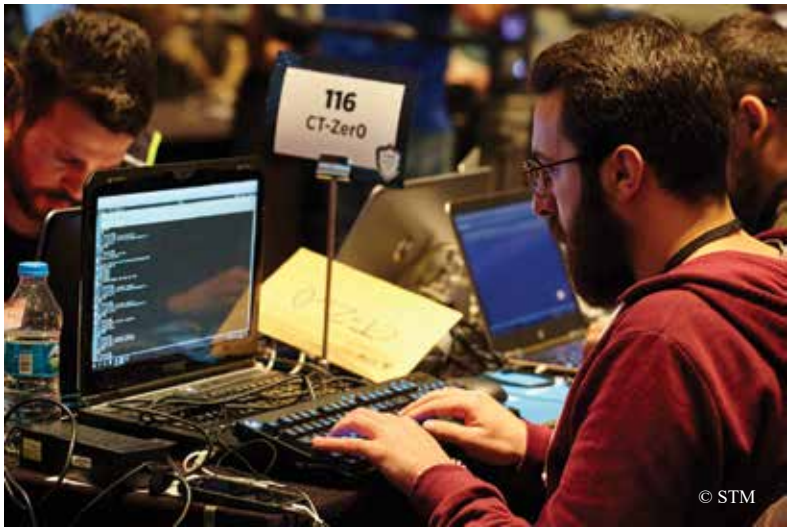
STM – Capture the Flag 2017 Gathered White-Hat Hackers

The third STM CTF Event witnessed the struggles facing today's cyber security professionals and enthusiasts. A total of 113 contestants participated in the event and 29 teams from universities, the private sector and public institutions competed to 'capture the flag'

The "Capture the Flag" contest, held on 26 October 2017 boasted an impressive number of invitees who came to Ankara this year with 29 teams and a total of 113 contestants.

Making a speech at the opening ceremony of the competition, STM General Manager Mr. Davut Yılmaz discussed STM's approach to cyber and information security protection of the country and the investments they made and said: "We are serving many critical public institutions in Turkey as well as the private sector with our Cyber Fusion Center where we eliminate the danger before it occurs, in other words before the cyber-attack takes place. We also issue a cyber security threat report every 3 months to

raise cyber security awareness. With this report, we aim to draw attention to the potential threats in our country. Naturally, we must invest in R&D and human resources to realize all of these proactive measures. While we develop national software on one hand, we try to increase our human resources and strengthen our current structure on the other hand. It is not easy to train a cyber security specialist, especially to create a trained human resource. As STM, we excluded the "bachelor degree" requirement in the recruitment process, only in the area of cyber security. We do not require a bachelor degree from candidates who have proven themselves in this area."



The winner of the contest was Team RTFM

In the competition, which lasted approximately seven hours, the contestants found system vulnerabilities that were deliberately placed in the competition environment, specially created by STM's cyber security team. In the competition where cyber security experts had the opportunity to improve themselves, the participants were engaged in the challenges to reach specific targets set in areas such as cryptology, reverse engineering and Wi-Fi.

The first prize in the contest was 15,000 TL, the second prize was 10,000 TL and the third prize

was 7,000 TL. The first prize winner was RTFM, the second was Kuzgunlar and the third was Hackedemedikmi.

Reliable and Trusted AKSA Run Flat Systems

AKSA Run Flat Systems was established in 2011 in Ankara, Turkey and has been serving the Turkish defense industry with the suppport of the Undersecretariat of Defense Industries (SSM).

As an innovative and leading Run Flat Systems solutions provider, AKSA Run Flat Systems not only fulfills the requirements of the Turkish defense industry, but also provides a wide variety of products that are in line with leading armored defense vehicle manufacturers worldwide. In addition, providing solutions for civilian vehicles are also an expertise of AKSA Run Flat Systems. The company's factory produces run flat systems for the police force and other public vehicles such as ambulances, buses, fire trucks, loaders etc. With dedication, AKSA Run Flat has produced improved run flat systems to save human life.

Over the past six years, AKSA Run Flat has provided a range of different run flat systems for companies in the Turkish defense industry, including:

- Katmerciler
- Bmc
- Otokar
- Turkish police headquarters
- Nurol Makina
- Anadolu Isuzu
- Best Grup
- Turkish Army

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Demonstrating their pride as a family business, AKSA Run Flat works to solve client challenges


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with efficiency, providing expert training and service. Unlike other big corporations, AKSA Run Flat is able to step in quickly to meet customer requirements; from obtaining materials, designing, producing, to assembling and testing, all efforts which benefit their customers in time and labor savings. Key factors in the company's success include their ability to offer:

- Short response time
- Advantages of speaking with a live representative
- Short turnaround time for logistics
- Flexible working conditions
- Priority and urgency

The Republic of Turkey is taking proactive measures to increase the manufacturing of local products and to decrease dependence on foreign products. With the unequivocal and decisive support of the Undersecretariat of Defense Industries (SSM), local companies in Turkey, such as AKSA Run Flat, are able to confidently produce and sell their products in domestic and foreing markets. Ukraine, Russia, Indonesia and Iran are now included on AKSA Run Flat's growing list of client.

AKSA Run Flat is not just a company, they are truly a customer partner.


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NEFER – Joint Weapon System for Armored Vehicles

The "NEFER" weapon system that Aselsan produced with local capabilities, by taking the requirements of the Turkish Armed Forces into account, has now become ready for mass production, having completed qualification tests. Gulf and Asian countries have requests for the "NEFER" Weapon System

The 25/30mm "NEFER" Weapon System was developed to perform effectively in all armored tracked and wheeled vehicles. Aselsan completed the qualification activities of the "NEFER" System, the new member of the Remote-Control Weapon Systems product family. "NEFER" has become ready for mass production that will quickly respond to potential orders.

Aselsan's "NEFER", that was uniquely developed, stands out as an ideal option for countries using NATO weapons and those having Russian origin weapons in their inventories.

© Aselsan

Produced by Local Capabilities

"NEFER" can be used on tracked or wheeled vehicles and on fixed platforms under day/night conditions and against fixed or mobile targets. It was entirely developed and produced with local capabilities.


© Aselsan

The "NEFER" Weapon System can be equipped with western or eastern origin 25/30mm automatic weapon systems and anti-tank missiles and has electro optic and 7.62mm co-axial armament and has the feature of being the first on the market with its lightness, low silhouette and other capabilities.

Two Countries are Launching the Test Campaign

Within 2017, before the contract award, firing tests regarding the "NEFER" system will be conducted with two different customers from the Gulf region and Asia.

The Aselsan Remoted-Control Weapon System has been performing tasks in 14 different countries and on more than 40 different vehicles at over two thousand locations where tens of thousands of different types of ammunition are fired. "NEFER", the new product of the Remoted-Command Weapon Systems family, is also preparing to serve the Turkish Armed Forces and Security Forces as well as friendly countries.

TAI Acquire Another Package from Airbus

TAI has won the business from Airbus – the leading aircraft manufacturer, covering the Design, Build and Supply of "Pratt and Whitney (PW) Nacelle Fan Cowl" for the bestselling A320Neo Aircraft.

The A320Neo family has two engine options, where TAI will supply the "Fan Cowls" of PW1100G-JM engines functioning to protect the jet engine from external impacts and completing the aircraft's aerodynamic integrity. According to the contract signed with Airbus, TAI will design and manufacture A320Neo PW Nacelle Fan Cowls as sole source throughout the entire program lifetime.

The PW Fan Cowls will be designed and built at its state-of-the-art TAI's premises in Turkey, where the Company is already contracted to design, build and supply of Airbus A350 XWB Ailerons, build and supplies of Airbus A330 Rudders, Airbus A320 Section 19


© Airbus

Barrel and Airbus A320 Section 18 Shells along with the supplies of fuselage sections and control surfaces of various commercial/military aircraft platforms.

SSM – "Roboik" Unmanned and Autonomous Land Vehicles Contest

A meeting was held recently in order to give information on the "Roboik - Unmanned and Autonomous Land Vehicles Contest" and it was organized by the Undersecretariat for Defense Industries (SSM) with the approach that the number of unmanned and autonomous land vehicles will increase within a short term. It was held with the participation of the Undersecretary for Defense Industries Prof. İsmail Demir at SSM facilities.

Addressing the participants at the meeting, Mr. Bilal Aktaş, the Industrialization Department Head of SSM, said that they made great efforts to establish a national infrastructure as the Undersecretariat and that they organized such contests to accelerate the nationalization process in the defense industry by revealing innovative ideas and benefiting from them. Mr. Aktaş also conveyed his thanks to the Undersecretary Prof. İsmail Demir for his leading and guiding role at every step of this contest from the idea stage to execution.

Following the presentation of Mr. Bilal Aktaş, the Head of the Industrialization Department, Undersecretary for Defense Industries Prof. İsmail Demir addressed the participants and said that they organized the "Roboik" contest for the first time and added: "This contest is being held as a result of thorough and rigorous analysis of our country's current conditions and vision for the future and in consequence of a long-term planning. We want to motivate our young people with this contest. We believe that Roboik Unmanned and Autonomous Land Vehicles Design Competition will bring out new success stories. Thus, the dynamism of the institutions and organizations leading the sector will increase, new approaches and unique designs will reveal, and the idea that these designs can turn out to be products rather than just a technological demonstration will increase enthusiasm for both participants and sector players."

Prof. İsmail Demir – Undersecratary for Defense Industries

Roboik Contest, Sparking This Year's Designs, Fueling Next Year's Competitive Prototypes

Saying that the Roboik contest is a contest to be evaluated in the short and long terms, Prof. Demir continued, "We will have an interface that allows our researchers, designers, universities, private sector and of course our security forces as users to come together and to unite among one another, and this facilitates the creation of an infrastructure that will enable us to have our say in the world of the future with Roboik. This contest, in which certain stages will be activated in certain periods, started this year with the design concept. We aimed that the participants start to reach their dreams by sketching, and we also aimed to have studies that reveal the truly visible 3-D designs. For that reason, this year we have created 2 categories in the contest and we expect contenders to design unmanned land vehicles at different scales. We have a solid reward system in place. Our first prize will be 100.000 TL, our first prize in the freeform category will be 30.000 TL, we will also have second and third place and honorable mention prizes."

"We will continue this contest in different categories by providing different financial contributions each year with a wide range participation. Next year, this time we will activate the prototype development phase of the same contest and race the prototypes. During the prototype development phase, we will provide financial support by creating control mechanisms. Our studies are continuing rapidly, we will lead the large masses to contribute to the sector with the participation of everyone from different ages and areas, regardless of whether they are professional or not," said Prof. Demir.

In the contest, which is planned to be organized in two categories, specifically as 3-Dimensional Model Design and Freeform, 100 thousand TL will be given to the winner of the 3-dimensional category, and 30 thousand TL will be given to the designer who places first in the freeform category.

With the 'Unmanned and Autonomous Land Vehicles Design Contest' to be organized under the name of 'Roboik', the aim is to design unmanned systems that will contribute to increasing operational capabilities both in internal security and military areas, minimizing margin of error, avoiding possible personnel casualties or reducing them to minimum level, by using advanced technologies.

The results of the contest will be announced on 12 December 2017. The deadline of the contest is 15 November 2017. In addition, it is aimed that the contest formats regarding air, underwater and surface vehicles will be announced within the year and such contests are planned to be realized in 2018.

Turkish Armed Forces Foundation Celebrating its 30th Establishment Anniversary

Established according to the Law number 3388 on 17th June 1987 for contributing to reinforce the fighting force of the Turkish Armed Forces through the development of the national defense industry, consisting of new branches of the defense industry and procurement of ordnance equipment, the Turkish Armed Forces Foundation is celebrating its 30th year of anniversary

Celebrating its 30th anniversary of establishment, the Turkish Armed Forces Foundation (TSKGV) Acting General Manager Mr. Sadık Piyade shared the 2016 results with the public regarding equity capital size, sales and contractual business volume of Founding Companies.

Currently, in addition to the six companies, of which it holds more than 50% of the capital, the Foundation is the shareholder of 29 more companies. In the public announcement, it was stated that by the end of year 2016, regarding Aselsan, TAI, Roketsan, Havelsan, İşbir and Aspilsan companies with foundation partnerships, total assets reached 23 billion TL (est.$6.4 billion), with total equity capital increasing to 5.8 billion TL. (est.$1.6 billion) and sales reached 7.8 billion TL (est. $2.6 billion). Remaining contract bound business volume reached 22.5 billion TL (est. $6.25 billion) and in addition 31% of the total sales consisted of exports. In the statement, it was also noted that $1 billion in payments were made to the local sub-contractors as of 2016.

Within the scope of the press statement, it was point out that great importance was attached to the R&D centers and R&D activities conducted by the Technoparks as part of the Universities, noting that the Foundation Companies transferred a total resource of $755 million to R&D activities by the end of 2016.

In accordance with its law of establishment and the articles of foundation, a large part of the revenues of the Turkish Armed Forces Foundations, together with its companies, are distributed to the modernization projects of the Turkish Armed Forces and the remaining part of the revenue is allocated in order to be used in the development of the national defense industry, in the financing of the investments of the Foundation Affiliates and new industrial facilities conducting production for defense industry. A total of 561 million TL (est.$155 million) was a transfer of funds to the procurement of the systems required by the Turkish Armed Forces since the day of its establishment.

Mr. Sadık Piyade - Acting General Manager of TSKGV

Aselsan – Considerable Export Sales from Turkey to Ukraine

A contract between Aselsan and Ukrainian company STE has been signed in order to fulfill the military communication requirements of Ukrainian Armed Forces. The procurement of Aselsan Software Defined Military Radio Family products, having state of the art technology, software defined architecture, multiple waveforms and electronic protection measures against electronic warfare threats is within the scope of this Contract.

Aselsan Opened the Gates to the Public Visitors

Aselsan welcomed citizens in commemoration of TSKGV's 30th anniversary. Aselsan General Manager Dr. Faik Eken said, "We have more than 300 products, export to more than 60 countries. Our most important objective is to save our country from foreign dependency in the defense industry."

Aselsan, one of the subsidiaries of the Turkish Armed Forces Foundation (TSKGV), opened its doors to citizens on the 30th anniversary of its establishment. Within the scope of the public tour, Aselsan hosted about 300 people at its facilities.

At the Macunköy facilities visitors were welcomed by Aselsan officials. They were first informed about the institution's activities and then Aselsan's promotional film was shown. Later the production sites were toured by visitors. In the Hacim Kamoy Hall, visitors were informed about the systems and received replies to their inquiries regarding topics they were curious about.

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At the end of the visit, the participants traveled by electric bus, developed by Aselsan, to the entrance of the facility. In his


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statement regarding the event, Aselsan General Manager Dr.Faik Eken said that they were happy to welcome TSKGV donors and citizens at their facilities.

Emphasizing that the foundation has a great influence and provides a valuable service in the defense industry, Dr.Eken pointed out that foundation is the great partner of Aselsan, TAI, Roketsan and Havelsan, which constitute the backbone of the defense industry. Underlining that Aselsan is a tremendous asset created for Turkey, Dr. Eken stated that the company ranks 7th in the Istanbul Stock Exchange. "Aselsan employs about 5,500 staff, more than 3,000 of them are engineers. We have more than three hundred products, we export to more than sixty countries. Our most important objective is to save our country from external dependency on other countries in the defense industry. We are exerting all efforts to this end. With our decisive policies, our defense industry has reached over 60 percent of local contribution from 20 percent and we, as Aselsan, are very happy to work hard in order to enhance this percentage." said Dr. Eken.

Expressing that the interest of the visitors is very high and pleasing, Dr. Eken said, "I think that today's visit is very important to see what can be done and to reflect upon what has been done in Turkey so far, and to look forward toward the future with confidence. The questions of our visitors reflect this confidence and faith. By looking at what we have done, we should be motivated to achieve more, we should aim to do more. There is the necessary intelligence and ability to do everything in Turkey. So, let's organize within a framework and work hard faithfully."


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HÜRJET Concept Design Revealed by TAI

TAI, one of the affiliate companies of the Turkish Armed Forces Foundation (TSKGV), gathered with visitors around Turkey for the 30th anniversary of the Foundation's establishment. The event consists of two groups, one in the morning and the other in the afternoon, approximately 500 visitors attended the tour. At the beginning of the tour, the visitors and the Foundation donators were informed about the projects conducted by the company. Expressing his satisfaction and welcoming the visitors prior to the factory visit, TAI President & CEO, Temel Kotil, Ph.D, shared the future projects and goals of the company with the visitors.

Following the presentation, visitors toured the factory which was TAI's first factory and currently is the main production facility for aircraft structures. They then visited the "Anka" Unmanned Air Vehicles and the production line of the "Atak" helicopters, visitors gathered at the platform where "Hürkuş", "Atak", "Anka" and satellite systems were demonstrated.

In his introductory presentation for the visitors, TAI President & CEO, Temel Kotil, Ph.D, conveyed brief information on the SmallGEO

– the Satellite Project , the Twin-Engine UAV Project and the New Generation Trainer Jet "HÜRJET" Project which was initiated by TAI in the recently. Stating that "We started from scratch and we will accomplish it" in reference to

SmallGEO, Kotil, Ph. D added: "It will be a uniquely designed project which will be entirely launched by TAI. We will develop the SmallGEO communication satellite up to 1 ton as part of this project and it will be used commercially. We will aim to complete the program within a two years period. We rely on the fact that the satellites to be manufactured in this class will be able to fulfill the requirement of TÜRKSAT considering this area while being requested on a global scale.

HÜRJET Program Introduced to the Public

Extending information to the public for the first time on the activities conducted within the scope of HÜRJET Jet Training and Close Air Support Aircraft Project, Kotil, Ph.D said: "Upon the approval of the Executive Board, we have launched the preliminary studies with the budget allocated for this development program. We predict at least a 6-month PDR process (Preliminary Design Review). Upon the completion of the preliminary studies of this program, we expect our government to place its orders".

The "HÜRJET" Jet Training Aircraft is expected to be replaced the Advanced Jet Trainer Aircraft T-38.

Moreover, the Light Attack Aircraft configuration of HÜRJET with a 3000-kg payload capacity could be armed in order to be utilized in tasks such as light attack, close air support, border security and counter terrorism activities.

HÜRJET is planned to be designed in a way to conduct its tasks in a 1.2 Mach maximum velocity and a 45.000 ft. maximum altitude and to be equipped with advanced task and flight systems.

TAI has Revealed Twin-Engine New UAV Concept

Stating that the serial production activities within the scope of the Anka-S Program also continue, Kotil,Ph.D, added that they launched the activities over the new configuration capable of carrying a 700 kg payload in addition to the existing configuration that is able to carry a 200 kg payload.

Following this announcement at the Public Facility Tour day, the details regarding the Twin-Engine UAV became clarified as well. Speaking to Correspondent Mehmet Kaya from Dünya Newspaper on 9th October, expressing that they launched an activity with TAI's own resources for the twin-engine UAV with TEI's uniquely designed PD-170 engine, Temel Kotil, Ph.D, added: "By transferring the acquirements that we attained from the "Anka-S" program, we aim to swiftly accomplish this program. The twin-engine UAV will likely have a different name. We will utilize TEI's PD-170 engine in this platform as well. TEI has accomplished the engine and the delivery ceremony will be held with the participation of our Minister of Defense. We will be able to utilize various critical payloads such as SATCOM and Synthetic Aperture Radar in company with the enhanced payload capacity.

In addition, Mr. Kotil,Ph.D noted that they re-designed ANKA's wings and said that they were going to commence the manufacturing the new wings and were planning to complete this activity within a year.

10th FNSS Plastic Battle Armor Modeling Show

The 10th FNSS Plastic Battle Armor Modeling Show, organized with the sponsorship of FNSS, was realized at FNSS facilities.

124 competitors with 305 models competed at this year's competition which has drawn the attention of more modelers and fans each year.

The ranking was completed in the event which was composed of ten different categories.

Following the evaluation made by the Jury, the awards were presented. After the award ceremony, the demonstration of the Armored Battle Vehicle (ZMA-15) and the Pars 8x8 Tactical Wheeled Armored Battle Vehicle produced by FNSS was watched with interest by participants.


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Category 1

Military Tracked Land Vehicles 1914-1945 World Wars

Master Subcategory

Boray Yurdakul – Silver

Hobby Subcategory

Hasan Akyıldız- Gold

Cem Burak Öz- Silver

Category 2

Military Wheeled and Semi-Tracked Land Vehicles 1914-1945 World Wars

Master Subcategory

Sançar Buhur- Gold

Hobby Subcategory

Özgür Acer- Gold

Hüseyin Serin- Silver

Yunus Emre Erentöz- Bronze

Category 3

Modern Military Land Vehicles from 1945 and Onwards

Master Subcategory

Özgür Aydın- Bronze

Hobby Subcategory

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Gökay Yalçın- Gold

Zafer Yakar- Silver

İhsan Çakmakçı- Bronze

Oğuz Can Gökçe – Honorable Mention

Category 4

Military Figures

4.1 - Historical and/or Military Figures

Atilla Güç- Gold

Sunay Tuna- Silver

Doğu Sarhan Demir - Bronze

Aylin Vagas Başara - Honorable Mention

4.2 - Fantastic, Sci-Fi and Post-Apocalyptic Figures

Sunay Tuna- Gold

Doğu Sarhan Demir - Silver

Ramazan Özdek- Bronze

4.3 - Busts

Atilla Güç- Gold

Sunay Tuna- Silver

Volkan Ayhan- Bronze

Doğu Sarhan Demir- Honorable Mention

Damla Demir- Honorable Mention

Category 5

Diorama

Hakan Alakoç - Bronze

Volkan Ayhan- Bronze

Sançar Buhur- Bronze

Mehmet Hakan Karlı- Honorable Mention

Category 6

1/48 Scale

Sançar Buhur- Gold

Gürkan Özkan- Silver

Gökay Yalçın- Bronze

Aysun Yalçın- Honorable Mention

Category 7

1/72 Scale

Özgür Aydın- Gold

Baki Temel- Silver

Mehmet Fatih Taş- Silver

Gürkan Özkan- Honorable Mention

Category 8

What-if Land Vehicles

Oykun Eren- Gold

Murat Yılmazer- Silver

Baki Temel- Silver

Hakan Güney- Bronze

Kerem Atabeyoğlu- Bronze

Category 9

Military Land Vehicles used by the Turkish Armed Forces

Volkan Ayhan- Gold

Zafer Yakar- Mention

Levent Başara- Honorable Mention

Category 10

Young Modelers

İbrahim Akın- Honorable Mention

Bora Özalhas- Honorable Mention

Oğuz Can Gökçe- Honorable Mention

Pera Sarf- Honorable Mention

Arhan Altınışık- Honorable Mention

Çağın Gümüş- Honorable Mention

Alp Kaan Ulusoy- Honorable Mention

Mehmet Emir Bilgin- Honorable Mention


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Expodefensa - the Defense and Security Reference for Latin America

Expodefensa, international Defense and Security exhibition (Air, Land and Naval), will be held from 4 to 6 December 2017 in Bogota (Colombia), at the exhibition center CORFERIAS

Since its inception in 2009, Expodefensa has been positioned as the leading Defense and Security event for Latin America and the Caribbean. Expodefensa is supported by the Ministry of National Defense with the participation of armed, security and emergency forces. The organization is made up by two entities, by Corferias and Eurosatory. Both are the references on event organization; Corferias as the Bogota International Business and Exhibition Center and Eurosatory as the leading worldwide land and airland Defense and Security event. In 2015, Expodefensa hosted 232 exhibitors from 26 countries,

10, 390 professional visitors - 66% from them were international, 55 Official Delegations from 27 countries and 49 journalists. The numbers continue to grow every session.

Expodefensa 2017 is an international exhibition and the point of reference for Latin America where all the Defense and Security players, from public bodies and private entities, find technology solutions and international equipment to ensure the defense and security of countries in aspects of air, on land and sea.

Expodefensa highlights the widest range of Defense and Security products presented in Latin America to maintain or restore peace and to prevent and combat natural and industrial disasters. Several centers for the exploitation of energy resources and mine sites are located in the region, that require adequate protection. With exhibitors from all over the world, Expodefensa presents the widest range of Defense and Security products adapted to the regional requirements.

In 2015, Expodefensa hosted exhibitors from 26 countries among them: The United States of America, Russia, Israel, the Czech Republic, South Korea, China, France, Brazil and many others. Expodefensa extends its international dimension


© Expodefensa

in 2017 with new national pavilions and representatives from Spain and Belgium. Amongst the exhibitors are contractors and sub-contractors that will present high-tech products and proven cost-efficient solutions. In addition, companies of services (maintenance, support, etc.), laboratories and research institutes, international organizations, and public institutions participated in the event. Turkey, which has one of the most dynamic defense and security industries in the world, will also be represented at Expodefensa 2017, including internationally renowned companies in their respective domains: Otokar for the Land systems and STM for the Naval systems. All these international exhibitors will exhibit alongside the Colombian armed forces and military industry, which is currently experiencing significant development.

The exhibition welcomes Official Delegations, Defense and Security forces, manufacturers looking for business opportunities and trade visitors from the entire world, but above all, from Latin America and the Caribbean.


© Expodefensa

Expodefensa is a great opportunity to develop network and business, to communicate with potential clients, to reinforce international corporate identity and increase visibility in the dynamic Colombian and Latin American market. It responds to the expectations of governments, critical business and industries and all private and public authorities of the Latin America region and the Caribbean.

The presence of exhibitors coming from five continents allows for the discovering of new suppliers and the latest innovations of the sector. Expodefensa also allows for the development of contacts and the exchange of ideas with experts of the domain, to share knowledge, experiences and lessons learned. This event is a venue for dialogue and interaction between armed & security forces and their suppliers which exhibit the latest products of the Defense & Security industry.

Expodefensa is a meeting place that cannot be missed. It is a must for all the Defense and Security players of Latin America and those worldwide who wish to discover, to understand, to meet and to discuss this ever-evolving sector. A wide range of products and systems will be presented. Many high-level attendees will come to the fair. The next edition will be held from 4 to 6 December 2017 and the event already seems to be very promising. Find more information about Expodefensa on www.expodefensa.com.co.

Bursa's Unique Defense and Aerospace Projects Get Full Marks from the Undersecretariat for Defense Industries

Bursa Chamber of Commerce & Industry (BTSO) continues to create awareness in the strategic industries that play important roles in Turkey's push toward reaching its goals for the future. Enabling the companies to get involved in defense and aerospace through the Aerospace and Defense Cluster, Council and Development of International Competitiveness projects, under its auspices, BTSO now makes it mark on the Uludağ Novel Products Projects Workshop.

Approximately 20 projects composed of trainer jet projects, unmanned land and air platforms were introduced at the 'Uludağ Novel Projects Workshop' led by the BTSO, gathering the companies from Bursa that perform production in defense and aerospace industries.

The companies introduced their defense and aerospace projects and products at the workshop throughout two days. During the workshop, Bursa Aerospace and Defense Cluster (BASDEC) member companies introduced almost 20 projects consisting of trainer jet projects, unmanned land vehicle projects, aerospace and Tactical Unmanned Air Vehicle projects, unmanned air cargo vehicles, projects on 3-D printer for defense industry and military outfits of the future.

In addition to the Deputy Undersecretary for Defense Industries Dr. Celal Sami Tüfekçi, General Director of Military Factories Mr. Murat Akkaya, SSTEK General Manager Mr. Mustafa Gürsoy, Undersecretariat for Defense Industries (SSM) Head of the Department of Industrialization Mr. Bilal Aktaş, SSM Helicopters Department Head Mr. Hüseyin Avşar, SSM Sub-Systems Department Head Dr. Ata Şenlikçi, TEI Piston Engine Division Manager Mr. Erhan Bilgiç, Mechanical and Chemical Industry Corporation

Factory Managers and many officials from the SSM, Uludağ University Chancellor Prof. Yusuf Ulcay, Bursa Technical University Chancellor Prof. Arif Karademir and approximately 50 members of BASDEC attended the workshop organized into 5 different sessions which lasted for two days.

SSM Deputy Undersecretary Dr. Celal Sami Tüfekçi: "Bursa will be a Pioneer in the Defense Industry with the Technological and Production Accumulation"

Addressing the participants with the opening remarks of the Workshop, Deputy Undersecretary for Defense Industries Dr. Celal Sami Tüfekçi shared comments on the defense and aerospace projects of the companies in Bursa. Underlining that Turkey needs to utilize its potential and experiences in strategic sectors in order to attain its goals, Dr. Tüfekçi emphasized the success achieved by Bursa in defense and aerospace with its power in automotive and machinery industries. Congratulating Bursa companies for their successful projects, Dr. Tüfekçi said, "With its industrial know-how and its production skills, I rely on the fact that Bursa will be gaining more success in defense and aerospace. I hereby congratulate all our companies for their successful and valiant effort in this area."

BTSO Board Member "We Achieved a 600 Percent Export Boom in 2016"

BTSO Board Member Mr. İlker Duran stated that Bursa increased its potential in industries requiring high technology such as space, aviation and defense. Expressing that they wish to elevate Bursa to a position it deserves in Turkey and in the world with the belief that "Turkey will Grow when Bursa Grows" Mr. Duran said, "As Bursa's business world, we wish to have a say in the goals of our country which put forth its will and capability to develop unique projects such as developing its unique Main Battle Tanks, Corvettes and helicopters. At this point our greatest assurances are our technical infrastructure, our entrepreneurial

Mr. Bilal Aktaş-Head of the Department of Industrialization at SSM

Mr. İlker Duran-BTSO Board Member

spirit and our qualified human resources. Companies of Bursa achieved an export increase of over 600 percent last year concerning the defense and aerospace industries. Despite the fact that the export figures of defense and aerospace are currently lower than the expected, the will and determination of our companies fill us with hope for the future in becoming the technological base of our region."

President of Bursa Aerospace and Defense Cluster Dr. Mustafa Hatipoğlu shared important information with the participants on BTSO's activities regarding projects, Development of International Competitiveness and clusters. Stating that BTSO developed the culture of taking joint action among the companies, Dr. Hatipoğlu underlined that unique aerospace and defense projects have been revealed as a result of this synergy. Dr.Hatipoğlu said, "The companies in our cluster contribute greatly to the strengthening of our industry through their unique projects. Approximately 75 member companies under the auspices of BASDEC acquire the capability of acting jointly in defense and aerospace. Thanks to this workshop, our members seized the opportunity to convey their projects and products to the bureaucrats."

Mr. Mustafa Hatipoğlu - President of BASDEC

Innovative Products for Defense Industry from Bursa Companies

Bursa companies shared the details of their projects with the participants upon completion of the opening remarks. General Manager of Alida Company Mr. Fahri Dönmez explained the Aviation and Unmanned Air Vehicle Engine Development projects and shared the details of the 'Kanatlı Katır' Project which will enable the transfer of aid and military equipment in earthquake, disaster and war conditions. Mr. Dönmez stressed that with the help of the 'Kanatlı Katır' that is being developed and manufactured by the Alida, Er-Mir and Bemis companies, the rapid and secure transfer of aid and military equipment to the disaster and war zones, through autonomous and remote control, would be enabled.

Stating that the 'Kanatlı Katır' developed based on the principles of unmanned air cargo systems would not require a landing runway, Mr. Dönmez continued, "The equipment carried with the smart cargo module will be practically delivered to the user. The System in question has a quite low radar cross section due to its flex textile structure. Even if the engine is out, it is capable of landing with the help of a parachute and its endurance is 33 hours. This System is able to land on the identified point through the parachute and wings when airdropped from the aircrafts as well. The Project in question has the capacity of carrying a load of 350 kilograms and currently the prototype activities of this Project is rapidly progressing. We aim to be completed with the manufacturing of the prototype by next year and launch the tests."

Mr. Emre Balcı, General Manager of Bizpark Company at Ulutek Teknopark conveyed to the participants the details of 'Nefer' – the military uniform of the future. Stating that critical studies were being conducted in Russia, Austria, America and Germany regarding the smart outfits, Mr. Balcı added that an interactive helmet was included in the 'Nefer' Project. Expressing that the air and pressure are being controlled with the sensors fitted

Mr. Fahri Dönmez -General Manager of Alida Company

on the body over this helmet, Mr. Balcı continued, "We wish to control the body and weapons, make calculations, determine the best way of shooting, and the level of gas and oxygen in the air through the motions with the help of the smart uniforms. The helmet contains night vision and thermal camera as well and the digital binoculars within the helmet enabling the soldiers to see distant locations."

Mr. Balcı pointed out that they aim to manage the entire system over the helmet and added that they intend to complete the first prototype next January and launch the tests. Sharing information on the second phase of the 'Nefer' Project Mr. Balcı continued, "In the aftermath, as part of our Project, we plan to conduct the weapon control over the helmet, identify friendly and enemy troops through the helmet and reach a point which would enable us control the region through artificial intelligence. Moreover, there are activities regarding wound detection over the uniform and thus enabling immediate medical dressing to the point. We intend to create a smart uniform in this way."

In his assessments at the end of the Workshop, Mr. Bilal Aktaş, Head of the Industrialization Department at SSM noted that the workshop hosted by the BTSO was quite fruitful and said, "Bursa companies are very enthusiastic regarding defense and aerospace production. We seized the opportunity to see these companies gathered under the roof of the cluster making their marks on very crucial projects. I believe that the players of the industry will be achieving quite different projects with the help of the culture of acting jointly."

Workshop on the New Generation Light Armored Vehicles Realized in Bursa under the Auspices of the Chamber of Commerce and Industry of Bursa

The Workshop on the New Generation Light Armored Vehicles led by the Undersecretariat for Defense Industries (SSM) with the organization of BASDEC - Bursa Aerospace and Defense Cluster was realized at the Chamber of Commerce and Industry of Bursa (BTSO), gathering the major land platform companies of the defense industry as well as the cluster companies active or willing to become active in the defense and aerospace industry

Having become one of the leading cities of the Turkish economy, Bursa aims to transfer the know-how, experience and production skills acquired in various sectors such as automotive, machinery, textile and chemicals to different industries. Within this context, Bursa companies with crucial know-how in leading sectors also intend to have a voice in defense and aerospace industries that are amongst the most critical industries regarding exports.

Companies originating in Bursa that conduct production in major international companies in automotive and manufacturing and those that make progress in areas such as certification and qualification have set a primary target to take part amongst the efficient shareholders in national projects to be accomplished in the defense and aerospace industries.

Although they are still at the initial stage of the process concerning production and exports, Bursa companies obtain significant output through clustering and other projects launched by Bursa's Chamber of Commerce and Industry (BTSO). According to the data announced by the Turkish Exporters Assembly (TIM), exports increased by 388.27 percent within the first 7 months of 2017, compared to the same period of the previous year in Bursa that launched a crucial breakthrough in exports with the synergy, cooperation and coordination brought forth by the clustering concept. The value of exports conducted within this period exceeded $ 7 million. Bursa companies seized significant success in exports and are exerting their best efforts in order to take part in the national projects in addition to developing new projects in the defense and aerospace industries. Within this scope, the Workshop on the New Generation Light Armored Vehicles executed at the BTSO through BASDEC's organization and led by the SSM, gathered major companies of the defense industry based on land platforms and cluster companies of Bursa that are either active or willing to get involved in the defense and aerospace industry.

Bursa Aerospace and Defense Cluster companies gathered with potential main contractor companies as part of the New Generation Light Armored Vehicles Project initiated in line with the requests of the Land Forces Command at the Workshop on New Generation Light Armored Vehicles hosted by the BTSO, and evaluated the potential cooperation opportunities. 66 companies from Bursa attended the workshop in which giant companies such as Aselsan, BMC, FNSS, Katmerciler and Otokar took part.

Dr. Mustafa Hatipoğlu, President of the Bursa Aerospace and Defense Cluster took the floor and made opening remarks as the host of the Workshop. Underlining that many SMEs in Bursa have experience in aligning with international standards and cooperating with reputable foreign partners in automotive and manufacturing industries, Dr. Mustafa Hatipoğlu added that these points might create a big advantage for Bursa regarding the defense industry. Stating that the defense and aerospace industries absolutely need to benefit from Bursa's infrastructure and facilities and Dr.Hatipoğlu continued, "The rate of local participation which is currently around 60 percent will be increasing as soon as our defense industry discovers the capabilities of Bursa. Regarding the new generation armored vehicles, our companies from Bursa are capable of smoothly overcoming the obstacles with their infrastructures regarding automotive, machinery, composite, textile, electronics and software". Dr.Hatipoğlu also made a presentation on the projects executed by the BTSO, activities of the Bursa Aerospace and Defense Cluster and BTSO's other clusters as well as the activities regarding the projects for the Development of International Competitiveness.

BTSO Board Member Mr. İlker Duran mentioned that the business world of Bursa intends to become an active player in all projects that may contribute to Turkey's growth and development in areas of aerospace and defense and that the companies made a huge breakthrough with the Development of International Competitiveness and Cluster projects launched in this industry. Reminding the audience of the success in increasing exports, reaching 600 percent in 2016 in Bursa in the defense and aerospace industries, Mr.Duran said, "Where the figure per kg regarding Turkey's exports remains around $1.3, the same figure is at the level of $33 in defense and aerospace industries. This data clearly defines why we attach so much importance to the development of the sector. I hereby congratulate our companies that are the actual architects of this success". Mr. Duran finally expressed his belief that the business world of Bursa would be making a great contribution to the Project launched in respect to the production of light armored vehicles through its experiences regarding the industry and manufacturing.

New Generation Vehicle Projects Group Manager of the Land Platforms Department of the Undersecretariat for Defense Industries Mr. Ahmet Karadere stated that they organized the workshop in order to inform Bursa's companies and to discuss the cooperation opportunities with them and added that the Land Platforms Department have accomplished numerous vehicle deliveries in great volumes within the last two years to the authorities such as Land Forces Command, National Police and General Commandership of Gendarmerie. Mr. Karadere underlined that the defense industry activities would further increase in the next decade and continued: "We made significant progress in our projects such as the "Altay" Main Battle Tank, Anti-Tank Vehicle, the Armored Amphibious Assault Vehicle in addition to the New Generation Armored Vehicles Project which we launched in order to fulfill the requirements of 2020s. Our sector representatives that made their mark in crucial domestic projects are now making their mark on important international projects".

This Project was initiated upon the requirements of our Turkish Armed Forces in an era in which the production capacities of the companies displayed an important increase as a result of the business volume regarding the land vehicles containing many new sub systems as well. The Undersecretariat for Defense Industries has been developing policies to fulfill the entire sub systems through sub-industry and SMEs via the Project in which significant investments regarding the engine, running gears, suspension system and armor are to be accomplished. Stating that Bursa was amongst the cities standing out for this Project with its potential in industry and the success it achieved in this area in the recent period, Mr. Karadere said, "We aim to include the new generation vehiclesa having maximum rate of local participation in the inventory of our Land Forces with the support of Bursa's companies that attach special importance to R&D and Design activities".

Following the opening remarks, the Workshop continued with the presentations of the representatives of Aselsan, BMC, FNSS, Katmerciler and Otokar companies on the activities of their companies and their companies' expectations from the supplier companies in respect of the New Generation Armored Vehicles Project. The Workshop ended upon the completion of bilateral business negotiations made with the intense participation of the cluster companies.

SSM officials made assessments after the Workshop and underlined that the capacities of Bursa companies were notably higher than they expected and pointed out that the bilateral discussions accomplished with 66 companies indicated the willingness of Bursa companies toward taking part in the Project. The officials stated that they were in search of a solution partner rather than a sub-manufacturer in the Project allowing exports after its completion and emphasized that they wished to benefit further from the capabilities of the companies that are members of the BTSO and BASDEC within both the New Generation Light Armored Vehicles Project and other land platforms projects in the upcoming period.

National Defense Applications Modeling and Simulation (USMOS) Conference, 2017

National Defense Applications Modeling and Simulation (USMOS) Conference, held for the first time in 2005, is organized for the seventh time in 2017. The biannual conference can now be considered institutional. This year, the USMOS Conference will be held on 21-23 November 2017 under the coordinatorship of METU-TAF Modeling and Simulation Research and Application Center (MODSİMMER). Besides METU, Defense Industry Manufacturers Association (SASAD), Undersecretariat for Defense Industries (SSM) and General Staff of the Republic of Turkey support the Conference.

METU - TSK MODSIMMER was established in 1999 with the aim of providing academic support to the

modeling and simulation (MODSİM) projects of the Turkish Armed Forces (TAF or TSK). The center is under the METU rectorate and it is operating on METU campus together with the representation of General Staff and the Undersecretariat for Defense Industries. METU - TAF MODSIMMER, with experience gained since 1999, has assumed roles such as being the "Center of Excellence" in Turkey in the field of MODSİM and consequently, acting as the authority on "Validation, Verification and Accreditation" and organizing the USMOS Conference at the national level.

Participation in the USMOS Conference is free of charge and open to everyone. This year the Conference's main theme is "New Generation Simulation

Technologies: Augmented Reality and Serious Games." For more detailed and up-to-date information about the conference, the web page (http://www.usmos.metu.edu.tr/) may be visited. In the scope of the conference, local and foreign MODSİM specialists including Mr. Osman Balcı from Virginia Tech University; Mrs. Banu Onaral and Mr. Kurtulus Izzetoğlu from Drexel University; Mrs. Özlem Ö. Garibay from University of Central Florida and Mr. Federico Santiago Pérez Dueñas, the present NATO MODSIM Group Coordinator, will speak.

USMOS Conference is an important platform for sharing and discussing the developments in the field of MODSIM interacting with the leading experts of our country. At the same time, during the conference, industry sponsors will present their works and exhibit their products and capabilities in the exhibition area.

This year at the USMOS 2017 Conference, 48 academic papers were included in the program by the evaluation of three expert reviewers. Submitted papers were distributed among 74 Program Committee members. Poster presentations

will also be held this year. Also, under the program, a panel of distinguished speakers for the main theme of the Conference will be constructed. Lastly, METU MODSIM Student Group will participate at the conference with a contest between universities.

Throttling Ahead-Driven by Territorial Disputes and the Need to Modernize Ageing Fleets, many Southeast Asian Nations Have Increased Defense Spending

By Jay Menon

Military modernization seems to have hit its stride in Southeast Asia. The rise of China and the simmering tension centered on territorial disputes for resource-rich islands in the South and East China Sea, coupled with the need to modernize and replace ageing fleets, have been driving Southeast Asian countries towards increased defense spending. Just how concerned Southeast Asian countries have become about the changes in the region's geopolitical landscape has been reflected in the scope and speed of their military modernization efforts, particularly of their naval and air forces. Brunei, Cambodia, Indonesia, Laos, Malaysia, Philippines, Singapore, Thailand and Vietnam are now among the top defense spenders globally.

That said, while defense spending for the region is growing, the scale and pace varies significantly from country to country. Indonesia, for instance, has more than doubled its spending in the past five years, whereas Cambodia and Laos are expanding their budgets more slowly. Warships, maritime patrol aircraft, radar systems and combat planes, along with submarines and naval defense systems, are high on procurement lists. Barring certain categories in Singapore, most of the air forces in the region are plagued by ageing fleets that were mostly acquired during the 1970s and 1980s.

Countries in the region have recognized the urgency, and significant investments are expected through the next couple of years. Here is a rundown of the air force in some of the leading Southeast Asian countries and their military aircraft programs.

Malaysia

Malaysia's air force is almost in dire straits. Though its fleet includes a good proportion of fourth-generation combat aircraft, many of them, particularly its MiG-29N fighters, are no longer operational. The air force believes that it needs a minimum of six full-strength combat squadrons to properly cover both halves of Malaysia, rather than the four of varying strength that it has. Reports emanating from the country's Ministry of Defense indicate that the government has put on hold a deal, valued at US$2 billion, to replace its existing combat aircraft with Dassault Aviation's new Rafale fighters from France. Malaysia had announced in March this year that it was considering purchase of up to 18 of these fighters to replace its ageing Russian MiG-29s – of which almost half are already grounded.

During the mid-1990s, Malaysia procured 16 MiG-29N fighters from Russia and eight F/A-18D fighters from the United States, but maintaining separate logistics systems for the two types of aircraft has reduced operational readiness and the ability to deploy either one away from its home base for long. That makes it tough for the air force to support naval units in the South China Sea. Malaysia's purchase of 18 Su-30MKM fighters does little to solve these underlying problems.

Malaysian officials insist that the military modernization is imminent in the light of China's actions in the South China Sea, but budgetary pressures have restrained the pace of acquisitions. The country, with MYR8 billion (US$1.8 billion), recently purchased four Airbus A400M military transport aircraft to expand their old Lockheed Martin C-130H-30/KC-130 Hercules fleet.

Thailand

The Royal Thai Air Force (RTAF) is all set to upgrade its F-5 fighter aircraft as the latest in a series of steps that Thailand is taking to modernize its ageing military equipment. Thailand, like several other Southeast Asian militaries, has struggled to maintain and modernize its defense equipment. The F-5 fighter aircraft for the RTAF, which have been in service since the 1970s, have not been immune from this, and faces several challenges including those on the budgetary side. That is the motivation behind the government's decision to delay retiring and to continue to upgrade its F-5s, even as it acquired some new aircraft, though to a much lesser degree than was initially expected.

The first phase, approved by the government in 2014, had been for the upgrade of 10 units under the name of Super Tigris, costing around 2.05 billion baht (US$61.57 million). On August 1, the RTAF announced that the cabinet had approved a further and full upgrade of four F-5s for 3.2 billion baht (US$90.69 million).

It also announced some details

about the upgrade program, by adding another 2,400 flight hours to the airframe, which would add about 15 years to its total service life. These include, among other things, new communications and avionics equipment, the installation of a Link-T tactical datalinks, and the addition of the Rafael Litening III targeting pod and Skyshield electronic jamming pods, Python-4 and I Derby beyond-visual-range air-to-air missiles, and Elbit's DASH helmet-mounted display system. Though the multimode radar system was not disclosed, some have said this is likely to be the Elta Systems' ELM-2032 radar.

In addition to the F-5s, Thailand also currently operates Saab JAS-39 C/D Gripens as well as Lockheed Martin F-16A/B Fighting Falcons. Among the priorities for the RTAF are the purchase of additional Saab Gripens, along with other transport aircraft and helicopters.

Cockpit renovation include new mission computer, two MFCD display, DVDR system, new HUD and UFCP, new ECS, as well as jamming-resistant AN/ARC-164 HAVE QUICK II radio. Link-T tactical datalink will be installed on F-5 Super Tigris to enable the network-centric operation of the aircraft that will be under the RTAF's C2 system.

Indonesia

In Indonesia, the existing aircraft fleet is said to be ageing and insufficiently equipped for anti-submarine, airborne early warning and maritime patrol capabilities. As such, the country is making efforts to expand the existing aircraft fleet by ordering 24 F-16C/D fighter aircrafts from the U.S. with an investment of around US$750 million. In January 2014, Indonesia also signed a deal worth over £100 million (US$150 million) with British Thales Raytheon Systems (TRS) for the supply of ForceSHIELD Short-Range Air Defense System. In addition, Indonesia and Russia have agreed towards procuring 11 Russian-made Su-35S 'Flanker-E' multirole fighter jets for the Indonesia Air Force (TNI-AU). Indonesian Defense Minister Ryamizard Ryacudu says, "The Sukhoi purchase has been finalized and will be signed this November."

The Indonesian military has entered the second phase of its 2014-2019 military modernization plan that includes major upgrades to its fleet of fighter aircraft in August. Among other things, Indonesia is slated to purchase 10 more F-16A/Bs fighter jets in addition to the 14 currently in service purchased from the United States under a US$750 million Excess Defense Articles (EDA) contract. Indonesia will also contribute 20 per cent of development cost for the Korea Aerospace Industries (KAI) KFX next-generation stealth fighter jet. Indonesia said it would trade palm oil, coffee and other commodities for the Russian fighter jets.

Indonesia already operates 16 Sukhoi jets. The Southeast Asian nation made its first purchase in 2003 while it was subject to a U.S. embargo on arms sales due to the military's human rights abuses.

Indonesian Air Force will also upgrade its fleet of F-16 Falcon fighter jets stationed at Roesmin Nurjadi air force base with improved avionic systems at the Iswahjudi Air Force Base, East Java. The F-16 A/B Block 15 OCU fighter aircraft, which are on duty at the Roesmin Nurjadi AFB, are planned to be replaced with F-16 C/D Block 52ID that are available at the Iswahjudi Base since last year. The replacement process for US-made aircraft will take place in several stages until April 2018. "The aircraft's avionic systems will be improved or upgraded at Iswahjudi," Information Dept Head of Air Force, Rear Air Marshall Jemy Trisonjaya, was quoted as saying by official news agency Antara.

According to Trisonjaya the plan aims to replace 16 Fighting Falcon aircraft to strengthen the Roesmin Nurjadin Base's capabilities, while the existing A/B-type aircraft will be upgraded at the Iswahjudi Base. Indonesian Air Force operates two variants of F-16. They are General Dynamics F-16 A/B Block 15 OCU that procured under Project Peace Bima Sena I and F-16 C/D Block 52ID which were an upgraded version from F-16 Block 32 specially for Indonesia. Indonesia is also a partner in the Korean Aerospace Industry KF-X fighter jet program, which Lockheed is helping to develop.

Singapore

Singapore has been contemplating the purchase of the Lockheed Martin F-35 jet, a multi-role stealthy warplane that is touted as the world's most advanced fighter. Singapore intends to acquire four F-35s by around 2022, with the option to purchase another eight more. The project seems to be delayed, but the country's Defense Ministry maintains that, "As a small country with no strategic depth, Singapore will always need superior air capabilities to protect its interests and borders..."Our current fleet of fighter aircraft is adequate for our defense needs, and the F-35 is still under evaluation." Singapore reportedly has a fleet of 60 Lockheed-Martin F-16s and 40 Boeing F-15SGs. Singapore received 32 F-15E jets from the United States in 2010-14 and in 2014 ordered six A330 tanker aircraft from Spain, according to reports. The country is very secretive regarding its military.

Singapore also had awarded Lockheed Martin a US$914 million contract to upgrade F-16s. The fighter jet upgrades, which are the result of a sole-source acquisition, is taking place at Fort Worth, Texas, and should be finished by June 30, 2023. The number of aircraft to be upgraded was not immediately known, but the Defense Department told Congress in 2014 that it had approved selling upgrades for 60 of Singapore's F-16s. According to an Airbus Defense and Space press release, Singapore has chosen to replace its ageing KC-135 R tanker aircraft with six Airbus A330 MRTT aircraft.

Philippines

Philippines early this year took delivery of all the 12 FA-50s from South Korea for P18 billion, one of two big-ticket items in the country's modest military modernization program. The Philippines is planning to purchase 24 more combat aircraft, adding to the 12 FA-50 fighter jets it had ordered from South Korea in 2014, the Stockholm International Peace Research Institute (SIPRI) says. It did not specify when or from whom the aircraft would be ordered. The FA-50s were the first order by the Philippines for advanced combat aircraft in decades amid the increasing tensions with China over disputed territories in the South China Sea.

The Philippines has also awarded contracts to replace its ageing UH-1 Huey helicopters with eight Leonardo's AW-109 utility helicopters.

Vietnam

Vietnam is purchasing 12 Sukhoi SU-30MK2V fighters and related equipment from Russia, to augment its existing fleet of 12 Sukhoi SU-27 and 12 Sukhoi SU-30MKs. Hanoi is looking at modernizing its air force by replacing more than 100 ageing Russian MiG-21 fighters. Vietnam has ordered about a dozen more Russian Sukhoi Su-30 front-line fighters to supplement a fleet of the older Su-27s and Su-30s. According to reports, among the aircraft under discussion with Vietnam were Saab's Gripen E fourth-generation fighter jet as well as the Saab 340 or 2000 twin-engine turboprops fitted with maritime patrol and airborne early warning systems. The country has also shown keen interest in the Eurofighter Typhoon as well as the F/A-50 light fighter jointly developed by Korea Aerospace Industries (047810.KS) and Lockheed. Lockheed, according to reports, had discussed selling its Sea Hercules, the maritime patrol version of its C-130 transport plane. Russia's MiG-35 multirole fighter jets may be coming to Vietnam, where the useful life of the country's third-generation MiG-21 fighter jets is coming to an end, the head of MiG aircraft manufacturer Sergei Korotkov told RIA Novosti recently. The MiG-35 is a new multirole fighter that includes fifth-generation information and sighting systems. According to Korotkov, Southeast Asia is an "interesting region" for the aircraft manufacturer when it comes to prospective sales.

The Way Forward

McKinsey & Company's report sees defense investment in Southeast Asia continuing to grow in the mid to long term. In detail, the report identifies several market segments that may present potential for further growth. For example, the report sees that the demand for special-mission aircraft may grow in the future. In Southeast Asia, the requirement for protecting coasts and borders from threats, including terrorism, drug smuggling and piracy, is growing. As such, special mission aircraft are able to fulfill operations such as airborne early warning and control, anti-submarine and maritime patrol. They are also versatile and can execute both military and non-military operations. The report also says that the demand for troop transport aircraft may grow in the future as Southeast Asian military may require them to meet growing demand in disaster relief and humanitarian work. Indonesia's acquisition of the maritime patrol and surveillance version of the CASA/IPTN CN235 is one such example

129 "Atak" Revved-up and Ready for its Flight Demonstration at Dubai Air Show

TAI is getting ready to attend the "Defense and Security Fair" on 6-9 November 2017 in Thailand and the "Dubai Airshow" on 12-16 November 2017. The T129 Atak Helicopter will fascinate the audience with its performance in Dubai with its Demonstration flight.

TAI aims to make its mark in the defense markets of two very crucial geographies by demonstrating its products at the fairs in Dubai and Thailand which are regarded as two very notable defense events. The T129 "Atak" helicopter, which will realize flight shows at Dubai Airshow, is amongst TAI's essential products and it will conduct a flight demonstration for the first time in the United Arab Emirates. The T129 "Atak" Helicopter is to conduct flight demonstrations during the first three days of the Air Show and TAI will be demonstrating the Anka-S, New Generation Basic Trainer Aircraft "Hürkuş" and the T625 Multi-role helicopter in the static area. On the first day of the event, TAI President & CEO, Temel Kotil, Ph.D, will gather with the visitors at the reception which will be held for the flight demonstration of the T129 "Atak" helicopter at TAI's chalet.

TAI will also attend the Thailand Defense and Security Exhibition with "Anka", "Hürkuş", Fighter Jet and T129 "Atak" mock-ups on 6-9 November in 2017.

Innovation Ecosystem Professionals from around the World Predict the Future at the 34th IASP World Conference in Istanbul, Turkey

The knowledge economy is the way of the future, and it flourishes where international networks are there to nourish it with new ideas. The IASP World Conference is a knowledge community in action, a global gathering of 62 speakers and over 500 delegates, including leading government, business and innovation figures from 46 countries. The last few days in Istanbul have demonstrated just what can be achieved when innovators and innovation managers from across the world collaborate

Teknopark Istanbul, İTU ARI Teknokent and ODTÜ Teknokent, hosted the 34th IASP World Conference in Istanbul, Turkey from September 26th – 29th 2017. With the theme of "Science parks and natural innovation ecosystems: Articulating future strategies," the conference offered new insights into how Science Parks and other Areas of Innovation can prepare for the future and continue to lead their innovation communities (businesses, entrepreneurs, researchers and technicians) as well as their cities and regions through a world of rapid technological change.

As with other concepts laden with potential, science and technology parks and their ecosystems have already shown a relentless evolution since their inception. We have seen many different models follow on from each other, and the event explored how science parks are developing new concepts of space, from FabLabs to Living Labs; how they are offering new specialized services, and creating innovative funding mechanisms to keep themselves ahead of the curve when it comes to new trends and technologies. In other words, speakers from around the world rose to the challenge of predicting the future, of our own industry and beyond.

Held at Swissotel the Bosphorus, the event showcased the flourishing science park and area of innovation community in Istanbul. It is the second time an IASP World Conference has taken place in Turkey, recognizing its growing role in the international innovation ecosystem.

Opening Ceremony and Key Speakers

The event began with an impressive opening ceremony lead by the IASP President, Mr.Josep Piqué (La Salle Technova, Barcelona) who officially opened IASP's 34th World Conference alongside IASP Director General Luis Sanz.

The first day's keynote speaker was Frank Soqui (USA), General Manager of Intel's Virtual Reality Group. He shared insights into the potential of virtual reality in education, sport, retail and medical surgery, emphasizing how essential science parks are to the development of these immersive technologies which can change our daily lives. Dr. Faruk Özlü, Turkish Minister of Science, Industry and Technology, also addressed the opening day, underlining his commitment to Turkey's growing innovation ecosystem.

In opening ceremony, Prof. İsmail Demir, Undersecretary for Defense Industries addressed the participants and gave information about the R&D and innovation investments of Turkey.

IASP Signed MoU with VR First

During the conference IASP signed a new MOU with VR First, a global virtual reality program designed to provide state-of-the-art facilities to anyone interested in exploring virtual reality/augmented reality (VR/AR) development. VR First labs are designed to be key locations for nurturing new talent in VR development. VR First also helps developers to convert ideas into business opportunities and brings developers together with established industry partners such as Intel. Delegates at IASP Istanbul had the chance to try out some of VR First's technology for themselves at their stand in the exhibition, where VR headsets allowed users to experience mountain climbing, skiing and space travel.

IASP Inspiring Solutions

During the gala dinner held at Cemile Sultan Grove restaurant on the shores of the Bosphorus on September 28th, the IASP Director General Mr. Luis Sanz announced the winners of the IASP Inspiring Solutions Program 2017, as voted for by IASP members.

The three winners were:

- 1st place: Bilkent Cyberpark, Turkey, for B2B Matching Methodology
- 2nd place: Mjärdevi Science Park, Sweden, for Coderdojo Summercamp
- 3rd place: Bizkaia Science and Technology Park, Spain, for A challenge for the park

Inspiring Solutions is IASP's knowledge-sharing initiative which gives global visibility to innovative ideas and best practices in science park and area of innovation management, and seeks to inspire other members. This year the program attracted 27 entries from across the world, 10 of which were shortlisted by an expert committee to go forward to the members voting around.

The IASP General Assembly was held on 28th September, where IASP Full members approved the candidature of Atlanpole, (Nantes, France) to host the association's World Conference in 2019.

IASP members will meet in Isfahan, Iran, for the 35th World Conference in 2018, which will be hosted and organized by Isfahan Science and Technology Town.

First Breakthrough for Future Air-Breathing Magneto-Plasma Propulsion Systems

By Berkant Göksel - IB Göksel Electrofluidsystems, Managing Director

IB Göksel Electrofluidsystems announced the first breakthrough for future air-breathing magneto-plasma propulsion systems with the release of a new Star Wars movie in December 2015 and presented a first prototype at the ILA Berlin Air Show in June 2016. The first scientific paper was published in the Journal of Physics in April 2017. New results will be presented at the ILA Berlin Air Show in April 2018. It is envisioned that air-breathing plasma propulsion systems will enable future 'stratollite' airships and aircrafts to easily reach altitudes from the ground to 50 km and even beyond.

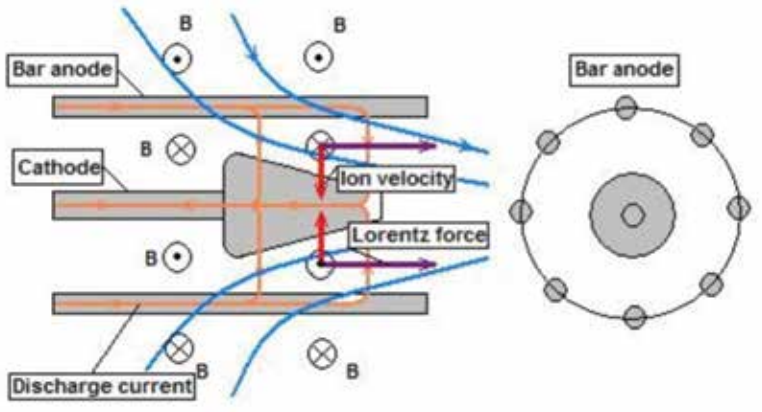
The working principle of the new pulsed plasma engine is based on Lorentz forcing through a set of arc discharges with self-induced magnetic fields. Arc discharges can have very high currents which again generate high magnetic fields. Now in our case, there are arc discharges running from at least six outer bar anodes to a center cathode. The right-hand rule for current-carrying wires might be known to most readers from our high-school physics class:

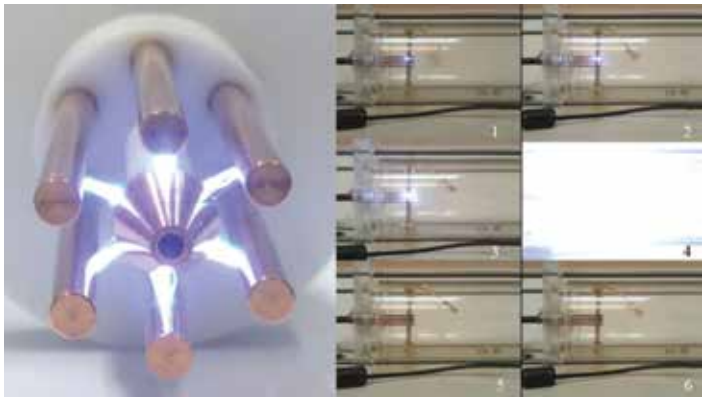
The thumb is the arc current from each of the bar anodes to the center cathode. The trigger finger is the induced tangential magnetic field. The middle finger is the direction of the Lorentz force which is pushing the ionized air towards a pinching focus point where all six force vectors meet and compress the ionized air plasma to pressures up to 100 bar and beyond. After the compression zone, there is an expansion to very high speeds. At ground level conditions, the speed is in the range of 3,300 ft/s (1,000 m/s). At higher altitudes, the plasma exhaust speed can reach values of 5-20 km/s. So, the final effect is very similar to what we have in a rocket (Laval) nozzle that we deal in principle with a kind of an electromagnetic pulse detonation rocket engine analogue.

The total current is very high and can reach values up to several tens of Kiloamperes, whereby the self-induced tangential magnetic fields are as strong as naturally generated by the best rare-earth neodymium magnets with 1.6-1.8 Tesla. With the innovative ignition method based on nanosecond fast high voltage pulse excitations to induce multiple self-organized plasma channels, it is now possible to drive the plasma engine from ground level up to 50 km and beyond. From this point it is a first breakthrough for high-thrust plasma engines which can be often seen in science-fiction movies.

Now imagine a hybrid subsonic flying wing with two types of engines: 1. Two electric aircraft engines with each 50 kilograms weight and 260 kilowatts of power as recently developed by Siemens, and 2. A multi-array of 100 trailing edge distributed air-breathing magneto-plasma flux compression thrusters with combined jet focusing nozzles and a total thrust of 112.4 lbf (500N) to be developed by IB Göksel Electrofluidsystems.

The two classical electric motors from Siemens with plasma noise and separation flow controlled propellers from IB Göksel Electrofluidsystems would be used to start and climb





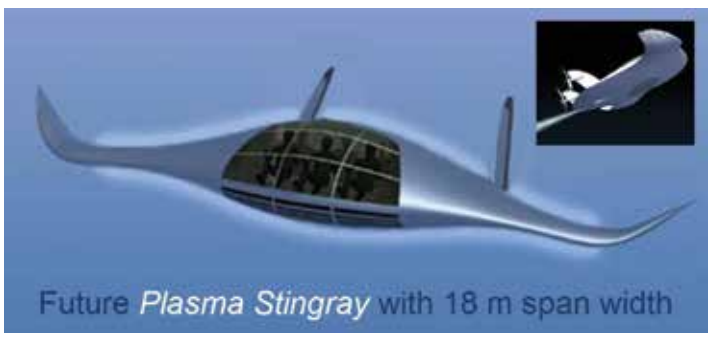
up to 50,000 ft (15.2 km). The second more futuristic engine would be used for a short but fast climb operation from 50,000 ft (15.2 km) to stratospheric altitudes from 85,000 ft (25.9 km) to even 100,000 ft (30.5 km) reaching speeds of 500 mph (800 km/h). The "shining" Plasma Stingray named "Sirius" would bring six space tourists to the edge of near space in less than an hour, switch-off the plasma pulse detonation engine in near space and come back as a glider or lifting body aerospace shuttle. Today, the most popular subsonic aircrafts which could fly at 80,000-85,000 ft are the Lockheed U-2 and Grob Strato-2C. In August 2001, the solar-powered Helios reached an official world record altitude of 96,863 ft (29.5 km) during a maximum-altitude flight for a non-rocket powered aircraft.

The Sirius could take off from any small airfield and would be driven by a compact aircraft fuel cell system with a power density of less than 2.2 lb/kW (1kg/kW) and 660 kW. Wing mounted flexible solar cells based on optical rectenna technology would provide additional 80-100 kW or at least 40 kW power using state-of-the-art solar cells with 30% efficiency.

Future supersonic and hypersonic Sirius systems with 50-100 MW plasma engines would use compact plasmas fusion reactors which will be the most environmentally friendly power units in the future and are already in development by leading aerospace companies. In principle, it is also possible to imagine future single-stage-to-orbit (SSTO) vehicles or aerospace planes as the magneto-plasma thrusters can be fed by gases like Argon and thus would also operate in deep space. For re-entry heat protection and high speed flight modes a second multi-array of thrusters distributed along the leading edge or nose section could work as counterflow magneto-plasma jet actuators comparable to NASA's LPM system in the Paradoxal Concept but without the need of compressed bleed air from mechanical engines. Let's imagine a future with plasma fusion powered plasma aircrafts and airships.

As Einstein told:

"Imagination is more important than knowledge. For knowledge is limited to all we now know and understand, while imagination embraces the entire world, and all there ever will be to know and understand."



TAI and İstanbul Commerce University to Collaborate on Training

İstanbul Commerce University and Turkish Aerospace Industries Inc. (TAI) signed a protocol to ensure that the students of Istanbul Commerce University get to know and comprehend business life and function, in practical terms.

According to the protocol, İstanbul Commerce University will offer a 100% discount to TAI employees within a certain quota for postgraduate programs. In addition, the university will offer 50% discount to TAI employees, spouses and children for certificate programs to be organized by the Continuing Education Center. TAI will provide internship opportunities to the students of İstanbul Commerce University in the business sector in which it performs activities. TAI President & CEO Temel Kotil, Ph.D,and Rector of İstanbul Commerce University Prof. Nazım Ekren signed the protocol and emphasized that such collaboration has significant importance in the field of education.

TAI President & CEO Temel Kotil, Ph.D, said, "Within the scope of this protocol, internship opportunities will be provided to the students, and our personnel will be able to get involved in the graduate programs at İstanbul Commerce University; thus we will prepare our personnel and students for the future. This collaboration between the two institutions will give a great chance to our students."

Rector of İstanbul Commerce University Prof. Nazım Ekren said, "I would like to say that we are proud of this collaboration made with Turkey's prominent institution. We want to take steps to raise awareness in the field of engineering, even though trade and finance fields seem to be at the forefront of our university's founding philosophy and approach. We are confident that this collaboration will enhance the vision of our university as well as the knowledge and experience of our academicians. I hope that our engineering faculty students will enhance their knowledge and experience throughtout their internship."

Entrepreneurs Successfully Completed the Scholarship Program in the UK Gather at TÜBİTAK

24 successful entrepreneurs, who graduated from the "Innovation Leadership Scholarship Program" prepared by the UK Royal Academy of Engineering within the scope of the Kâtip Çelebi - Newton Fund, led by Turkey and the UK, met with their coaches from the UK and other stakeholders in the ecosystem and exchanged their experiences at TÜBİTAK

In his opening speech Prof. Arif Ergin, the President of Scientific and Technological Research Council of Turkey (TÜBİTAK) stated that the Foundation participated in the Innovation Leaders Scholarship Program, prepared by the Royal Academy of Engineering of the United Kingdom, to increase the capacity of researchers and that 24 successful entrepreneurs benefited from such program in the UK. Emphasizing that they encourage entrepreneurship at every level, Prof. Ergin stated that TÜBİTAK is the partner of the Newton Fund, which was launched in 2014.

Prof. Ergin said, "The Fund receives the support of £8 million annually until 2021 and has been given the name of Kâtip Çelebi-Newton Fund for its partnership with Turkey. Within the scope of the fund, bilateral cooperation in science and technology is being conducted in order to establish partnerships between Turkish and British scientists, researchers, universities, research centers and private sector representatives. TÜBİTAK participated in the Innovation Leadership Scholarship Program, which was prepared by the Royal Academy of Engineering of the United Kingdom to increase the capacity of researchers and 24 successful entrepreneurs benefited from that program in the UK. Referring to the joint research cooperation initiated for the field of development, Prof. Ergin said, "We have launched five academic calls with 225 applications and 26 projects supported by the British Council up to now, and we have allocated 14 million TL (est. $4 million)." Noting that in the last decade the allocate of R&D resources has enhanced considerably, Prof. Ergin stated that necessary studies are being performed to increase this further.

"79 Institutions in 26 Provinces reached in Turkey"

UK Foreign and Commonwealth Office Chief Scientific Adviser Prof. Robin Grimes said that he considers science and innovation as a tool for the development of the international cooperation. Underlining that making cooperation with Turkey will contribute to the economic growth and prosperity of the UK in the long term. "Our primary objective in accordance with this goal is to constitute a sustainable high-level dialogue with our counterparts in Turkey," said Prof. Grimes.

Expressing that Turkey has taken innovative steps to support the growth of the scientific community, Prof. Grimes said, "TÜBİTAK's commitment and efforts on this collaboration have brought tangible results and this is solely proved to be a fruitful alliance. Within this scope, 79 different institutions in 26 provinces were attained in Turkey."

Turkey Gets involved in the Program in 2015

Within the scope of the Innovation Leaders Scholarship Program, it is aimed to provide training that will enhance the entrepreneurial capacity of academicians, as well as to create a cooperation network with researchers from other countries.

Turkish entrepreneurs, who participated in the program for the first time in 2015, were selected by TÜBİTAK and the Ministry of Industry, Science and Technology amongst those that had received Tekno Venture Fund Support.

"Cobra- II" Foreign Deliveries are Ongoing

Cobra-II which is developed over existing Cobra Vehicle continues to attract the attention of users as an ideal platform for military units with its superior mobility, capacity to carry up to 9 personnel, high protection offered to personnel, firepower and mission equipment as well as its unmatched performance in a wide range of challenging terrains and climate conditions.

Otokar announced with a press release that it initiated the delivery of "Cobra-II" orders to an Asian country this year. According to the statement, the delivery of "Cobra-II" armored vehicles that are to be used for United Nations missions is expected to be completed in 2017.

The Reconnaissance/ Surveillance Vehicle configuration of the armored "Cobra-II" vehicles performed Land Forces Command missions within the year as well various configurations of the vehicles were also used in Security Forces.

Rolls-Royce Reveals Plans for Autonomous Naval Vessel

Rolls-Royce has revealed plans for an autonomous, single role, naval vessel with a range of 3500 nautical miles.

The vessel concept is capable of operating beyond the horizon for over 100 days, will displace 700 tones and reach speeds above 25 knots. The 60m long vessel is designed to perform a range of single role missions, for example, patrol & surveillance, mine detection or fleet screening.

At the heart of the vessel is a robust and reliable power dense propulsion system. This combines Rolls-Royce's proven expertise in both gas turbines and diesels with a demonstrable track record in electric propulsion, energy storage and propulsors.

According to Benjamin Thorp, Rolls-Royce, General Manager Naval Electrics, Automation and Control, "Rolls-Royce is seeing interest from major navies in autonomous, rather than remote controlled, ships. Such ships offer a way to deliver increased operational capability, reduce the risk to crew and cut both operating and build costs.

"Over the next 10 years or so, Rolls-Royce expects to see the introduction of medium sized unmanned platforms, particularly in leading navies, as the concept of mixed manned and unmanned fleets develops. With our experience and capabilities, we expect to lead the field."

Larger manned ships will cover multi-role missions. Allowing fleet composition to be mixed in this way, navies will reap the operational and cost benefits offered by autonomous technology.

The initial design features a full electric propulsion system which requires fewer auxiliary systems (lubrication, cooling system etc.) and offers better reliability levels than mechanical counterparts. It features two Rolls-Royce MTU 4000 Series gensets providing around 4MW electrical power to a 1.5MW propulsion drive. An alternative to diesel engines could be small gas turbines, further improving the system's reliability and reducing onboard maintenance. Permanent Magnet Azipull thrusters together with a bow mounted tunnel thruster will make the vessel highly maneuverable. To reduce fuel consumption and extend operational range an additional 3000 kWh of energy storage will facilitate efficient low speed loiter operations and the vessel will also be fitted with photovoltaic solar panels to generate power when the vessel is on standby.


© Roll-Royce

The absence of crew increases the need for very reliable power and propulsion systems. Rolls-Royce's approach is to blend advanced Intelligent Asset Management and system redundancy in a cost-effective manner that avoids sacrificing the cost and volume savings achieved by removing the crew. A suite of autonomous support tools, developed by Rolls-Royce, such as Energy Management, Equipment Health Monitoring and predictive and remote maintenance, will ensure the availability of unmanned vessels.

Many of the technologies needed to make autonomous ships a reality already exists. Rolls-Royce has created what it believes to be the world's first Intelligent Awareness System combining multiple sensors with Artificial Intelligence, to help commercial vessels operate more safely and efficiently. Significant analysis of potential cyber risks is also being undertaken to ensure end-to-end security.

Autonomous technology presents an opportunity to automate certain parts of the ship's operations and the partial removal of sailors reduces operating costs and improves safety by limiting the number of people exposed to hazards.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Lockheed Martin Developing Technology to Intercept Missile Threats with Directed Energy

Company Reducing Risk on Laser Beam Control Concept Demonstrator Designed to Fly on an Airborne Platform and Destroy Missiles during the Boost Phase

The U.S. Missile Defense Agency awarded Lockheed Martin a nine-month, $9.4 million contract to develop a Low Power Laser Demonstrator (LPLD) missile interceptor concept, the agency announced on Oct. 5.

"Our Low Power Laser Demonstrator concept puts advanced beam control systems and a fiber laser on a high-performance, high-altitude platform to maximize risk reduction value over the demonstration period," said Ms.Sarah Reeves, director in Strategic and Missile Defense programs at Lockheed Martin. "Lockheed Martin has committed millions of dollars to directed energy research and development, laying the groundwork for the laser technology that brings us much closer to an operational system capable of intercepting a missile in its boost phase."

A missile's boost phase — the short window after its launch — is the ideal time to intercept and destroy the threat, before it can reach top speed or deploy decoys. The speed and precision of laser systems make them potential options for a future missile defense system.

Lockheed Martin will draw from expertise in laser system architectures, ballistic missile defense system integration, platform integration, optics and beam control for the Low Power Laser Demonstrator program. The company has extensive experience in developing laser systems through both government contracts and internal investments, which reduces risk for its demonstrator program.

As a proven world leader in systems integration and development of air and missile defense systems and technologies, Lockheed Martin delivers high-quality missile defense solutions that protect citizens, critical assets and deployed forces from current and future threats. The company's experience spans directed energy systems development, missile design and production, hit-to-kill capabilities, infrared seekers, command and control/ battle management, and communications, precision pointing and tracking optics, radar and signal processing, as well as threat-representative targets for missile defense tests.

104 German Leopard 2 MBTs to be Modernized

Rheinmetall will soon be modernizing part of the Bundeswehr's fleet of Leopard main battle tanks, implementing a comprehensive array of upgrade measures. The Düsseldorf-based technology group for mobility and security will be responsible for key parts of a combat performance upgrade program that will bring 104 Leopard 2 tanks up to state-of-the-art design status. Coupled with additional services, the modernization package is worth a total of €118 million. The first serially retrofitted Leopard 2 A7V tanks will reach the Bundeswehr starting in 2020.

Rheinmetall will be transforming a total of 68 Leopard 2A4, 16 Leopard 2A6 and 20 Leopard 2A7 main battle tanks, bringing them up to A7V standard. In the process, Rheinmetall specialists will be eliminating obsolescent features in the fire control computers and control consoles as well as installing a new laser rangefinder and thermal imaging device.

In addition, Rheinmetall will be supplying the new L55A1 gun for the 68 Leopard 2A4 MBTs to be modernized. These tanks will therefore be able to fire the latest generation of armor- piercing

ammunition in the upper pressure zone. All 104 Leopard 2A7V tanks will be capable of using Rheinmetall's new programmable DM11 multipurpose round.

The order underscores once again Rheinmetall's leading role in tank main armament design and electronic components for modern fighting vehicles.

Multi-Role Tanker Transport Fleet (MMF) Expands Significantly

Germany and Norway to join the MMF

In a signing ceremony on 25 September, 2017, the current Multinational Multi-Role Tanker Transport Fleet (MMF) contract was amended to include both Germany and Norway as participants to the MMF project along with the Netherlands and Luxembourg. Mr. Arturo Alfonso-Meiriño, OCCAR Director, Mr. Bernhard Brenner, Airbus Defense & Space Executive Vice President Marketing and Sales, and Mr. Didier Plantecoste, Airbus Defense & Space Head of Tanker Programs and Derivatives officially signed the amendment at OCCAR-EA offices in Bonn, Germany.

This amendment exercises a contract option to significantly increase the scope of the project from the two A330 MRTT aircraft initially ordered to seven aircraft in total, including also options for up to four additional aircraft (potential increase to 11 aircraft in total). The contract amendment signifies an important evolution of the MMF Program as a key capability for NATO and European Air Forces, demonstrates the increasing confidence of European nations in the cooperative solution achieved by the European Union and NATO and recognizes the A330 MRTT product. Further nations are expected to join the MMF in the future and to exercise the available contract options.

Also in attendance at this important signing ceremony were Mr. Peter Dohmen, General Manager, NSPA, Mr. Jan der Kinderen, the Netherlands, Mr. Tom Schons, Luxembourg, Mr. Stefan Neumann, Germany, and Mr. Dion Polman, EDA.

The MMF project was initiated by the European Defense Agency (EDA) in 2012 and the Organization Conjointe de Coopération en matière d'Armement (OCCAR) manages the acquisition as the NATO Support and Procurement Agency's Contract Executing Agent. The acquisition phase was launched in July 2016 with the signing of the original contract and includes the first two years of support. Following the acquisition phase, NSPA will be responsible for the complete life-cycle management of the fleet.

The Program is funded by the four participants to the MMF project who will have the exclusive right to use these NATO-owned aircraft which will operate in a pooling arrangement. The aircraft will be configured for inflight refueling, the transport of passengers (including VIPs) and cargo as well as for medical evacuation flights. The aircraft will be operated by a multinational unit from the Main Operating Base (MOB) in Eindhoven (NLD) and Forward Operating Base (FOB) in Cologne (GER).

The delivery of the seven A330 MRTT aircraft currently on contract from Airbus Defense and Space's tanker conversion line at Getafe near Madrid is expected between 2020 and 2022.

Saudi Arabian Military Industries Announced MoU with Rosoboronexport

The agreements are underpinned by SAMI's mandate to act as a catalyst for localizing 50 percent of Saudi Arabia's military procurement spending by 2030 as set by Vision 2030 which was announced by His Royal Highness the Crown Prince

Based on the agreement reached between the Government of the Kingdom of Saudi Arabia and the Government of the Russian Federation on the procurement of several armament systems whereas the Ministry of Defense in the Kingdom of Saudi Arabia signed contracts to procure the S-400 air defense system, the KORNET-EM system, the TOS-1A, the AGS-30 and the Kalashnikov AK-103, and based on the assurance of the Russian party to transfer the technology and localize the manufacturing and sustainment of these armament systems in the Kingdom, The Saudi Arabian Military Industries (SAMI) announces the signing of a Memorandum of Understanding (MoU) and a General Terms and Conditions Contract with ROSOBORONEXPORT, Russia's state company for exporting military products. With the guidance of His Royal Highness the Crown Prince, Deputy Prime Minister and Minister of Defense, the two parties signed these agreements, which are expected to play a pivotal role in the growth and development of the military and military systems industry in Saudi Arabia.

The MOU focuses on localizing the manufacturing and sustainment of advance armament systems in the Kingdom of Saudi Arabia in line with the objectives of Vision 2030. The MOU includes the transfer of technology for the local production of the KORNET-EM anti-tank guided missile (ATGM) system, the TOS- 1A advanced multiple rocket launcher and AGS-30 automatic grenade launchers with grenades. In addition, the parties will cooperate in setting a plan to localize the manufacturing and sustainment of parts of the S-400 Air Defense System.

The General Terms Contract covers the local production of the Kalashnikov AK-103 and its ammunition which will contribute to raising the local content and enhancing self-sufficiency in line with Vision 2030.

The agreements also include educational and training programs for Saudi nationals to ensure the sustainability and development of the military industries sector in Saudi Arabia. These agreements are expected to have tangible economic contributions and create hundreds of direct jobs. It will also transfer cutting edge technologies that will act as a catalyst for localizing 50% of the Kingdom's military spending as targeted by Vision 2030 which was launched by His Royal Highness the Crown Prince, Deputy Prime Minister and Minister of Defense.

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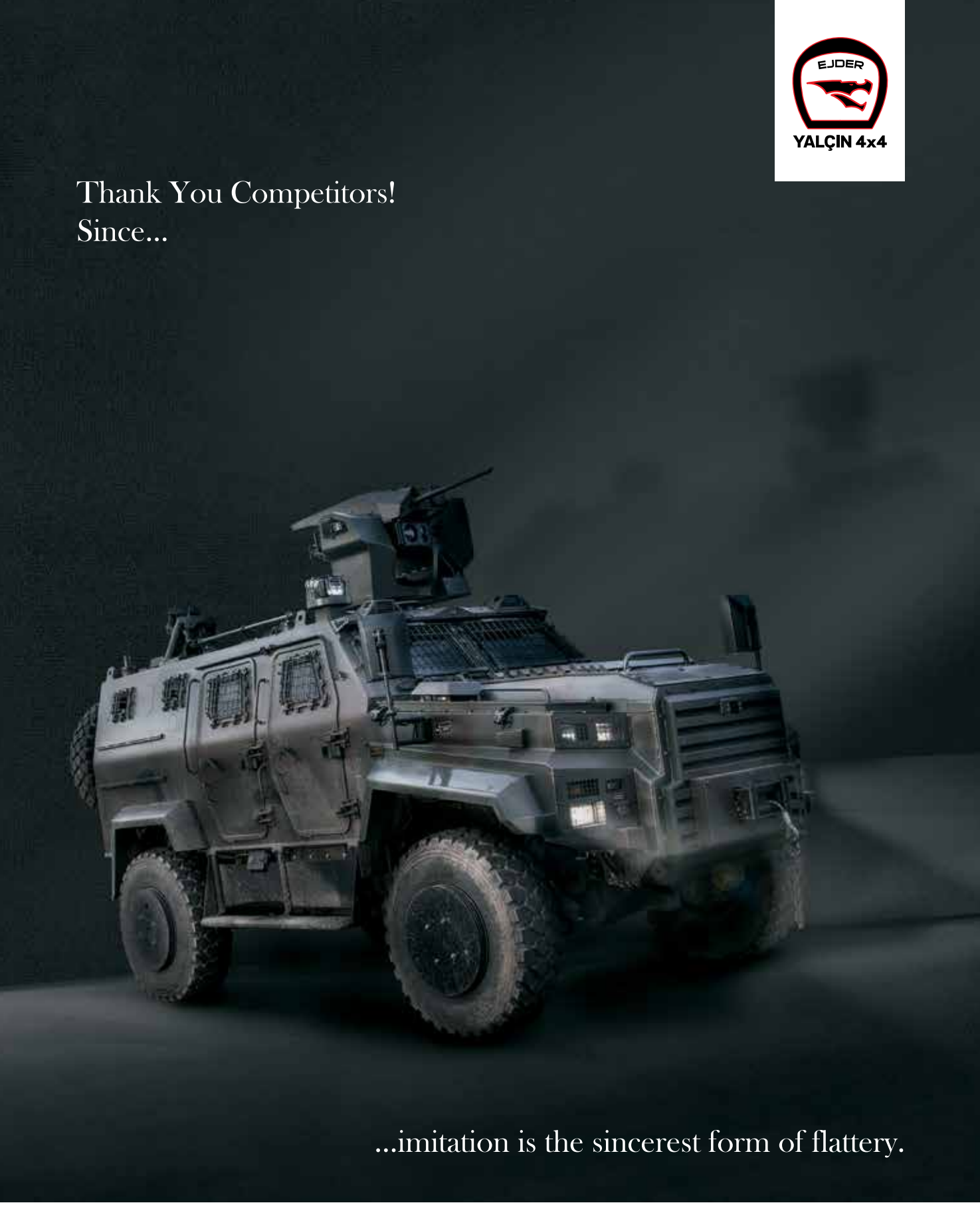
Thank You Competitors!
Since...



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