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AN EXCLUSIVE INTERVIEW WITH DR.FAİK EKEN – PRESIDENT & CEO OF ASELSAN

DEFENCE TURKEY

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GÖKTÜRK-1 RECONNAISSANCE AND SURVEILLANCE SATELLITE LAUNCHED INTO THE ORBIT

ADVANCED MILITARY CAPABILITIES OF THE MEADS SYSTEM – OPPORTUNITIES FOR THE TURKISH DEFENSE INDUSTRY

UNDERSECRETARIAT FOR DEFENSE INDUSTRIES CELEBRATES ITS 31ST ANNIVERSARY

HİSAR-O MISSILE SYSTEMS ACCOMPLISHED FLIGHT TEST

SUCCESS AND MOMENTUM PROPEL ODTÜ TEKNOKENT AND THE TSSK FORWARD IN 2017

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Publisher
Hatice Ayşe Akalın

Publisher & Editor in Chief
Ayşe EVERS
a.akalin@defence-turkey.com

Managing Editor
Cem AKALIN
cem.akalin@defence-turkey.com

Administrative Coordinator
Yeşim BİLGİNOĞLU YÖRÜK
y.bilginoglu@defence-turkey.com

International Relations Director
Şebnem AKALIN
sebnem.akalin@defence-turkey.com

SME's Advertisement Director
Yasemin BOLAT YILDIZ
yasemin.yildiz@defence-turkey.com

Translation
Tanyel AKMAN
info@defence-turkey.com

Editing
Mona YÜKSELTÜRK
Robert EVERS

Graphics & Design
Gülsemin BOLAT
Görkem ELMAS
info@defence-turkey.com

Photographer
Sinan Niyazi KUTSAL

İMGE Co.
Sancak Mah. 596 Sok. 59/7
Çankaya Ankara / Turkey

DEFENCE TURKEY
Administrative Office
Sancak Mah. 596 Sok. 59/7
Çankaya Ankara / Turkey
Tel: +90 (312) 447 1320
info@defenceturkey.com
www.defenceturkey.com

Printing
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Matbaacilik Kağ.Kirt.San.İç Ve Diş Tic. Ltd.Şti
İstanbul Caddesi İstanbul Çarşisi Kat: 2
No : 48 / 64 İskitler - Ankara
Tel: 0 312 256 11 88 Fax: 0 312 256 18 88
Info@gorselbasim.com.tr www.gorselbasim.com

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Increasing Threats, Increasing Defense Spending and R&D activities on Critical Technologies

Ayşe Evers
Publisher & Editor in Chief

The World is going through a very rapid change. The destabilization and crises in the countries of the region have overtaken the borders of the world and that they are now affecting the whole Nations. Turkey is an important actor who can make a positive contribution to the solution of global and regional issues.

Due to its geopolitical position, Defense spending of Turkey will increase in 2017. Turkish National Defense Budget of 2017 is planned to be 28 billion 702 million Turkish Liras. 51.5% of this budget consists of personnel expenses, 8.8% to social security institutions for state premium expenses, 37.4% to purchase of goods and services, 1.5% to current transfers and 8% to capital expenditures

Besides, over 300 projects are being executed within the auspices of SSM. There are projects with the amount of more than $ 9 billion existing merely within SSM's portfolio for the year 2016. The significant programs such as the Indigenous Fighter Jet Aircraft, "Hürkuş" New Generation Basic Trainer Aircraft, Indigenous Lightweight Helicopters, Regional Aircraft, Milgem, Altay MBT are SSM's priority areas.

Within the concept of increasing threats and in line with these major programs, Turkey has to develop its high technology and critical products. The development of these technologies is only possible with intensive R&D studies. R&D expenditures in 2015 were $ 904 million, with a $ 21 million increase from the previous year. 616 million dollars of this were project incentives, while the remaining $ 287 million dollars were from equity sources.

In accordance with the Turkey's R&D activities and strategies on Defense and Aerospace, it is stated that autonomous systems that may come to the Turkey's agenda soon. The automatization of the naval, land and air systems is one of the most discussed subjects. Laser technologies, rocket technologies, space technologies starting from various layers of the air defense systems, various fuel and control systems, radar technologies, engine development in addition to unmanned robotic systems and semi-robotic systems, cyber security, biotechnology, optical and weapon systems, intelligence systems, and electronic warfare are expected to be up-coming priority issues

With the hope, decreasing threats, increasing R&D activities in 2017…

Enjoy this issue.. ■

Aselsan, Locked-on Target to Eradicate Turkey's Foreign Tech Dependency

With an impressive wrap-up of 2016, opportunity abounds in 2017; Aselsan President & CEO Dr. Faik Eken shares the company's strategy, products and projects in an exclusive Defence Turkey Magazine interview.

Avenue Electric Vehicle

Defence Turkey: Dear Dr. Faik Eken, first of all we would like to thank you for this interview. How has the year 2016 been for Aselsan concerning domestic and international sales? What are your assessments?

In 2016, we worked with all our strength in order to fulfill our commitments to all our customers, the foremost being the Turkish Armed Forces. We have accelerated our deliveries and increased our turnover significantly compared to the last year's performance. Export wise 2016 has been a year during which we have received a record level of international orders.

Defence Turkey: Dear Dr. Eken, based on its total sales, Aselsan has climbed 4 steps in the list of top 100 defense companies rising from the previous rank of 62nd in the year 2014 to the rank of 58th in the year 2015. While the increasing trend in ranking continues, we observe a recession in total sales figures and rates compared to previous years. In this context, what would you like to say on both the existing conditions in the world and factors specific to Aselsan regarding the strategies that would carry on this increasing trend in the future?

As Aselsan, in 2015, we considerably increased our delivery and TPL (tax procedure law) based turnover figures. Our priority in 2015 was to improve our free cash flow performance. To that end, we minimized our cash outflow within the year and therefore our sales figures based on the IAS (international accounting standards) declined slightly. At the year end, our free cash flow performance increased to a record level. The decline on IAS sales is a temporary situation and we expect that our IAS based sales will increase significantly in 2016.

Various surveys forecast that total defense sales in the world will continue increase in the near future. Surely, this depends heavily on the changes in the world. We will develop strategies according to the dynamics of each region and its relations with Turkey. We will be continuing our joint efforts with the platform manufacturers as well.

We envision that local defense industry companies will be emerging in the world while the existing ones will be strengthening. As the countries become more sensitive to the local content levels of the products they purchase, the companies will continue to support their domestic industries with the offset policies they implement. As a result, we believe that countries will be making purchases that are supportive of their own defense industries.

Defence Turkey: Besides the defense and security sectors, could you please evaluate your performance in Rail Transportation, Electric Vehicles, Civil Avionics, Telecommunication, Mobile Communication, Automation Systems etc. and assess your strategies for the near future?

Just as the Defense Industry, Transportation Systems, Energy Management Systems, and Healthcare Technologies are also significant and critical areas of technology that need to be developed nationally. We have recently established a business sector: UGES (Transportation, Security, Energy, Automation and Health) focusing on these subjects.

In 2016 we have cooperated with Ankara Metropolitan Municipality / EGO and modernized the outdated traction systems (including the electrical engines) on sample metro vehicles that were provided to us. Similarly , the traction systems of the first indigenous tramcar 'İpekböceği' manufactured by the Durmazlar Company is being provided by Aselsan through the cooperation of the two companies. By this means, the domestic contribution rate considering the vehicles will be increased to over 85 percent to be utilized in the national and indigenous underground, regional train, high speed train and locomotives.

In 2016, we have also completed the development on the first indigenous electric bus with our partner TEMSA. The new bus features fast charging (around 7 minutes) which will enable travel up to a distance of 70 km.

Within the framework of the energy systems, we have been working on achieving a trackable, manageable and measurable network infrastructure in Turkey through smart network systems activities and power control.

In the field of healthcare technologies, projects have been initiated for the development of medical imaging devices such as mobile X-ray and MR devices in line with the demands of the country.

Defence Turkey: Dear Dr. Eken, in your previous remarks you mentioned that you aimed to increase your export share within the total sales turnover to the level of 20% and even up to 30% within the next five-year period. Considering the current changes in the worldwide conjuncture including defense budget cuts and the financial recession, are these targets still valid in the defense sector in the midst of such fierce competition?

The fluctuation in the prices of oil and gas, which are the main revenue resources of the countries to which Aselsan makes the most exports, limits the defense spending in these countries. Our export targets are still valid and we will continue to work toward attaining the highest amount of exports within our capability.

Defence Turkey: In respect to exports, we observe that Aselsan has been increasing its impact further in the South American market in addition to the Middle East and Middle Asia regions. Could you please evaluate the ongoing activities and your impact in that region?


EŞİ GÖRÜLMEMİŞ BİR MUHAREBE UÇAĞI GELİŞTİRMEK İÇİN
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DAHA IYI YARINLAR SEKILLENDIRIYORUZ.
Sahip olduğu gelişmiş görünmezlik (Stealth), sensör füzyonu ve veri işleme kabiliyetleri ile F-35 Lightning II, hava üstünlüğünü yeni bir seviyeye çıkarmaktadır. Aynı derecede önemli bir başka özelliği ise yerde gerçekleştirdiği işbirliğidir. Türkiye dahil birkaç ülke tarafından ortak üretilen F-35, küresel ekonomiye de büyük bir katkı yaratmaktadır. Ve eşsiz ortak çalışabilirlik özelliği ile kuvvetlerin, şimdiye kadar görülmemiş seviyelerde birlikte çalışabilmelerini sağlamaktadır. Bu da F-35'in, bugün üretimdeki yegane çok-maksatlı görünmez uçak olmasına rağmen, bütün bu üstünlüklerini görmenin o kadar da zor olmadığını gözler önüne sermektedir.
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We increased our impact in South America in the last few years. We have recently made exports to Chile and Uruguay. Brazil, Colombia and Peru are the other primary countries where we are active.

We have signed four contracts in Uruguay since 2006. We fulfilled all our commitments related with the projects involving our systems towards border security and our communication systems. Our systems are successfully providing service to the Armed Forces of Uruguay.

Additionally, we have significant initiatives in Chile for the modernization activities of airborne and land platforms. Among them, Aselsan won the project for the procurement of the electronic warfare self-protection systems of the rotary-wing platforms of the Chilean Armed Forces.

The experience we gained in the region through the projects executed in Uruguay and Chile also contribute significantly to the activities we conduct in other countries of the region.

Another important point is the support from the government which is in fact quite essential in the defense sector. This is extremely important in the South America region. Intergovernmental communication is a prerequisite in the projects. All the branches of our government, primarily the Undersecretariat for Defense Industries, have really been providing great support to us.

Defence Turkey: In addition to the South America region, we see that Aselsan has recently been penetrating especially the Eastern Europe with a more effective marketing policy. How do you plan to position yourself in this region?

Eastern European and Balkan countries are amongst the countries that Aselsan exports. The main strategy of our company in that geography is a collaborative approach that can be summarized as promoting ”technology transfer and the effective inclusion of the local industries in these countries”.

Recently, the regions of Eastern Europe and Balkans are showing increasing interest in Aselsan’s wide variety of products, exclusive experience, facilities and capabilities.

One country where we are active and conducting variety of activities is Poland. We have already delivered various products from night vision equipment to the radars that Poland needed as part of its border security.

The 30 mm Remote Controlled Artillery Systems delivered by our Defense Systems Technologies Business Sector to the Croatian Naval Forces, to be used in the Coast Patrol Boats. The contract for the procurement was signed in April 2015. Besides, in Macedonia, the Mini TASMUS contract, led by our Communication & Information Technologies Business Sector, has entered into effect.

On the other hand, I would like to emphasize that the facilities and capabilities of our company are not limited merely to the defense area. As an example, deliveries are being made as part of the Electronic Toll Collection Systems contract signed with the Macedonian Highway Administration.

Defence Turkey: You have local companies in countries such as Jordan, United Arab Emirates, Kazakhstan, Azerbaijan, Saudi Arabia in line with your joint production, joint development strategy. We observe that Aselsan is well established especially in the Middle East and Middle Asia through this growth strategy. How would you evaluate the performance and activities of your active companies in this region in 2016? Could you please tell us about the recent status of the programs currently conducted particularly in Kazakhstan, Jordan and Azerbaijan?

Aselsan-BAKU Company located in Azerbaijan was established in 1998 by Aselsan with 100% share. The company is representing Aselsan in the domestic market, sales of civil communication systems with high technology and providing after-sales services. Until today, the sales of Software Defined Radios, Squad Radios, Intra-communication System, Professional Communication Devices and IP Encryption Device were realized and related deliveries were completed. New contracts were signed at the end of 2015 and in 2016 as well. The contracts for the Dismountable Radio-link System, Electro-Optical Systems, HF Land Radio and Airborne Platforms/Tower Communication Systems were signed and have entered into effect.

The KAE LLP Company, jointly established by the Republic of Turkey and Kazakhstan, represents the strategic importance of the existing mutual trust between the two countries. The KAE LLP Company currently conducts its production activities in an 8,500m² indoor area in the Astana Free Economic Zone.

KAE initially started its manufacturing activities with the production of Night Vision Weapon Sights/Goggles, Day Vision Sights, Thermal Weapon Sights, Laser Range Finders, Surveillance Reconnaissance Devices and expanded its activities to the areas of helicopter modernization, remote controlled stabilized weapon systems, tank modernization, and air defense systems. Lastly, as part of the technology transfer from Aselsan, our professional radios will be manufactured in these facilities as well. Our efforts towards equipping the artillery in the Kazakhstan Armed Forces with modern fire support automation systems in the upcoming period are ongoing.

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Aselsan Middle East Private Shareholding Company Limited (AME) was established in 2012 by the partnership between Aselsan and King Abdullah II Design and Development Bureau (KADDB), a state organization of Jordan. Night Vision Weapon Sights/Goggles and Binoculars, Day Vision Sights and Thermal Camera/Weapon Sights manufactured by AME were delivered to the Jordan Armed Forces. Moreover, the orders received from the Gulf countries were manufactured and delivered to the customers. Activities are being carried out to extend the product portfolio of the AME in the near future and to turn it into a significant production and technology base of the region in defense electronics sector, primarily to meet the needs of the Jordan Armed Forces.

In 2016, Aselsan partnered with Saudi Arabian Taqnia Defense and Security Technologies to form a Joint-Venture company focusing on radar, electronic warfare and electro-optics in Saudi Arabia.

Defence Turkey: In the beginning of 2016, an agreement for the establishment of a joint venture which would enable the design, development, production and sales of the Radar, Electronic Warfare and Electro-Optical technologies in the defense sector was signed between Aselsan and TAQNIA Defense and Security Technologies (DST), a state-owned company of Saudi Arabia,. Could you please inform us on the establishment, building progress, capacity and capabilities of this joint venture and the opening schedule of the factory?

The legal setup of the company in Saudi Arabia was recently completed. We envision the factory's construction to begin in the second half of 2017. Our aim is to have the facility in Saudi Arabia to be similar to Aselsan's Gölbaşı facility which has advanced technological infrastructure and equipments. This new enterprise will fulfill the demands of Saudi Arabia and the region by allowing the design, development, production and sales of the radar, electronic warfare and electro-optical technologies.

Defence Turkey: Could you please inform us also on the latest status of the programs conducted at your radio factory operating in Saudi Arabia?

Termal Weapon Sight

Our activities for meeting the tactical communication needs of the Saudi Arabian Armed Forces were executed in line with the 'technology transfer and local production' model. As a result of the intensive efforts conducted since year 2009, the cooperation for the technology transfer/local production of our radios, the performance of which were certified by the Saudi Arabian Armed Forces, between Aselsan and the Military Industries Corporation (MIC) under the Saudi Arabian Ministry of Defense, was initiated in 2011. On October 1st, 2013 the contract for the Technology Transfer and Local Production of the Aselsan Software Defined Radios was signed.

The Military Industries Corporation (MIC) facility to produce software defined radios has been completed and inaugurated in 2016. As part of the contract, the installation of the envisioned production line at this facility and training of the MIC staff were also completed in 2016.

At this facility, which has become ready for production, initially pilot production and afterwards 'Capacity Verification Production' activities were completed. Following these efforts, the MIC staff accomplished Pilot Production activities and the serial production activities are ongoing.

Defence Turkey: Dear Dr. Eken, as part of your growth strategy, will you take initiatives in 2017 and afterwards such as the acquisition of medium or small scale foreign companies or mergers with other companies that are active particularly in niche areas and producing advanced technologies with high added value?

Aselsan main growth strategy is to achieve organic growth. Our acquisition strategy is to seek after medium to small foreign companies in order to supplement or strengthen our technological capability in order to support Aselsan's main activities.

Defence Turkey: Recently, Aselsan accomplished the sale of a highly critical technology, the ASELPOD targeting pod, to an unidentified country in the Middle East. Through this deal valued at 25 million USD, an indigenous product with advanced technology and high added value was exported to a foreign country for the first time. What are your comments on this significant achievement and what are your opinions on the new doors which would be opened following this achievement?

The sale of one of the most complex systems developed by Aselsan to a foreign country is really a great success. This sale is quite important in demonstrating our capability to develop high technology and of integration. The targeting pod is a system developed by merely 3-4 countries in the world and Turkey not only developed this system to meet the need of its own army but also achieved to export it to another country.

Currently, we are in touch with several other countries for this product. This contract will be an important reference paving the way for other opportunities in the future.

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Defence Turkey: Considering the foreign sale of the ASELPOD, how much demand do you expect, especially from the North African, East European and Middle Eastern countries? That being said, how do you evaluate the competitiveness of the ASELPOD in the market as an important brand-product as compared to its rivals, firstly specific to those regions and then including other regions of the world?

When the ASELPOD's technical features, display quality, operational utilization, etc. are taken into consideration, we evaluate that the ASELPOD has equivalent and superior qualities compared to the other targeting pods in the market. Therefore, we are in an advantageous position in terms of international competition. Besides, we are one step ahead of our rivals with respect to price. As you have also mentioned, we expect significant demand for the ASELPOD from the North African, East European and Middle Eastern countries and the developing countries of Asia and South America. We are conducting our marketing and business development activities intensively to this end.

Defence Turkey: System qualification activities were completed recently within the scope of the EO/IR Targeting System development project initiated as part of the demands of the Turkish Air Force and currently the project is ready for the serial production stage. With the serial production stage comprising the second phase of the targeting pod system, the integration of this system to the F-16 PO-III aircrafts in the inventory of the Turkish Air Force is being planned. What is the scope of the project in this context? Parallel to this, could you please inform us about the development activities regarding the targeting pod?

All the qualification test activities of the ASELPOD system were completed. In the first phase, four (4) ASELPOD systems are being delivered to the Turkish Armed Forces (TAF).

Aselsan has also received serial production order from Turkish Air Force for for the ASELPOD system to be integrated to the F-16 PO-III aircrafts.

Defence Turkey: Could you briefly summarize the latest status of the development and test processes of the HİSAR-A and HİSAR-O programs?

The Low and Medium Altitude Air Defense Missile Systems, that we named HİSAR-A and HİSAR-O, are the indigenous solutions that we refer to as the 'system of systems', that contain many critical technologies, and that are highly complex.

The prototype systems were developed within the scope of this project, for which we are currently executing the Sub-System Development and Test Phases. We accomplished the sub-system level design verification activities to a great extent and the system level test process is ongoing. At this stage, the field tests of the prototype systems have started and the firing tests and regular (non-firing) tests planned for the development activities of the missiles and the missile sub-components are being conducted. Meanwhile we continue performance assessment activities by using the models of the system components at the system integration laboratory established at Aselsan. We plan to launch the qualification tests of the HİSAR projects in 2018.

Defence Turkey: How are the activities, conducted as part of the Long-Range Air and Missile Defense System which has been determined to be developed with national resources, proceeding? Which responsibilities will Aselsan have in this project?

As Aselsan, we are developing the required technologies such as command control systems, fire control systems, communication systems, search and tracking radar systems and missile sub-components (seeker, data link, etc.).

As part of the Long-Range Air and Missile Defense Project, activities are being held with foreign companies under the coordination of the Undersecretariat for Defense Industries.

Defence Turkey: Considering the acquired infrastructure and experiences, could we claim that Turkey has a bright future in the indigenous development of surveillance and fire control radars, that constitute the most important part of Long-Range Air Defense systems,?

Yes exactly. Since our radars, being developed within the framework of the Multi-Functional Phased Array Radar System (ÇAFRAD) to be used by the Turkish Naval Forces and the Early Warning Radar System (EWRS) to be used by the Turkish Air Force projects, are the systems that have the equal capability scale with the surveillance and fire control radars required

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by the long-range air defense systems with their improved AESA (Active Electronically Scanned Array) antenna technologies and indigenous radar algorithms.

Defence Turkey: Dear Dr. Eken, do you have a project initiated towards the development of a 'Very Long-Range Ballistic Missile Defense Radar' against ballistic missiles, that would upgrade our country?

Yes. The conceptual design activities are being conducted for the development of a 'Very Long-Range Ballistic Missile Defense Radar' as part of the conceptual studies of the National Air Defense Systems launched by our Undersecretariat for Defense Industries.

Defence Turkey: When do you plan to launch the system development and production stage of the ÇAFRAD Phase-1 Project? What is the program schedule for the system tests and for rendering the system operational following the delivery of the first prototype?

Within the scope of the ÇAFRAD Phase-1 Project, initiated for the Multi-Functional Phased Array Radar (ÇAFRAD) Systems which will be the radar sensor suite of the air defense frigate of the Turkish Naval Forces; a scaled model of the ÇAFRAD are being developed.

At this stage, the system integration and test activities are being carried out intensively and the accomplishment of the system's factory acceptance tests are being planned for the end of 2017. After that, fire tests with actual guided missiles are planned. The preparations for the second phase of the project are being carried out and the delivery of the systems is planned in line with the TF2000 procurement program.

Defence Turkey: How are the activities conducted for the integration, tests and qualification of the CATS HD EO/ IR Reconnaissance, Surveillance and Targeting System developed indigenously by Aselsan proceeding? The safety-of-flight tests were expected to be completed this October. Could you inform us on the relevant developments?

The CATS System is a high performance electro-optical reconnaissance-surveillance and targeting system developed for the Unmanned Aerial Vehicles (UAV), Helicopters and Aircrafts. CATS has a multi-functional electro-optical system containing an infrared camera, day vision camera and low light camera and including a Laser Target Marker, Laser Range Finder, Laser Illuminator and Laser Fixer.

The CATS system, that is the abbreviation of "Common Aperture Targeting System", in addition to its high range performance capability with the help of its common aperture high performance optics and developed image improvement algorithms, features the capacities of identifying precise geographic position of the target and directing the laser guided ammunition to the target through the laser marker.

The CATS System launched its flights on-board a helicopter in early 2016. Moreover, flight activities were accomplished over a Cessna Grand Caravan aircraft. The activities are carried out for the system to operate on-board various airborne platforms. Within the scope of a current ANKA contract, we accomplished the initial deliveries in 2016.

Defence Turkey: Could you please comment on the preparations being conducted for the material procurement and purchasing orders within the scope of the requirements of both the Armed Forces and other security institutions regarding the CATS HD EO/IR reconnaissance, surveillance and targeting system's serial production phase? It was anticipated that the speed of the serial production line would triple in 2017. Could you inform us on the activities conducted to this end and on the latest status?

We are aware of the requirements in this subject. Therefore, we planned the serial production by projecting

CATS HD EO/ IR Reconnaissance, Surveillance and Targeting System

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the demands of the potential customers, allocating an additional budget and initiating material procurement activities in 2016. We aim to increase the production capacity gradually starting from the first months of 2017.

Defence Turkey: The very first KORKUT Self-Propelled Air Defense Systems, developed for the armored and mechanized units' air defense needs, were delivered to the Turkish Land Forces. Could you enlighten our readers on the delivery of the other systems and the serial production process following the delivery of two KORKUT Weapon System Vehicles (WSV) and a single Command Control Vehicle (CCV) to the Land Forces?

Our projects for the development of the air defense artillery systems, and the development of the smart ammunitions utilized by these systems, are quite significant both for our country and for Aselsan. In addition to the KORKUT systems, the Fire Control Device (FCD) developed with these systems; and 35 mm Modernized Towed Air Defense Artillery (MTADA) modernized in order to be controlled by the FCD and 35 mm smart ammunition were delivered to the Turkish Land Forces in 2016.

These systems, developed as part of the KORKUT Project, will provide a great contribution to the air defense capabilities of the fixed and mobile units of the Turkish Armed Forces. The indigenous development of smart ammunition along with the KORKUT systems has been a great achievement for our country. With the utilization of the smart ammunition, the effect of both the KORKUT Weapon System Vehicles and the modernized 35 mm Towed Air Defense Artillery against the current airborne threats has been increased significantly.

Upon the successful completion of the development program, we also signed the serial production contract with the Undersecretariat for Defense Industries for the KORKUT systems in 2016.

Defence Turkey: You established the AB MikroNano Company with Bilkent University at the end of 2014, which will be producing nano transistors and electronic integrated circuits commercially for the first time in Turkey. When will this facility start its activities and in which areas will Turkey gain advancement with the launch of the facility? What advantages and capabilities will it contribute to the Turkish economy, as well as to Aselsan, in the long run?

KORKUT Self-Propelled Air Defense Systems

The construction of the AB MikroNano Company's building and the installation of its laboratories at Bilkent Cyberpark have been completed in 2016. The production of the semiconductor devices started according to the delivery schedules of Aselsan's radar and electronic warfare programs, primarily the ÇAFRAD and EWRS radars. We expect the first deliveries in 2017.

As you may know, with Galium Nitrate (GaN) Semi Conductor Technology, it is possible to reach output powers 4-6 times higher than GaAs and LDMOS technologies per unit area in frequencies and frequency bands quite higher compared to other technologies. This technology will help Turkey to upgrade itself in many areas such as the AESA required by the Long-Range Air Defense Systems, reconnaissance and fire control radars requiring high output power, missile seeker radars, broad band electronic warfare jamming systems, power electronics applications in which efficiency is crucial and in the areas of satellite intelligence and satellite communication systems where the high power and radiation resistance requirements are important.

By enabling the serial production of GaN products, the ABMikroNano Company will eliminate foreign dependency in radar, electronic warfare and satellite projects and therefore it will both create an alternative to foreign suppliers requiring export permits and also reduce project expenses. Moreover, the foreign sales of these products will contribute significantly to our country's high technology product exports.

Defence Turkey: Will you be announcing new products that will create an impact before IDEF 2017?

Of course, our preparations for IDEF are continuing. IDEF is a prominent event for launching new products. We continue our activities intensively in order to make the most of this opportunity.

In order to create the desired level of impact during the launch of new products, the products have to be introduced to users during the fair. Therefore, the answer to your question is 'yes', you will be able to see some of our new products at IDEF for the first time.

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

Ever since its establishment 41 years ago, Aselsan has been striving to achieve the unattainable in Turkey. Reducing our country's foreign dependency in technology is our main reason for existence.

For this purpose we are allocating great resources to R&D. We are carrying out 150 different indigenous projects in which we are collaborating with the universities, TUBITAK and over 2000 domestic manufacturing and supplier-industry companies across the country.

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Minister of National Defense Submitted to the Commission the National Defense Draft Budget for the year 2017

National Defense Minister Mr. Fikri Işık made a presentation on the budget and final accounts of the Ministry of National Defense and the Undersecretariat for Defense Industries to the Plan and Budget Commission members on 17 November. Minister Mr. Işık highlighted the recent developments in the global and regional security environment that have recently affected the defense and security requirements of Turkey before the presentation.

Stating that the world is going through a very rapid change, Minister Mr. Işık pointed out that destabilization and crises in the countries of the region have overtaken the borders of the world and that they are now affecting the whole world and that hundreds of thousands of people have lost their lives in the conflicts in the region and that many people have escaped from the region. "We see that hundreds of thousands of people who escaped from the ongoing war in Syria and Iraq strive to reach the developed countries through land and sea by taking all kinds of danger for a comfortable and peaceful life. A lot of people are losing their lives during this dangerous journey. Until 11 November 2016, nearly a year later, 4,000 refugees who were unfortunately only passing through Libya, Italy, lost their lives in these dangerous waters. Unfortunately, this immigration wave also affects Turkey. Within this context, we prevented further deaths in the Aegean Sea through the reconciliation we have had with the EU on 18 March 2016 and the extraordinary efforts of our Naval Forces and the Coast Guard and Gendarmerie in order to control illegal transitions at the Aegean Sea", added Minister Mr. Işık.


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The Minister of National Defense also informed the members of the commission about the Border Physical Security System that they are launching in order to minimize the risks and threats coming from Syria. Işık said that within the scope of the project, a border wall, spanning 825 km is planned to be constructed and that the construction of 269 km wall has been completed so far and the rest of the wall is anticipated to be completed by the first half of 2017.

Turkey Increases its Defense Spending

Emphasizing that Turkey is an important actor who can make a positive contribution to the solution of global and regional issues, Minister Mr. Işık said that while increasing the cooperation with friendly and allied countries in this frame, it will continue to strengthen the Turkish Armed Forces with the best means. "Turkey has been a member of NATO since 1952 and attaches great importance to the conservation of the military and political effectiveness of the alliance in the face of increased security testing. As a matter of fact, in NATO's summit in 2014 in Wales and in 2016 in Warsaw, NATO member states formed a common will to develop their military capabilities according to these emerging needs. An important decision also taken in NATO in 2014 was that countries committed to allocate 2 percent of their gross domestic product by 2024 to defense spending, and at least 20 percent of this portion to the procurement of weapon systems. Therefore, our country has to allocate 2 percent of its gross domestic product by 2024 to defense expenditures in particular. According to NATO calculation methods, the ratio of Turkey's defense spending to gross domestic product was 1.66 percent in 2015. Turkey is ranked 7th amongst NATO member countries in this respect. "

Underlining the fact that they are working to establish a productive eco-system in the Defense Industry, Mr. Işık said that they will implement the methods which enable more effective operations of foundation, public and private companies performing activities in the Defense Industry in the future. Minister Mr. Işık

also said, "In line with this approach, our Foundation and Public Companies will focus more on system integration, produce high value added products and use brain power to develop new generation systems. We will create an ecosystem in which needs, except for the critical areas, are produced by the private sector and work shares are spread to the base rather than keeping on a public company model, that does everything by itself, and produces everything itself. Our SMEs will take more part in defense and aerospace areas. To sum up, we will try to create a system that will enable technological depth and support practical and agile initiatives through a structure where the main contractors transfer businesses to SMEs at serious levels."

Minister of National Defense Mr. Fikri Işık: "We will activate order based R&D studies"

Having said that Turkey's defense industry export, which amounted to $ 1.66 billion in 2015, was aimed at $ 5 billion, Mr. Işık continued, "We know that it is difficult to achieve such a goal by selling more goods. Therefore, the greatest transformation in this sector will be to produce high value products, platforms and systems and sell them to other countries. The defense industry is a sector where the most advanced technologies are used. The development of these technologies is only possible with intensive R&D studies. We are making systematic changes also in the area of R&D where various resources are allocated.

Accordingly, we continue to work hard on order based R&D as well as active participation of academics in the sector. In particular, we aim to stimulate the participation of universities and research institutions and make more use of human resources. At the same time, we will continue to specialize with R&D centers that we built and will build. The current conditions necessitate accelerating our R&D activities in the area of electronic warfare and cyber defense in addition to conventional defense products. The accomplishments to be gained in this field will also contribute to the security and peace in our country. Especially, we aim that our public institutions and foundations focus more in critical technologies, the qualified human resources are organized in a way to obtain the critical technology that Turkey has to obtain, and that our private sector, together with our foundation companies and other public companies work more in cooperation in order to meet both the needs of our country and sell these products to friendly and allied nations."

In his presentation, Minister of National Defense Mr. Fikri Işık also informed the commission members about the latest status of the procurement, development and mass production programs within the Undersecretariat for Defense Industry. Mr. Işık also stated that within the New Generation Basic Trainer Aircraft "Hürkuş", the tests conducted on the two prototypes were completed and that the aircraft was certified by both national and international authorities. He said that the production of 15 planes to be produced in the Hürkuş-B serial production program commenced.

Turkey Ordered 32 F-35 Aircrafts

Minister Mr. Işık said that they have placed new orders for F-35 JSF aircrafts, which will replace F-4 aircrafts in the upcoming period. "Our country also takes part in the international project for the F-35 procurement. The F-35 aircrafts will increase the striking power and operational effectiveness of our Air Forces Command. In this project, we work jointly with 9 countries including the United States of America. Within this context, we have already ordered 6 aircrafts, two of which will be delivered in 2018. For the next three years, the decision for an additional 24 F35 orders, -eight for each year- was taken."

35 "Atak" Helicopters Planned to be Delivered by the End of 2017

National Defense Minister Mr. Fikri Işık stated that 16 "Atak" helicopters have been delivered to the Turkish Armed Forces so far and said, "Atak helicopters are now being used extensively in the fight against terrorism in the Southeast. By the end of 2017, the procurement 35 helicopters will be completed. Soon, our attack helicopter will be armed with the indigenous anti-tank missile "UMTAS". On the other hand, I would also like to mention that there is intense interest and demand from the friendly and allied countries for the Atak helicopters." Minister Mr. Işık also said that the delivery schedule started on June 15 within the scope of Turkish Utility Helicopter program and that the first delivery is planned to be made in 2021.

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Stating that six submarines to be produced under the new Type Submarine program will be manufactured in Gölcük Shipyard in Turkey, Mr. Işık said that the infrastructure improvement activities and design adaptations started to be carried out in order to build the submarines at Gölcük Naval Shipyard Command in this frame. "The first submarine is scheduled to be delivered to the Naval Forces Command in 2020, and the remaining submarines will be delivered every other year," said Minister Mr. Işık.

Minister Mr. Işık stated that the 1st and 2nd vessels entered into the inventory of Turkish Naval Forces within the scope of MILGEM project and said that they started the construction of 3rd and 4th vessels in September 2014. According to the program schedule, the 3rd and 4th vessels will be taken into service in 2018 and 2020. Mr. Işık also said that as a continuation of the series, the design activities of MILGEM 5-8 vessels, which were previously launched, have started. Minister Mr. Işık stated that the 5th vessel will be produced by the Istanbul Shipyard Command and the remaining vessels will be manufactured by the consortium which will be established by the private shipyards.

The Final Offer Regarding the Main Battle Tank "Altay" Program is Being Evaluated

Minister Mr. Işık stated that the prototype development and qualification phase, preparation for test and review activities were carried out within the scope of the Main Battle Tank "Altay" Project, and the system qualification and acceptance test process was started in April 2015. "With the first prototype tank, the testing for ten thousand kilometers of durability continues. With the second prototype tank, the system qualification test firings are carried out according to the weapon systems and fire power acceptance, test and inspection procedures. The first and second offers for mass production were received from the company that made the development program for mass production and that the evaluation process continues", said Minister Mr. Işık.

After the Minister's presentation, the members of the commission made assessments on the presentation, and afterwards the question-answer session occurred. Here, Minister Mr. Işık was asked again what kind of a model the mass production process would continue. Minister Mr. Işık addressed this question as "We have awarded a contract with the company regarding Altay program. This company has produced 2 prototypes. One of the tests has been completed, and the second one is to be completed soon. At a later stage, an RFP was sent to the company and the company submitted its proposal. Then we want it to be revised. That revision was made. During the next meeting, the Defense Industry Executive Committee will evaluate whether or not this proposal is sufficiently competitive. If it is evaluated as a sufficiently competitive proposal, a mass production tender will directly be awarded with the company, but if this is not the case, then an open tender will be realized."

Ministry of National Defense 2017 Draft Budget Submitted to the Commission

Minister of National Defense Mr. Fikri Işık presented the Ministry of National Defense's 2017 Draft Budget to the Plan Budget Commission. Accordingly, the National Defense Budget of 2017 is planned to be 28 billion 702 million 119 thousand Turkish Liras. 51.5% of this budget consists of personnel expenses, 8.8% to social security institutions for state premium expenses, 37.4% to purchase of goods and services, 1.5% to current transfers and 8% to capital expenditures.

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Advanced Military Capabilities of the MEADS System – Opportunities for the Turkish Defense Industry

The Medium Extended Air Defense System (MEADS) is a ground-mobile air and missile defense system intended to replace the Patriot missile system through a NATO-managed development. The program is a tri-national development of the US, Germany, and Italy. An Exclusive Interview with MEADS Program Executives Mr. Mirko Niederkofler and Mr. Luis M. Villanueva

Defence Turkey: Mr. Mirko Niederkofler and Mr. Luis M. Villanueva, first of all thank you very much for your time. You have a crucial role in the ongoing MEADS program under the responsibility of the US, Germany and Italy. Could you please tell us briefly about the initiation story of the MEADS program, the project model and the participation of partner countries?

Mirko Niederkofler (MN): First let me thank you for the opportunity for this interview with Defence Turkey. This is a great honor for us and we are very happy to answer your questions on the current status of MEADS and its opportunities for Turkey.

MEADS started as a joint program between the US, Germany and Italy in 2005 after a successfully conducted concept phase that already began in the 1990s. The industrial partner of the MEADS development is MEADS International, a joint venture between Lockheed Martin and MBDA, bringing together two of the world's leading Air and Missile Defense companies from the US and Europe. The results of the MEADS development phase reflect over more than U$ 4bn of investment by the three governments. 100% of the MEADS results are available for each partner nation, thereby sharing the entire development results. This is true as well for the countries as for industry and a completely innovative concept in the area of armaments procurement.

Luis Villanueva (LV): Since 2005 MEADS has had a remarkable set of success. In November 2011, we integrated a Multi-Function Fire Control Radar (MFCR) and light-weight Launcher at White Sands Missile Range (WSMR) and launched a PAC-3 MSE missile "over-the-shoulder" to demonstrate that the system can provide 360-degree protection. This was the first known instance where an AMD missile fired in one direction, diverted its trajectory, and flew in the opposite direction of its launch. This was followed by an intercept flight test at WSMR in November 2012 when a MFCR, Battle Manager, and a light-weight Launcher were integrated together to launch a PAC-3 MSE missile over-the shoulder, which successfully destroyed an incoming cruise missile target. This was the first known over-the-shoulder missile intercept of an aerial target.

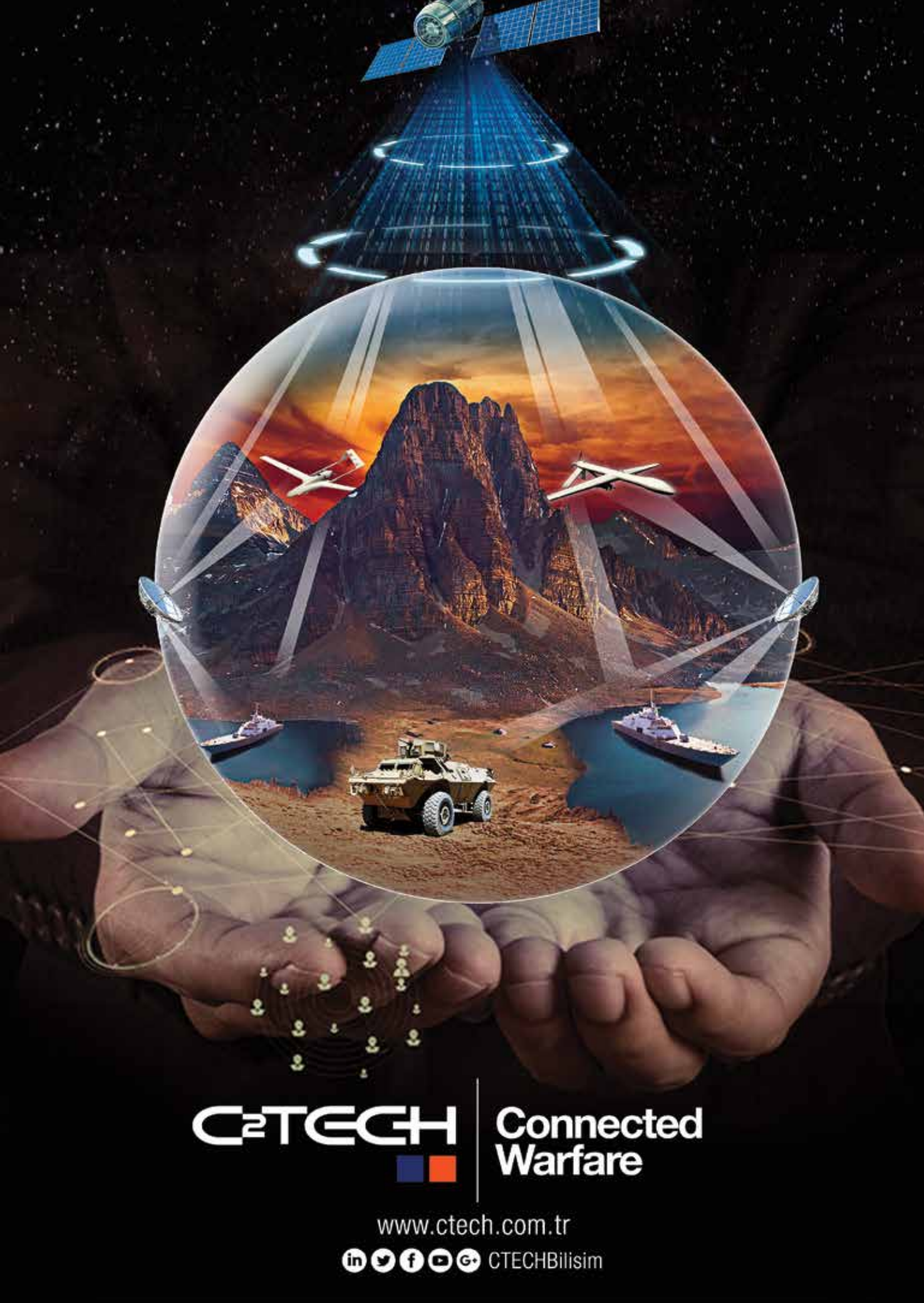
Finally, 2013 culminated with a historic flight test in November during which MEADS simultaneously identified, tracked, and intercepted a tactical ballistic missile target and an air-breathing threat target separated by more than 125 degrees in azimuth. The air-breathing threat was engaged and destroyed by a PAC-3 MSE missile fired over-the-shoulder from its launcher. The TBM was engaged and destroyed by a separate PAC-3 MSE missile. No other known ground-mobile AMD system has demonstrated a similar dual-intercept capability.

German configurations, a MEADS Multifunction Fire Control Radar, launcher, and battle manager appear together near Freinhausen, Germany.

MEADS intercepted and destroyed two simultaneous targets attacking from opposite directions during a stressing demonstration of its 360-degree air and missile defense (AMD) capabilities at White Sands Missile Range on 6 November, 2013

Defence Turkey: What kind of technological advantages will MEADS bring to the user when you compare this complex system with other systems in the same class that are being used in the field?

MN: MEADS uses a different architecture than other Air and Missile Defense systems, we call it open architecture. This architecture allows MEADS to operate in a more flexible way and to integrate various Air and Missile Defense assets. The MEADS system is netted and distributed. Every MEADS battle manager, radar, and launcher is a wireless node on the network. By virtue of multiple communication paths, the network can be expanded or contracted as the situation dictates and precludes single point failure if one node becomes inoperable. It also has a Plug-and-Fight capability that allows MEADS launchers and radars to seamlessly enter and leave the network without shutting it down and interrupting ongoing operations. MEADS uses open, non-proprietary standardized interfaces to extend plug-and-fight to non-MEADS elements.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This flexibility is unprecedented for ground-based AMD systems.

LV: In addition to this, the MEADS end items are highly transportable, requiring far fewer aircraft to move them within or to a theater of operation. This frees airlift assets to fulfill other critical missions. MEADS is also lighter, smaller, and more agile than existing systems, and is capable of providing 360-degree defense for forces on the move, which is exceedingly important to military commanders - no other known AMD system can do this. The MEADS radars, battle manager, and launchers were designed for high reliability. This means that the system will be able to maintain sustained operations much longer than legacy systems resulting in overall lower operation and support costs.

Defence Turkey: What would you like to say about the components of the MEADS battery and the advantages it brings to the user in theater?

LV: There are a number of differences between MEADS and other existing AMD systems. Among the most important is the ability for MEADS to provide 360-degree radar coverage against the entire threat spectrum, including cruise missiles, tactical ballistic missiles, and air-breathing threats. What this means is that warfighters, civilians in built up areas, and critical assets defined by civilian and military leaders can be protected from all known threats attacking from any direction. This gives military commanders the flexibility to better plan and conduct operations, and civilians the confidence that they will be safe from air and missiles threats.

A single MEADS battery can defend up to 8 times the area of a Patriot battery. This is possible because of the MEADS advanced 360-degree sensors, near-vertical launch capability, and the longer-range PAC-3 MSE missile. The MEADS radars – using active phased arrays and digital beam forming – make full use of the PAC-3 MSE missile's extended range, which is not the case with the legacy system.

A MEADS launcher in the German configuration is A400M transportable and can engage and defeat targets attacking from any direction

Defence Turkey: Germany recently declared a decision for the procurement of the MEADS system. Within this context, when is a contract expected to be signed with Germany? Could you please give some details on the content of this contract?

MN: In June 2015 the German Armed Forces decided to continue with the procurement of a MEADS based Air and Missile Defense system, called TLVS (German abbreviation for Tactical Air Defense System). This decision was based on an extensive comparison between PATRIOT that is currently fielded in Germany and a replacement program based on the MEADS development results.

In February 2016, MBDA as the selected prime contractor received a complete Request for Proposal for the German TLVS program and submitted its proposal in September 2016.

This proposal is currently under assessment and negotiation between the contract parties. It wouldn't be appropriate to discuss details of the proposal before or during the negotiation with the German customer. Transparency about the contract

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will be given during the approval process in the German parliament.

Defence Turkey: When is the MEADS systems expected to be fully operational?

MN: After contract negotiation and parliamentary approval in Germany the TLVS contract will be signed. Depending on this contract, an initial operational capability would be available in Germany by 2020. TLVS will then start to replace the current Patriot air defense systems of the German Luftwaffe initially fielded in the 1980s, by mid 2020s.

Defence Turkey: How are the evaluations proceeding at the government level for other partner countries to procure this system after Germany, which will be the first user of the program? Could you please tell us the latest developments? Could you also evaluate the interests and requests of the allied countries regarding these systems?

LV: All nations in NATO Europe have recognized the increasing threat in the air and missile defense domain. Various countries are currently preparing decisions for the future ground-based air defense capabilities, amongst them Poland, Sweden, Turkey, Switzerland and others. With the substantial performances in mind, these countries show interest in the MEADS architecture and the advantages it provides.

We continue to see strong interest in MEADS from both Turkish government officials and industry. In fact, Turkey's requirements are very similar to Poland's. They want an advanced capability and significant industrial participation, with technology transfer that can be tailored to their specific needs.

Defence Turkey: What is the status of the intergovernmental relations as well as the relations with the subcontractor companies regarding the participation of Turkey in the program? Could you please inform us on the latest developments?

MN: During 2016 we had several engagements with Turkish government authorities and Turkish industry. A highlight has surely been the visit of a Turkish delegation to our exhibited MEADS system at ILA (International Aerospace Exhibition in Berlin) in June 2016. Since then we had deepening discussions with Turkish government and industry that strengthen our opinion that a MEADS based solution would be the right fit for Turkey´s T-LORAMIDS requirements as well as its wish for technology and workshare participation.

Defence Turkey: After the cancellation of the T-LORAMIDS program, Turkey continues its feasibility studies to develop its Indigenous Long Range Missile and Air Defense Systems. Within this context, what kind of model do you propose to the Turkish side?

LV: MEADS approaches an international customer with partnership in mind. We are eager to discuss the potential partnership opportunities with the Turkish Defense Industry MEADS provides optimal opportunities to secure a Turkish industrial partnership for the next generation of Turkish Air and Missile Defense

Defence Turkey: In the case of the participation of Turkey in this consortium, what kind of cooperation do you offer to the Turkish sub-system producers operating in the Turkish Defense Industry as well as SMEs and sub-industry companies?

LV: MEADS is designed to provide ample opportunities for Turkish industry workshare and participation in the production of key elements of the MEADS system. The MEADS team will be able to consider areas of workshare that leverage Turkish Defense Industry expertise, enriching the Turkish content of a MEADS solutions for Turkey.

Defence Turkey: Finally, do you have any messages that you would like to convey to Defence Turkey magazine readers?

MN: We are convinced that MEADS offers unique advantages to Turkey that no other competing system can provide. I am not reflecting on the military capabilities of the system, which are very advanced, but on the element of partnership. MEADS by nature through its open architecture allows for a completely different way of involving Turkish defense assets and capabilities as well as Turkish defense industry. We are here for cooperation and partnership and finding a solution that fits best to the Turkish needs.

Ms. Ayşe Evers met with MEADS Programs Executives Mr. Luis M. Villanueva and Mr. Mirko Niederkofler in Ankara.

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Undersecretariat for Defense Industries Celebrates its 31st Anniversary

The Undersecretary for Defense Industries Prof. İsmail Demir and Deputy Undersecretaries gathered with members of the press at a breakfast meeting on the 31st anniversary of the establishment of the Undersecretariat for Defense Industries. Giving a briefing on the overall structure of the Undersecretariat, the procurement systems, ongoing programs and the strategies for the future to the press members, Prof. Demir replied the questions of the press members regarding the agenda after his presentation.

Prof. Demir stated that as the Undersecretariat they have been executing the procurement and development programs of the Turkish Armed Forces, National Police and the Gendarmerie General Command with 5 deputy undersecretariats and 20 directorates, and added that within the context of the regulations in the structure of the Ministry of National Defense in the next period, the R&D department in lieu with the Ministry of National Defense will be included to the auspices of the Undersecretariat for Defense Industries.

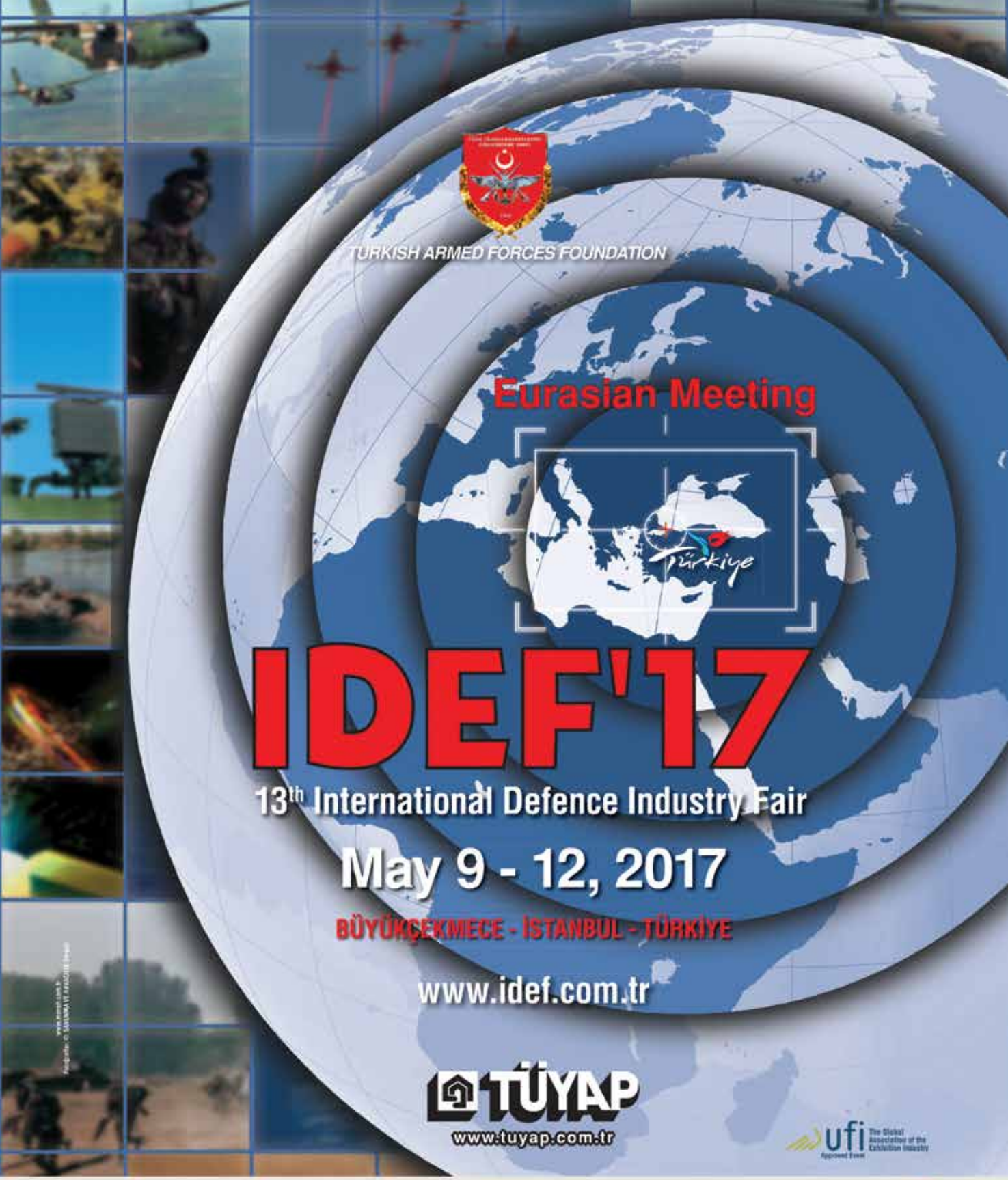
Extending information to press members on the operational structure of the procurement system, Prof. Demir made important statements on the technologies they need to focus on as Turkey in the upcoming period.

Prof. Demir stated that significant programs such as the Indigenous Fighter Jet Aircraft, "Hürkuş" New Generation Basic Trainer Aircraft, Indigenous Lightweight Helicopters and Regional Aircraft were their priority areas and continued, "When speaking of these programs and these platforms we also need to develop our high technology products. Strategies such as the establishment of helicopter, satellite, aircraft and sub-system companies with the participation and/or partnership of the various governmental institutions or private sector corporations under the auspices of TAI may appear at the agenda in the days ahead."

Prof. Demir shared the critical topics Turkey would need to include in its agenda in the forthcoming days with the members of the press as well. Prof. Demir said, "We can consider the autonomous systems that may come to the agenda in the near future. The automatization of the naval, land and air systems is one of the most discussed subjects. The products that will be utilized autonomously in the battlefields from the micro systems to the grand platforms need to operate uninterruptedly. At this point, we believe that we still did not miss the train as a country. We assess that we can make certain progress not only in respect to the air platforms but also in the naval and land systems. Without doubt, the deployment, management and protection of the autonomous systems are quite critical as well. On the other hand, the aspects such as command control, protection and weapon systems of the naval platforms cover the 75% - 80% of the whole platform. The business share of the shipyards does not exceed 20% - 25%. Without any hesitation, we should be focusing on the developments in this area."

Prof. Demir noted that a significant amount of progress needs to be made in the satellite and aerospace systems and continued, "Various observation satellites in orbit at different altitudes and the satellite systems, their coordinated utilization, production, test, launching and operation aspects are on the table in a very comprehensive fashion and we assess that we need to make quite important progress regarding these points. Meanwhile, we have to adopt a strong position regarding the issues such as cyber security, biotechnology, radars, optical and weapon systems, intelligence systems, laser systems and electronic warfare as well."

Touching upon the importance of the coordination between the sectors and the creation of a healthy competitive environment, Prof. Demir said, "The industry we wish to create has to support technological efficiency and sustainability as well. We have to include various types of incentives. Then, after the emergence of the products, we should build the mechanisms that will track and support the maturing process and the strategies enabling the technological independence. We also need to further strengthen the establishments such as the organized industrial zones and techno-polices."



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Prof. Demir underlined that the Undersecretariat is organizing the establishment of a company concerning the defense industry technologies and continued, "We aim this with the establishment of this company; We aim to support the companies or entrepreneurs with original ideas regarding newly emerging technologies, becoming partners with them to a certain extent and supporting their projects and helping them survive. Our activities for the establishment of a test incorporated company to conduct test and calibration operations are ongoing as well. We adopted a policy of encouraging various company structures and sometimes becoming actively involved in these to this end. On the other hand, we aim to create a structure, a healthy eco-system enabling the inclusion of the companies around the various regions of our country that are capable of assuming major projects in the sector. Instead of a structure merely focusing on regions such as Ankara and Istanbul, we aim to add the capability we spotted anywhere in our country to our inventory and thus include these structures to this eco-system. We are visiting various cities in certain periods. One of the main components of our Industrialization Department is the formation of the chart of the capabilities existing in Turkey. During the visits we conduct within this context, the companies with certain manufacturing capabilities express their intention of becoming involved in the defense industry and we receive questions on what they need to do in order to take part in our industry. Our colleagues are continuously working on improving our promotion and getting to know them better within this framework."

Following the presentation, the Undersecretary of Defense Prof. İsmail Demir replied the questions of press members.

Prof. Demir stated that they received the proposals on serial production from the company conducting the development program in line with the contract within the scope of the Altay MBT

program, and added that they are at the final evaluation stage of this project and will be reaching a decision soon. Extending information on the LHD (Landing Helicopter Dock) vessel which is still under construction, Prof. Demir shared that the aircrafts capable of vertical take-off and landing can be deployed from this vessel also publicly known as the aircraft carrier underlining that their priority is a platform that the helicopters land on and take-off from.

Prof. Demir mentioned that one of Turkey's priorities is manufacturing an indigenous engine and continued, "Both the diesel and jet engines as well as turbo jet engines exist in our agenda. The tender for the diesel engine has been conducted and the development project has been assigned. Our company is performing its activities. But, we did not reach an agreement with the foreign technical support provider proposed by the company. So, our negotiations with a second company continue, yet due to the emergence of certain complications we started negotiating with a third company. We have to monitor the performance of the company and provide support in certain areas if required but I can say that the activities are continuing."

Replying to the question on whether or not Turkey will have an attempt towards the direct procurement of a Long Range Air and Missile Defense System, Prof. İsmail Demir said, "We have identified our road map. There are certain processes for the demand and the product to arrive in the field within the scope of the determined strategy. How will the preferences be shaped during this time? This point will be evaluated. Here, we claim that we are ready to cooperate. We started to develop our own system through national resources. However, if the completion of this process - though it does not seem too short at the moment - extends to 5 to 7 years' time, then we may execute certain activities for a faster delivery with the association we cooperate with during the development process. Our domestic participation rate may decrease but we may speak of the meeting of an immediate requirement with the indigenous development project at an optimum point."

Projects Worth $ 9 billion were Approved in 2016

Prof. İsmail Demir introduced the deputy undersecretaries to the press members after the question & answer session and extended information on the size of the programs conducted by the Undersecretariat. Prof. İsmail Demir said, "Over 300 projects are being executed within the auspices of our Undersecretariat. Upon the decision adopted at the Defense Industry Executive Committee meeting in March 2016, projects with the amount of over $5 billion were approved. At our latest executive committee meeting, a project worth $ 4 billion has been approved. There are projects with the amount of more than $ 9 billion existing merely within our portfolio for the year 2016. The number of staff of our Undersecretariat is around 500, we employed approximately 150 consultants, thus we have a structure composed of 650 people. We are executing almost 400 projects with our colleagues. I would like to take this opportunity to thank all our colleagues, all the deputy undersecretaries and all our former undersecretaries assigned prior to my assignment. I would like to thank my team as well as you for your participation."

The program ended after the briefing.

Hisar-O Missile Systems Accomplished Flight Test

The test flight of the indigenous Hisar-O missile that was initiated to meet the air defense needs of the Land Forces Command has been successfully completed.

Hisar-O, Medium Range Air Defense Missile Systems produced with local resources, performed a test flight with the participation of National Defense Minister Mr. Fikri Işık and his accompanying delegation at the test field in Aksaray. As part of the test firings, Hisar-O was vertically fired from the rocket launching system developed by Aselsan and successfully left the missile canister with the first strike solid fueled engine. The missile continued its flight with the programmed maneuvers and completed its flight with one hundred percent success after firing its second strike engine in the air. The dual strike missile engine was utilized for the first time within the scope of the test firing.

After the successful firings, Minister of National Defense Mr. Işık congratulated the technicians and engineers performing great success and closely examined the missile launching area 11 kilometers away from the command control center. Minister Mr. Işık addressed the engineers employed at Roketsan and Aselsan upon the test firing emphasizing the fact that development of critical systems would be the one and only solution for Turkey and added: "We aim to become one of the few countries in the world capable of developing these critical technologies. This goal will be achieved by our esteemed colleagues with great level of education, such as you all. We will always clear the way for you and support you. We will provide all types of moral and material support."


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Mr. Işık stated that the test firing was conducted with one hundred percent success and continued that their aim was to increase the deterrent force of Turkish Armed Forces (TAF). He underlined that the way to reach this goal was through becoming an authority in the world in respect to air and missile defense system.


© Roketsan

Mr. Işık reminded the audience that many important achievements were recorded until today in this context and said: "We have many systems developed through the cooperation between Roketsan and Aselsan. We are currently working intensely toward launching more developed systems into life. We accomplished and witnessed the test firing of Hisar-O system here today. We are really quite proud and pleased with this achievement. Turkey has to both acquire and develop the critical technologies regarding air and missile defense systems. Turkey made great progress though it started late and I believe that we will be rapidly making more and more progress and have Long Range Air and Missile defense systems."

Undersecretary for Defense Industries Prof. İsmail Demir and Mayor of Aksaray Mr. Aykut Pekmez accompanied Minister of Defense Mr. Fikri Işık throughout the program.

Within the scope of the Hisar-A and Hisar-O programs, initiated in 2011 in order to fulfill the low and medium altitude air defense requirements of the Turkish Armed Forces Command by the Undersecretariat for Defense Industries, the radar, command control and fire control systems of the system are being developed by Aselsan while the missile systems are being developed by Roketsan. Ballistic Test Missile firing, that was the very first flight test of the Medium Altitude Air Defense Missile Hisar-O, was executed successfully on 23 July 2014, also in Aksaray.

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A focus on Strengths in 2017 to be the best in Selected Areas will Bring Certain Success for Turkey as a Key Global Player in the Aerospace and Defense Sector.

In an exclusive Defence Turkey interview with Boeing Turkey Managing Director and Country Executive, Ms. Ayşem Sargın, Turkey's industrial capability, brain power and will power is discussed and how these important factors are setting up Turkey to succeed.

Defence Turkey: Dear Ms. Ayşem Sargın, first of all thank you very much for your time. Based on the impressions that you have gained since starting your position, how would you characterize the Turkish defense industry?

Since I took this position, I had a chance to get a deeper understanding, and a greater appreciation of the Turkish defense industry. The progress Turkey achieved in upgrading industrial capability in defense is a success story. Over the past decade, defense projects played an important role in Turkey's industrial growth, with the global business making experience and technical know-how this sector attracted to Turkey.

Defence Turkey: Within the scope of Chinook Program, the governments of Turkey and the United States have finalized the sale of 11 CH-47F Chinook helicopters through government-to-government channels in the last period. Boeing most recently has delivered the first lot of the CH-47F Helicopters to Turkish Land Forces. Could you please summarize the delivery and manufacturing schedule for the rest of the program in coming period?

We are happy to see Turkey's first CH-47s delivered. These are premier medium-heavy lift helicopters to support Turkey's humanitarian and military missions. Because this is a government-to-government contract, DOA or the Turkish Ministry of Defense would be the right parties to comment on the future delivery schedule.

Defence Turkey: The Peace Eagle program was finalized in 2015 and delivered four aircraft to Turkish Air Forces. Is there any planned schedule for the periodic depot-level maintenance and retrofit activities for these aircrafts in the near future?

Boeing is proud of the partnerships that led to successful delivery of the four Peace Eagle aircraft, completed in 2015. Yes, there is a planned schedule for periodic depot-level maintenance through 2018. SSM/TurAF are considering future upgrades to the Peace Eagle System and have engaged Boeing in preliminary discussions.

U.S Airforce CH-47 Chinook

Several Turkish defense companies worked for the Peace Eagle (AEW&C) program, including Selex, Turkish Aerospace Industries (TAI), Turkish Airlines (THY), Havelsan, AYESAŞ, Aselsan, Mikes. Other defense programs involving Turkish industry are the NATO AWACS midterm upgrade and the Peace Eye program, where TAI won a contract for fabrication and assembly of parts for the Boeing-produced Korea AEW&C. Also, Fokker Elmo manufactures wire harnesses for a variety of platforms in its new Izmir facility.

Defence Turkey: Dear Ms. Sargın, Several Turkish Defense companies such as Aselsan, THY, TAI, Havelsan, AYESAŞ have already worked in the Peace Eagle Program. Do you have any cooperation with Turkish Companies in NATO AWACS midterm upgrade and Korean AEW&C programs?

Boeing experienced great cooperation with several Turkish companies on the NATO AWACS Mid-Term Program. We look forward to seeing the role that Turkish industry will take on for future NATO AWACS Programs. Regarding the Korean AEW&C program, no Turkish companies have been involved.

Defence Turkey: As Boeing, you have been in close cooperation with sub-industry and SMEs in Turkey for many years. What types of endeavors are being performed by the Turkish sub-industry and SMEs for Boeing?

I attach great importance to our partnership with the Turkish industry. Boeing is working closely with the Turkish aerospace industry, both in commercial and military aviation programs. Today, Turkish suppliers support all five of Boeing's commercial airplane programs, including the Next-Generation 737, 747-8, 767, 777 and 787 Dreamliner. There is a part from Turkey in each of these aircraft. On defense side, we have had a very successful collaboration with the Turkish industry in our Peace Eagle program. Through the commercial and defense programs, Boeing's annual business volume with the Turkish industry amounts to over $160 million. Our cumulative work commitment in Turkey is over $1.4 billion. These partnerships yield win-win results for Boeing, for Turkey and for the industry. The Turkish companies who become suppliers to Boeing can be suppliers to any global aerospace and defence OEM. So, Turkey's growth in these areas supports local capability building, provides high-value jobs, and boosts exports. According to Oxford Economics estimates, Boeing activities overall currently support almost 2,500 jobs in Turkey.

Defence Turkey: What kind of R&D and training programs are you conducting with the Turkish universities and institutes?

Back in 2013, we launched a joint R&D program with the Istanbul Technical University (ITU) to develop an advanced air-filtration system to enhance air quality for passengers in commercial airplane cabin environments. Our collaboration with ITU has been very successful, both in bringing innovative ideas to our company and in supporting

Turkey's goals for economic and technology development. We look forward to expanding our R&D collaboration with ITU. Another project we are supporting in Turkey is the Vertical Take-off and Landing (VTOL) aircraft Project. We partnered with the Middle East Technical University's (METU) Aerospace Engineering Department for this project. We plan to hold a student competition in 2017, and challenge the engineering students throughout Turkey to develop a best-in-class VTOL vehicle.

Defence Turkey: Turkish Airlines and Boeing have signed a long-term strategic cooperation agreement at the beginning of the year 2016. Can you elaborate on these collaborations?

The Strategic Alliance Agreement between Boeing and Turkish Airlines aims to build on our long relationship with the Airline, strengthen Turkish Airlines' long-term industry leadership, and enhance Turkey's aerospace and technology capabilities. Turkish Airlines is one of the fastest growing airlines in the world, and this agreement is designed to support Turkish Airlines on its long-term growth path. The agreement identifies several potential areas of new cooperation between the two parties, expanding on Boeing's existing partnership with Turkish industry. These areas of cooperation include activities advancing global competitiveness of the Turkish aerospace industry, capability building through trainings, support to research and technology and growth in aerospace infrastructure.

The Launching of Curiosity Machine Project

Defence Turkey: Boeing has been conducting many social responsibility projects in Turkey. Could you please brief us on such projects from past to present?

Boeing has been cooperating with a diverse group of stakeholders in Turkey, ranging from health to education and from culture and arts to humanitarian services. All these programs contribute in different ways to Turkey, but education

programs are particularly important to us. If Turkey's aerospace sector is growing at this speed, the airlines' need for skilled workforce increases exponentially. So, education and training matters are critical- and Boeing has been actively supporting education programs for different age groups. Our programs range from primary schools, to vocational schools and universities. To cite some of many of these programs, Boeing, Turkish Airlines and Istanbul Technical University (ITU) have collaborated to deliver the Air Transport Management Master's Program since 2013. Its objective is to equip the airline's executives with the leadership and management skills required to successfully lead the country's rapidly growing aviation industry and to have an effective part on the global aviation industry. 64 Turkish Airlines executives graduated from this program. Another noteworthy project is our vocational schools project, where we signed a protocol with the Ministry of Education and Anadolu University, and will be training the teachers and students in aircraft maintenance in vocational schools throughout Turkey. With this training, 50 teachers from vocational and technical education schools are developing their knowledge and practical skills in accordance with the international aviation standards. Teachers participating in the training play a significant role educating more than 1,400 students in Turkey. In January 2016, we signed a cooperation protocol with the Ministry of National Education through which we join forces for providing technical training to aircraft maintenance teachers and aviation English language training to students at the aircraft maintenance vocational and technical high schools. This year, we launched a new project, the Curiosity Machine project, with the Science Heroes Foundation. This project targets kids aged 9-15, and aims to increase their interest in STEM education through simple engineering experiments. Since 2000, Boeing Turkey has completed more than 200 corporate citizenship projects in the fields of education, art and culture and health services. In all these years, Boeing education projects have benefited more than 140,000 students across Turkey. Boeing also provides business internships in Seattle for aspiring Turkish university students.

Defence Turkey: In closing, would you like to add any remarks for Defence Turkey Magazine readers?

I believe Turkey has the industrial capability, the brain power, the willpower to become a key global player in the aerospace and defense sector. We need to focus on our strengths and be the best in selected areas. We are about to leave behind a very challenging year. This should motivate all of us to work harder. I hope 2017 will be a year of good news and success for our country.

Ms. Ayşem Sargın met with Ms. Ayşe Evers in Ankara

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Göktürk-1 Reconnaissance and Surveillance Satellite Launched into the Orbit

A new era for Turkey's military optical observation satellites

Göktürk-1 - Turkey's surveillance satellite, with highest level of resolution, procured in order to fulfil the Turkish Armed Forces' satellite image requirements towards target intelligence, was successfully launched to the target orbit with 689 km of ground clearance through the Vega launcher from the Korou launcher base in French Guyana in South America on Monday, 5 December 2016 at 16:51:44 Turkish time, under the responsibility of Italian Telespazio and French Thales Alenia, Ministry of National Defense and Undersecretariat for Defense Industries (SSM) and with the participation of TAI, Aselsan, TÜBİTAK, Roketsan, TR Technology companies.

© TuRAF

The launching was watched live at the TAI facilities with the participation of President Mr. Recep Tayyip Erdoğan, Minister of National Defense Mr. Fikri Işık, Minister of Science, Industry and Technology Mr. Faruk Özlü, Commander of the Air Forces General Abidin Ünal and many invitees. Taking the floor at the opening of the ceremony, SSM's Head of the Department of Air Defense and Space Mr. Serhat Gençoğlu made a presentation to the invitees. Stating that within the scope of the Göktürk-1 program, conducted by the Ministry of National Defense and the Undersecretariat for Defense Industries in line with the demands of the Air Forces Command, the procurement of the Reconnaissance Surveillance Satellite System, fixed and mobile ground stations and integration and test center was aimed, Mr. Gençoğlu continued: "Göktürk-1 satellite will provide the acquisition of over 250 high resolution images per day from all over the world without any limitations. Our satellite will be operated with the Göktürk-2 satellite without interruption 7 days and 24 hours at the Ahlatlıbel Reconnaissance Satellite Command by our Air Forces Command".

Stating that the first signal will be received from the ground station located at Antarctica 69 minutes after the launching, Mr. Gençoğlu added that the launching and start-up processes of the Göktürk-1 satellite would be starting within two weeks. "The operations will be transferred to the Ahlatlıbel station within two weeks and the orbit acceptance tests will be commenced. The first stage of the orbit acceptance tests will be completed in April 2017 and the high resolution image requirements of our Air Forces Command will be fulfilled by our Göktürk-1 satellite." added Mr. Gençoğlu.

© TAI

Göktürk-1 will be Fully Operational in September 2017

Project Management Department Head of the Air Forces Brigadier General İbrahim Dülger addressed the participants via video conference from the French Guyana from where the Göktürk-1 satellite would be launched. Brigadier General Dülger stated that they reached at the final stage of the Göktürk-1 satellite program that started in 2009 and continued: "Göktürk-1 satellite will execute its tasks at the Sun-synchronous orbit over 686 km altitude and will be able to capture the image of any point over the earth without any air space limitations. The high resolution images we will be acquiring via Göktürk-1, which is Turkey's first high resolution reconnaissance and surveillance satellite, will not only be utilized for fulfilling the requirements of Turkish Armed Forces but also be used for the requirements other institutions and associations. Upon the orbit of the satellite, the duty station performance tests, full scope functional tests and fractional qualification tests will be conducted. Following the successful completion of the tests, the system's final utilization is planned to take place in September 2017".

Commander of the Air Forces General Abidin Ünal mentioned that they launched a satellite which has the

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indigenous contributions in design, production, test and integration areas and said, "The Göktürk-1 satellite, which will start its journey into space today, will be capable of transferring over 250 high resolution, color images within a 24 hour cycle. With the help of the images it will transfer, we will be able to acquire highly sensitive intelligence and the precision guided smart ammunition will be able to hit their marks. By means of the satellite image which will be placed into the memory of the SOM (Stand-off Missile) that we developed indigenously, the precise hits could be conducted from hundreds of miles away. In addition to the Göktürk-1 and Göktürk-2 satellites, the complementary observation satellites, early warning satellites and communication satellites will take their places in space. With these satellites and our Air Space Group Command which will operate them from the ground, the Turkish Armed Forces will soon become powerful in space as well".

Minister of National Defense Mr. Fikri Işık noted that they made very important progress during the process starting with Göktürk-2 and continuing with Göktürk-1 satellite and added that they will be reaching significant acquisitions in space technologies areas in the upcoming period with the Göktürk-3, and TÜRKSAT 6A projects.

Following Minister Işık's speech, Göktürk-1 Reconnaissance and Surveillance Satellite was launched to space from the Korou launcher base at French Guyana at 16:51 Turkish time.

Addressing the invitees after the launch, President Mr. Erdoğan,

Turkish Air Force Commander General Abidin Ünal

wished that the Göktürk-1 satellite would bring good luck to Turkey and the Turkish Armed Forces and thanked those who contributed to the production and launching of the satellite.

Reminding the audience that Turkey's RASAT satellite was launched from Russia in 2011, and Göktürk-2 satellite was launched from China, President Mr. Erdoğan said, "Now by launching our Göktürk-1 satellite to space, we have taken a new step within the scope of our space activities. The Göktürk-1 satellite we launched to space today is a more developed satellite than the previously launched Göktürk-2. This satellite, which will be providing services to our Turkish Armed Forces with its high technology capabilities, will also be bringing many important advantages to our country in other areas".

Noting that with the help of this satellite with precise imaging capability up to half a meter, many benefits will be available in a wide variety of areas from controlling the forests to sea pollution, from damage assessment to crop estimations, President Mr.Erdoğan stated that the capabilities of the Göktürk-1 satellite would be an expression of Turkey's determination toward the target it wishes to reach in respect to space studies. President Mr.Erdoğan stated that through good planning in all areas, Turkey will achieve a self- sufficient defense industry and continued: "As all other demands of our Defense Industry requiring high technology, we have to develop and manufacture our own satellites. I know the activities being conducted to this end and I appreciate them but I especially underline that we need to accomplish more too. Our related institutions will have to execute all their activities through an understanding built on their own design and production instead of direct procurement".

Mr. Erdoğan stated that the domestic participation ratio in Göktürk-1 satellite was 20% and added that the arms embargos and restrictions arising recently motivated and strengthened them to develop and improve the defense industry and continued, "The domestic participation rate in the satellite we launched today is 20 percent. We should be able to manufacture our next, more improved satellite at least with the reverse rate and launch it into

Minister of Defense Mr. Fikri Işık; President Mr. Recep Tayyip Erdoğan

space. We need to rapidly establish a self- sufficient defense industry through good planning in all required areas and with correct choices".

Following the speeches, a small scaled mock-up of the Göktürk-1 satellite was presented to President Mr. Recep Tayyip Erdoğan to commemorate the ceremony.

The First Signal was Received from the Satellite After 68 Minutes

4098 seconds after the firing of the primary engines of the Vega satellite launcher, Göktürk-1 orbited 681 km over the ground and the first signals were successfully received 68 minutes after the launch by the ground station rented for Göktürk-1 at Norway's Troll town at the South Pole.

All environmental tests of the Göktürk-1 satellite with 7 years of duty term were conducted at the Space Systems Integration and Test Center (USET) at TAI facilities and the satellite will be completing its tour around the world in approximately 90 minutes. Göktürk-1 satellite has a mass of nearly 1070kgs without any fuel and will be performing its tasks in the solar simultaneous orbit with its high resolution optic camera. The full acceptance of the Göktürk-1 satellite will be taking place in April 2017 and the satellite is planned to become fully operational in September 2017. The satellite will be operated with the ground station located at the Reconnaissance Satellite Battalion Command's facilities of the Air Forces Command in Ankara.

Göktürk-1 satellite is expected to start a new era for the following military optical observation satellites and the capabilities and know-how acquired in this project are expected to pave the way for new generation surveillance satellites.

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CTech – Steady Stride of Success; Strategy Based on Products & Solutions and Competition

In an exclusive Defence Turkey Magazine interview, CTech General Manager Dr. Cüneyd Fırat discusses the company's projects, national and international commercial and government partners in defense, security, satellite systems, cyber security and broadcasting technology

Defence Turkey: Dear Dr. Fırat, first of all we would like to thank you for this interview and your time. Could you please inform us on CTech's structure and areas of activity?

We are conducting our activities in our main office at Teknopark Istanbul and at our branch office at Bilkent Cyberpark in Ankara. We were merely 4-5 staff when we started our journey in the beginning of 2005 and currently we are carrying out our activities with a family composed of nearly a 100 staff. CTech is continuing to take firm steps ahead in its 13th year of establishment with a strategy based on products and competition and by putting forth worldwide products and solutions.

Our main activities and competencies are composed of signal processing and embedded systems and PC based software development, various operating systems and design and development of software in several languages. The projects we accomplished and the products we developed in the past are the proof of this. We managed to put forth comprehensive products. The areas we introduced as part of our strategic planning throughout our development process and the areas we started to work on; namely the new generation communication technologies - I have to mention the wireless communication and satellite communication under this title – which contain cyber security and various simulation applications. For instance, in respect to satellite communication, we are the designer and manufacturer of the STANAG 4606 frequency hopping satellite terminal developed merely by a European company in addition to our company in the world. On the other hand, within the scope of the Technology Acquirement Project which we initiated upon the approval of the Undersecretariat for Defense Industries (SSM), we are developing the indigenous and domestic satellite communication terminal for the ANKA etc. air platforms as the subcontractor of TAI. We also have a line of vision communication products that we developed for the manned and unmanned air vehicles. In addition to the aforementioned, we have a MODEO product family for image and data transfer purposes that we delivered for the publication sector and the internet of things (IoT) applications. MODEO is capable of transferring mobile images and data to an eligible point over lines such as the 3G, 4.5G, Wifi and Ethernet

from any given point in the world. There is our CUSTOS product group that we introduced in Cyber Security and Information Security areas as well. Our product named KRYPTOS within this product group enables the encryption of all documents (documents, photographs, videos, etc.) and e-mails on institutional and individual basis. This solution is quite practical as it provides the security of the data put especially into the cloud or the security of shared institutional documents. Moreover, it allows the secure access to your data through the mobile environment via the Bluetooth. CUSTOSISM examines all the traffic in your internal network in depth, conducts a full security risk analysis and identification, and creates situational awareness on your network. We placed all these products onto the shelf and we are conducting activities considering their sales. Our activities concerning modelling and simulation are mostly based on aviation. These are divided into three categories: Our air defense modelling and simulation software, surround sound and communication modelling and simulations for air simulators and the modelling environment we actualized for decreasing radar visibility of air platforms and other platforms.

Defence Turkey: As CTech, you are taking part in the consortium for the development of the Türksat 6A domestic communication. Could you please share with us the recent status of your responsibilities and the activities conducted within the scope of this program?

The design is being made from scratch in Türksat 6A project. Almost all sub systems as part of this design bear a considerable level of criticality and risk as space systems are not capable of returning back and they have to create the timeline in orbit. We are developing a commercial service satellite as part of the Türksat 6A project. It is an R&D project but Türksat will employ it and use it for commercial purposes. There are also R&D satellites in the world and they are being launched merely for trial purposes. This is not such a project therefore the R&D and design activities will be executed in a way to avoid risking the expectations of Türksat too much. Timeline products will be used in some of the critical sub systems as well. Though, the domestic systems within the scope of the project will be experimentally developed in the meantime and will be placed into orbit in order to acquire the timeline. These have unique details. We are responsible for the module that we refer to as the telemetry, tele command and ranging (TCR) that enables the control communication of the satellite. It is not a great part yet it is a critical one since it provides the connection of the satellite with the ground station. We will procure a timeline product and integrate it to the system. On the other hand, as part of the same study, we are also responsible for the development of a domestic and experimental TCR module as an R&D dimension. This experimental TCR, which will be tested in the 6A satellite, is expected to become the standard component of our future satellites. This project contains a significant amount of system engineering activities as well.

Defence Turkey: Dr. Fırat, you are conducting the development and production of the Line of Sight Communication and UAV SATCOM Communication solutions that are amongst the critical technologies considering the Unmanned Air Vehicles as well. Could you share with us the joint studies you execute with the companies such as Baykar, TAI, Vestel active in this area and the programs you conduct under the guidance of the Undersecretariat for Defense Industries?

The Line of Sight and SATCOM data links for the air vehicles are amongst our strategic product areas and we have been intensively conducting our investments and activities in this area for years. As I mentioned before, we have a UAV SATCOM Terminal design and development project which we initiated within the scope of ANKA-S program with a TQM characteristic on behalf of the SSM and conducted by TAI in 2015. The terminal we developed as part of this project has a national waveform and a DVB-S2

waveform compatible with the international standards. Moreover, we are working on a nationally designed Line of Sight data link in coordination with the SSM. Without doubt, we have been executing such activities in close cooperation and coordination with the leading producers of our national UAV platforms Baykar and TAI. As a result of such activities, we are currently at the stage of launching the Baykar and ANKA platforms in both subjects. Our products will be hopefully flying over these platforms in the first half of 2017.

In line with our global productization and strategic competition approach, we are establishing these activities that we conduct in this area as a product family concerning all military and civil air platforms. Therefore, we are examining our rivals in both technical and commercial aspects, and conducting competition analysis and follow-up in a very intense manner. We are aware that putting forth globally ambitious products requires considerable amount of in-depth and concentrated effort. Thereby, we will continue to introduce competitive products that please our shareholders and that carry out our productization and diversification activities in this area without depending on the dynamics of any project.

Defence Turkey: Could you please share with our readers the know-how, technology and capabilities obtained through the UAV SATCOM - a technology acquisition project realized within the scope of the ANKA-S project, as well as the current status of the development program?

SATCOM TQM has been an important milestone for us within this context, as we have seized the opportunity to develop a useable product by taking the features and limits of the platform into consideration with the TAI team as part of the project. In this way, we are conducting an R&D study particularly as part of the application. The aim of the TQM projects is essentially to enable integrity and efficiency. Therefore, I would like to thank SSM and TAI for their support and cooperation. The aim is to install a demountable end-product to the aircraft. We are also designing a modem with a national waveform which is available for the utilization in air vehicles as part of this project. The activities within the scope of our project are continuing with speed and enthusiasm. Our schedule proceeds as foreseen. Soon we will start the tests of the first drive of our terminal. We are planning to launch the system integration activities at TAI' ANKA system integration laboratory in the first quarter of 2017. Consequently, we aim to realize the flight of the first prototype of our terminal within 2017 at ANKA as the final stage.

Defence Turkey: It is a fact that the communication range limits the operation range in the line of sight systems. Which types of capabilities do the LOS and BLOS solutions, that you developed and introduced as products regarding this issue, provide to users? What would you like to share on the latest status of the activities conducted regarding the integration of this product into the national platforms?

The unmanned air vehicles provide a communication within the range of maximum 200 - 250 kilometers as the ground station senses the air vehicle which we refer to as the visual communication under normal usage conditions. However, when a satellite terminal is installed to the unmanned air vehicle, your range may extend for thousands of kilometers therefore this will provide you quite a significant strategic advantage. Not many countries in the world could achieve this, only a few countries managed to develop this technology. Our satellite communication terminal which we developed for unmanned air vehicles is among our products with serious export potential, it is not a product with many alternatives in the world and since it is among the technologies that are limited when being sold, one cannot procure it for any application whenever desired.

As CTech, we put forth an indigenous solution for the first time in this area. As I mentioned previously, we initially aim the Bayraktar and ANKA platforms. Yet we assess that our targeted platforms will not be limited to these as there are demands for certain platforms with different qualities as well. There are also some platforms that we wish to focus on and our activities in this area are being conducted intensively. We will be diversifying this product group in the future again.

Defence Turkey: As CTech, you are introducing to the market, secure communication EPM modems with frequency hopping capability and which also have anti-jamming capacity. What are your comments on these solutions?

Satellite communication provides strategic advantages to its users. Then again, it has to be secure, resistant against jamming and interference and interception will be avoided as well and these points are quite critical for achieving strategic communication. Satellite communication is a technology area that has matured and its utilization has extended over the years and the technologies identified for the future in this area are expected to be the satellite terminals for mobile platforms and terminals with waveforms resistant against jamming/interference. Already the requirements set forth by practice and various users' expectations over the years have been defined under these two titles. As CTech, we stand at the intersecting point of the activities we accomplished and the products we developed and these two contemporary technologies, our know-how and

BLOS SATCOM

products/solutions remain as well. We previously mentioned our mobile satellite terminal solution which we developed for the UAV SATCOM. Yet our activities and know-how are not limited to this. We have been working on the development and production of the satellite terminals of the armed forces with EPM (Electronic Protective Measures) since 2006. As a result of these efforts, our company both introduces domestic products for our armed forces to conduct secure and anti-jamming satellite communication and we present them to our customers abroad as the second company in the world manufacturing such products aligning with the NATO standards. The operating principle of these terminals are resistant against thousands of frequency-hopping per second at broadband if required.

Naturally, both with mobile satellite terminal know-how and as a company with EPM technology, we have set for ourselves the mobile EPM terminals as a target and in line with our productization approach, hopefully we will be including this product to our product and solution family within 2017.

Defence Turkey: Could you please inform us on your activities regarding Cyber Security?

We have been conducting activities in Cyber Security since 2007. For example, we have established a central security system at operator level and have become one of the ground breaking companies in this area in Turkey. We built the central network security system of Türksat Kablo and the system is currently providing services to approximately 600,000 subscribers. Therefore, we have accumulated our experience starting from this point. Following this, we developed solutions that could analyze and track the traffic, in an IP traffic in a few gigabytes per second. We are at the identification and analysis side of the threats. When you are on this side, you need to have a perspective deeper than the classical methods and put the data collected from different sources together in order to increase your competence in detection and identification. We have been working on this technology for years. We have participated in various R&D projects concerning this issue, too. We remained on the data fusion part of these activities. We are following NATO activities as well. We have been conducting these with our own initiative, and we are proceeding in line with our own road map.

SATCOM X-Band EPM Modem

Our aim in these activities is to deliver the products and solutions that will appeal to all of the defense or civil customer groups and will cover the end users as well. Our KRYPTOS and CUSTOS products, that I have mentioned when replying your first question, have been completely developed in this context and they appeal to quite a wide user profile.

Defence Turkey: Dr. Fırat, what are your opinions on the other critical technologies that your company develops and produces in the area of defense?

Our company is the provider of products and solutions in various modelling and simulations, mostly focused on the area of aerospace. Development of Air Defense Modelling and Simulation software package, realization of surround sound and communication simulations of various military aircraft simulators and radar cross-sectional area modelling and estimation activities can be considered as the activities we have accomplished so far to this end.

The Air Defense Modelling and Simulation package is one of the products we developed that need to be emphasized within the scope of SAMMOS-1 project. This package is composed of various sub-components enabling the modelling and operation of complex air defense scenarios. It is available for utilization in both training and analysis purposes. One of the most prominent features of this package is that it has a highly detailed and comprehensive model database in which one could define and run the common air defense scenarios composed of air, land and sea with high fidelity. There are very few products in the world with such details and reality level. This product is being utilized by various units of our Turkish Armed Forces at the present. We aim to present this product to the service of our users abroad. Moreover, our initiatives for integrating this solution with various other modelling and simulation platforms are still continuing.

Defence Turkey: Dr. Fırat, what would you like to say about the products you deliver to the regions where you are active abroad, and your export activities?

For example, we are marketing the MODEO product family to foreign countries. Recently we sold it to Qatar. Besides, we sold this group to India, African countries and even to the USA. Our sales network is expanding day by day. On the other hand, for the MOBIoT utilized for data and image transfer within the context of the Internet of Things (IoT) in our MODEO product family, we are conducting certain studies with some of our clients in Saudi Arabia. If accomplished, it will set a great example. Within the scope of our “Hemaye” project, the fruitful cooperation we established with the King Abdulaziz City for Science and Technology (KACST) which belongs to the government of Saudi Arabia and is one of the milestones in providing the demand of the country based on high technology, is one of the important examples of our export and foreign cooperation initiatives. We have brought another negotiation, for another joint project with KACST, to the final stage as well. In addition to the aforementioned examples, we are returning with significant networks and opportunities from almost all of the foreign events that we have attended. We observe that the demand and interest in this area are increasing noticeably as we put our products onto the shelves each day.

At this point, I would like to thank the International Cooperation

Department of the SSM for their support in this area. We are working in close cooperation with the foreign offices of the SSM. Meanwhile, we put our signature in certain significant international cooperation initiatives. For instance, our ClickNET Company within the body of our CTECH Technology Group is the main representative of the satellite operator of the United Arab Emirates YAHSAT in Turkey, we are conducting its sales. Currently, merely the foreign satellites have sales in Turkey in Ka band. We expect to become also one of the solution partners of Türksat in this area. If we aim to manufacture technological products, then a single country would not be sufficient. If we wish to collect 70% of our revenues from product sales, then we need to open up sales globally. Without doubt, we need to proceed wisely on this point without wasting our resources. We select prominent activities as targets and allocate our resources to them. Our objective is to increase exports and build a balance composed of 40% exports and 60% internal market in the next ten years.

Defence Turkey: Dr. Fırat, which fairs did CTech participate in that were in foreign countries in 2016?

As CTECH Technology Group, we participated in many national and international organizations in 2016. We had hundreds of meetings at these fairs and we had the opportunity to interact with thousands of people and to talk about our products and solutions. In February, we exhibited our products for mobile technology at the 2016 Barcelona Exhibition GSMA Mobile World Congress, one of the biggest fairs in the world. We exhibited our defense and marine products at the DIMDEX 2016 (Doha International Maritime Defence Exhibition and Conference) fair held in Doha, Qatar in March, and participated in the Cabsat 2016 fair at the Dubai World Trade Center to introduce our products and solutions for the publishing industry. In April, we took part in the 15th DSA 2016 (Defence Services Asia) Fair held in Kuala Lumpur, the Malaysian capital, and had the opportunity to talk about CTech products and solutions. In September we attended the 2nd ADEX 2016 (Azerbaijan Defence Exhibition) held in Azerbaijan's capital Baku. We introduced Mobile Broadband Video Transmission (4G / LTE / WiFi) and Cyber Security products and solutions in GITEX Technology Week, which is recognized as one of the

biggest and most important ICT fairs in October. At the IDEAS 2016 Fair in Pakistan in November, we exhibited our products and solutions at our CTech stand. During the last fair in 2016, we talked about satellite and wireless communication solutions at the 2nd Global SatShow Fair.

In 2016, we participated in many organizations both at home and abroad, our stands attracted a great deal of attention and we had the opportunity to host many high-end domestic and foreign guests. We will continue our intensive participation in 2017. Our preparations for IDEF 2017, which we expect to take place in May, will be held with great enthusiasm. In 2017 we will continue to promote our products and capabilities as CTECH Technology Group through national and international organizations.

Defence Turkey: We know that as CTech, you have been working on introducing commercial products and directing your activities accordingly in addition to developing project based products. What types of advantages and flexibilities does your adopted approach bring you in the market?

Since our establishment, we have been careful to act with the target of presenting the technology and product accumulation we own to a diverse market and user profiles, and to identify our strategies accordingly. Again, we attach great importance to the productization and product management discipline strategically. These are approaches complicating daily lives a bit while also providing important advantages. Having a product perspective leads you to have all your design, development and production activities to be based on plans to open up to different markets, delivering products rapidly and being competive. This means that all the cycles from the organizational structure, the processes, to the business development activities of your company need to be shaped to coincide with this mindset. This point of view provides a very important efficiency and dynamism to the company.

Defense Industry projects and opportunities in our country are being realized in a rather slow process. Most of them are capable of lasting many years. This may cause inertia in the defense industry companies from time to time. From this perspective, the opening of the sector to other markets than that of just the defense industry, is a source of dynamism for us and all the companies of the sector. For example, as the CTECH Technology Group companies, we attend the other sectors' events as much as the defense and security events that we participate in. For instance, last year we attended many events held regarding telecommunication, broadcasting and IT in our country and abroad and seized the opportunity to interact with different customer profiles.

Defence Turkey: Where do you plan to position CTech in the next ten years' period?

As the CTECH Technology Group, we are proceeding in a trend of reasonable and sustainable development. We are a company aware of the high technology area; it is a long and narrow path requiring a high level of patience, persistence and effort. It is quite like a meal cooked over low heat. Hopefully we have many decades ahead.

With this understanding, we aim to develop our company's product profile horizontally and vertically within the next ten years. Yet, surely the spontaneous circumstances arising will be quite determinant. If such circumstances would not surprise us, CTech's aim is to proceed in line with the products and solutions it has generated so far. We believe that the areas we work on and our profile are fertile and open to market development. Then again, as high technology is open to global competition even on a domestic scale, product range and quality require a tough contest. In the meantime, it requires good marketing and promotional efforts as well. In the upcoming years, we will be developing our structure in respect to institutionalization and the development processes of our products as well as our investments focused on achieving the level of competition in question.

At the point which we have arrived, approximately 30% of CTECH Technology Group's turnover is composed markets outside of the defense industry. With determined development, our target for the next

five year period is to accomplish 50% of our revenues from markets other than defense and again acquire 60% of our turnover from the sales of our products on the shelves. We are exerting great efforts toward this end.

Defence Turkey: Dr. Fırat, on the other hand you have been conducting the Vice Presidency of the SAHA Istanbul Cluster. What are your comments on the activities conducted within the context of SAHA Istanbul?

As you know, the large and small industrial enterprises located in the Northern Marmara Region extending from Edirne to Sakarya compose the industrial core of our country. A considerable part of these companies possess worldwide qualified design and production competency. 75% of our country's shipyards are located in this region. Again, this region is rapidly moving toward becoming one of the world's aerospace centers both in operational and technical aspects.

SAHA Istanbul, based in Istanbul and covering all North Marmara, was established with the mission of focusing on this great potential regarding defense, aerospace and space projects both in domestic and global aspects. I am deliberately using the 'mission' as our basic motivation is to contribute to our country's transformation from medium level technological production to a high technological qualified economy.

SAHA is just about to become two years old but during this period it has attracted great interest and currently it is the greatest defense, aerospace and space industry cluster of our country. We envisage that its growth and development trend will continue in the upcoming years. As SAHA, we are providing various services to our members in line with our mission. For example, we gather our members with the leading defense, aviation and space companies in our country and on global scale at the industry days we organize in the format of B2B negotiations. This is quite beneficial both for the main contractor companies and for our members. On the other hand, we are holding informational and orientation activities on the dynamics of the defense, aviation and space sectors and on the qualifications required for our requesting members. We are participating in major national and international fairs, workshops, etc. events together, in synergy. We are also conducting some activities for creating synergy with other similar clusters. We are relaying our comments and suggestions to the representatives for the development of our country's policies and implementations in this area. We are executing similar other activities as well.

Teknopark Istanbul holds an exclusive meaning for SAHA Istanbul as Teknopark Istanbul is the environment in which SAHA was created and developed. We have a great synergy with the Teknopark and we are conducting our activities as brother initiatives. We assess that this powerful industrial cluster such as SAHA Istanbul and its gathering with Teknopark Istanbul ,which is also a quite strong and in-depth initiative, is very important and efficient for the sake of our country's future. This close cooperation will be generating very great and productive results in the upcoming years.

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

Our country has been going through regional and cyclical problems. But despite all these issues, the considerable amount of stability and development in such a level, envied by many other countries in the world, is the indicator of the rooted infrastructure of our country and our people and their significant potential. In the last 20 years, noticeable developments emerged in the critical infrastructure (transportation, communication, education, social environments, etc.) that took place in our country. Besides, our country, both our directors and our people, grasped the importance of the transfer to a value-added economy. The psychological infrastructure essential for this is prepared. In the forthcoming period, we need to take the steps allowing this transfer with intensive efforts and good organization both as the government and as the private sector and work in great synergy to this end. For achieving this, we have to concentrate on the medium and long term, sustainable road maps, without being distracted by the temporary and cyclical agenda.

On the other hand, we expect the utilization of domestic technology in the public sector to be emphasized and addressed more for our development in high technology. We unfortunately have certain negative experiences in this area. We are one of the companies going through such issues in our activities except for defense industry. Therefore, we attach importance to this issue. This awareness should be underlined by the public sector for sure. I believe that, otherwise, our country would not be able to reach the next level in the area of technology. We need leverage for making certain things possible and this leverage will be created particularly by the public sector in our country. This is our reality. The public sector would not like to take risks due to certain existing regulations and habits. We need to work on certain solutions and methods for relieving the decision makers in the public sector and we are taking steps to this end. If these initiatives are supported, a positive momentum will be added to the technological development. Because a company must achieve many things toward developing technology; and maybe 30% of it will remain permanent while 70% will be lost. These could not be accomplished unless a momentum is achieved.

Aselsan and Temsa's Co-Production Electric Bus "Avenue EV" Head Out

The two companies developed the first 100 percent domestic electric bus in the Turkish automotive industry named "Avenue EV"

Avenue EV, drawing attention with its environmental and innovative features, was launched with the participation of the Minister of Science, Industry and Technology Dr. Faruk Özlü, Sabancı Holding CEO Mr. Zafer Kurtul, Turkish Armed Forces Foundation General Manager Mr. Orhan Akbaş, Aselsan Vice Chairman Mr. Murat Üçüncü, Sabancı Holding Industry Group Head Mr. Mehmet Hacıkamiloğlu, Temsa General Manager Mr. Dinçer Çelik, General Manager of Aselsan Dr. Faik Eken and Aselsan Deputy Chief Executive Mr. Y. Suat Bengür.


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Fully Charged in 8 Minutes

Developed from an environmental point of view by taking global requirements into consideration, Avenue EV operates with a sustainable source of energy instead of fossil fuel. With the help of its fast charging feature of reaching full charge capacity in 8 minutes, it provides continuous service with brief charges during stops. This environmentally friendly high performance bus with an electric traction system and zero carbon emissions is at the same time quiet, comfortable and equipped with state-of-the-art-technology. The passenger cabins offer comfortable travel facilities in both cold and hot weather conditions as well as the option of in-car internet and data connection. Avenue EV is capable of hosting 35 seated, 52 standing and 1 wheelchair passengers. With its large interior volume, Avenue EV is capable of providing high performance services without requiring maintenance for long durations due to the 100 percent domestic, highly efficient and lightweight electric traction system developed by Aselsan. The vehicle is capable of driving for 50-70 km with a single charge.

Temsa is our Source of Pride

Sabancı Holding CEO Mr. Zafer Kurtul expressed the following at the press conference: "We are proud that the innovative and comfortable Temsa brand vehicles developed by Turkish engineers are being exported to 66 different countries. The Temsa Bus R&D center, which is amongst the best practices of the 243 R&D centers located in Turkey, is also a great source of pride for the Sabancı Group. Innovation and R&D are the two main issues to which we attach great importance as the Sabancı Group. Our greatest priority is to add value to our country, our environment, our business partners and to our employees in every field we work in. With this understanding, we are proud to cooperate with all the companies with the same approach. The one hundred percent domestic Avenue EV developed through the joint efforts of Temsa and Aselsan is a high-tech, clean and quiet inner-city public transportation solution that is suitable for modern cities. This bus developed completely by Turkish engineers attracts attention with its high efficiency, lightweight and 100 percent domestic traction system. This fruitful cooperation makes us very proud."

Aselsan Achieves the Unattainable in Turkey

Aselsan General Manager Dr. Faik Eken said, "As Aselsan, we have always focused on achieving what is regarded as unachievable in Turkey since the very first day of our establishment 41 years ago. With the project we launched with the support of TÜBİTAK TEYDEB in 2015, our Temsa and Aselsan teams developed an indigenous bus capable of covering the urban public transportation requirements of the municipalities. As Aselsan,

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we indigenously designed the electric engine, motor drive unit, vehicle electronic control unit, drive designator unit, power control units, battery management system with our over 10 domestic sub-contractors and had the opportunity to manufacture them through our domestic resources. For this bus that we developed, there is a technically fast charging facility for the batteries and therefore the buses are capable of fully charging at the stops on their route for brief durations. This project serves as an important example as it indicates that Turkey is capable of developing its own electric vehicles, buses and automobiles."

Our Effort Geared Toward Increasing Temsa's Exports to 80%

Sabancı Holding Industry Group Head Mr. Mehmet Hacıkamiloğlu told the participants that they were competing with the global companies as the industry group and continued, "We are bringing our products together with our customers from Indonesia to America. And we are doing this with the sense of a national task and responsibility because we have faith and trust in Turkey. We name ourselves as Turkey's Sabancı. We are fully aware of the fact that competition in Turkey could be achieved merely through added value and we are working for it. We invest $ 400 million every year. We are proud of introducing our product which is completely the achievement of Turkish engineers to our clients. We hope that this product can find its place in the global markets and raise Temsa's flag to even higher levels. We will put all our efforts toward increasing Temsa's current rate of exports that is around 50% to 80% in the upcoming period. And we will achieve this through the value-added products such as the product we launched here today."

Aselsan and Temsa Cooperation Heralds the Beginning of a New Era

"I am greatly pleased and proud to stand here as the General Manager of a company achieving the production of the first hundred percent domestic electric bus and thus heralding the beginning of a new era in the Turkish automotive industry," said Temsa General Manager Mr. Dinçer Çelik in the beginning of his remark and continued, "We developed the high performance and new generation Avenue EV with the leading organization of the Turkish Defense Industry Aselsan. The two leading companies worked in great harmony throughout this process. This collaboration will not be limited to the manufacturing of the electric bus; we will continue to develop environmental friendly products for a sustainable world as well". Mr. Çelik extended information on the prominent features of the Avenue EV.

Avenue EV will Bring a Breath of Fresh Air to the Cities

Mr. Dinçer Çelik noted the following on the features of the product: "More environmental friendly means of transportation are gaining more importance as the cities are becoming more crowded and mass transportation demands are increasing. We are launching our innovative and environmental friendly products without slowing down in order to achieve a cleaner world. The Avenue EV we introduced here today is a high performance, efficient and environmental friendly electric bus we jointly developed with Aselsan. The most prominent feature of the Avenue EV - manufactured through hundred percent domestic technology - making it different from its rivals is its fast charging capability in such a brief duration such as 8 minutes and its ability to cover long distances. With the help of its simple design and low maintenance requirements, the bus is capable of achieving high performance under all types of road conditions. It is a quiet, comfortable and efficient bus which is able to host more passengers thanks to its larger interior volume. I am proud to introduce you this product which will bring a breath of fresh air to the cities by reducing both the white noise and environmental pollution."

Aselsan Developed a Domestic Electric Traction System within the Scope of the Project

Aselsan Executive Vice President and Transportation Security Directorate of Energy Traffic Automation and Health Systems (UGES) Sector President Mr. Y. Suat Bengür, presented to the guests the details of the new product multi-phase motor and motor drive, vehicle control computer, High Power Distribution Unit DC / DC converter units. Mr. Bengür expressed his satisfaction with the harmony established during the project carried out with Temsa and stated that they plan to work together on other projects where Aselsan traction systems will be used.

Grup Impeks : Unique Equipment for Unique Forces

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Grup Impeks Metal Industry and Foreign Trade Ltd. Company is a full-fledged foreign trade company, rendering services with its expert and experienced staff to all markets in terms of procurement and logistics. Regarding procurement aspect, initially the domestic and foreign procurements are conducted in a way that best full fill our customer demands and thereafter the service is completed with the monitoring, customs and logistics services.

By year 2004 we have seen the lack of Military products supply at our region, Close east and East Africa market with efficiency and quality of Turkish management output. Since then, through continuous creative and innovative works, consultation of experts, strategic collaborations and completed projects over last decade allowed Grup Impeks Ltd. to a growth of wide range of products to be exported not only to limited African Markets but to Middle East countries of Saudi Arabia, UAE and Qatar and also to extend to East & West Africa, Libya and then to Southern Europe; Macedonia, Albania, Croatia, Germany and Russia with full range of Military, Security and Police Equipment, Ballistic Equipment & all types of Textile, FMCG, Retail, Industrial Machinery & Spare Parts, Dry Food and Turnkey Projects.

Our Import activities are mostly from Russia to supply Paper, Machinery and spare parts for the markets we are serving to and Petroleum Products for Turkey. Recently we have broaden our trades in exchange of our export activities by importing raw materials of food products from the markets we are already in, such as; Sesame, Arabic Gum and Peanuts for food and beverage manufacturers as well as by our brand new factory established for Ballistic Equipment production with a new technology R&D Centre.

The Ballistic sector is our most prestigious product group which requires the latest innovation and continuous and reliable services in technology and R&D aspects. At the current status of the world, various security problems are occurring in many regions and therefore there is a huge demand for ballistic products. So, as Grup Impeks Ltd., we have been working on Ballistic products for the last four years and focusing more on our investments. Regarding the procurement of Ballistic material, we are collaborating with partner companies which are most recognized in these areas, with great references, using the state-of-the-art-technology. We deliver the most suitable solutions to our end customer by combining one-to-one studies of our R&D department and the demands of our customers, then conducting the technical improvements and usage improvements which we deem appropriate. By completing the new factory for Ballistic equipment, we will be using this facility to transform our R&D Centre's own test laboratory into a reference centre in which international studies can be conducted.

We are closely following the developments in the Defence sector at home and abroad. In this sense; we endeavour to offer services to military and police forces by rapidly analyzing their demands. When we receive an order, in line with the conditions of the country, at times we need to guide our customers regarding the fabric options, the models to be used or the new activities acquired through our R&D. Thanks to our knowledge and expertise, we strive to provide the most favourable product with the best balance of benefit/price or benefit/technology.

To accommodate its rapid growth, Grup Impeks Ltd., relies on its manufacturing partners and agencies both locally and internationally with trustworthy companies at Hong Kong, China, Indonesia, Pakistan, Saudi Arabia and Macedonia in order to attain a competitive edge in the Defence Industry Market.

Today, Grup Impeks Ltd. is a primary and whole supplier of Military & Police Equipment, Tactical solutions, Ballistic Equipment and Corporate designs for all kinds of uniforms and work clothes, as well as all kind of dry foods for military needs to our valuable clients with remarkable experience and prestige but more important we are the only supplier company in Turkey which saves valuable times and efforts of our clients for facing difficulties of purchasing from multiple suppliers against their various conditions.

Since year 2013, Grup Impeks Ltd.is being awarded the internationally acclaimed ISO 9001 certification as well as recorded firstly with “Among Top 1000 Exporters of Turkey” and by increasing export volumes continously during 2014 and 2015 has recorded with “Among Top 500 Exporters of Turkey”. Finally for the year 2016 we are expecting to be at “Among Top 250 Exporters of Turkey” which will be announce by April 2017 hopefully. Grup Impeks Ltd. is also founder member of Turkish Defence and Aerospace Industry Exporters Association, SSI which has established at 2011 and member of SASAD since 2014.

Grup Impeks Ltd. is widening its foreign trade activities and services of food and non-food products and aiming to be a FMCG sector bridge to African markets with known Turkish Suppliers and brand marks. We have the motivation to extend our range of products by supplying foods and non-foods with known brand marks, also with our private label mark of already known “Euro King” at the markets we are already into.

We are combining food activities by military needs and for the benefits of our military equipment supplying clients. Our actual aim is to bring our customers together with products containing more nutrition, with extended use; food product groups which are effective, easy to carry and store, available for recycling and innovative. These types of innovative product groups are currently being used in numerous developed markets and for various sectors. They will be compulsory for our market region and customer profile, more than a habit in the very near future. We are conducting the necessary preparations and trying to update the services that we can offer to meet these demands.

Our company will be happy to offer its high quality services to our existing and potential customers in the military and Defence Industry sector, textile and uniforms group, from technical textiles to mobile field solutions, from traditional and innovative food supplies to Turnkey mobile and fixed construction and energy projects, vehicles, equipment and spare parts to be used in the field and internationally to infrastructure solutions and finally in installation, operation, logistics and transportation. The development and growth of our sector and each investment made to this end will be a source of success for us on behalf of our customers.

As the military forces around the world become increasingly sophisticated and the Defence Industry is a key strategic sector which constantly grows and bodes well for our country’s future, we are and we will always proud to be part of it.

Minister of National Defense Officially Launched Havelsan's Anti-Terrorism Training Technology Center

National Defense Minister Mr. Fikri Işık, Undersecretary for Defense Industries Prof. İsmail Demir and his delegation visited Havelsan as part of their visits to the defense industry companies. Minister Işık and the accompanying delegation responded to press questions regarding the agenda before the factory tour, then received a briefing on the company's products and technologies from the company representatives.

Following the briefing, Minister Mr. Işık, who visited the Havelsan exhibition hall, Center for Civil Defense Technologies and Simulator hangar, also took 'flight' with the AW139 full mission simulator, which was produced for Qatar Air Forces and is soon to be delivered to

Minister of Defense – Mr. Fikri Işık

Qatar. He said that simulation technology has developed very rapidly and that there is a serious market share, and that Havelsan's close cooperation with TÜBİTAK in this area is also promising for the future. Minister Mr. Işık then visited the Submarine Diving Simulator and experienced a flight with the B737 300 NG type simulator, which was produced for Turkish Airlines within a short period of nine months.

Anti-Terrorism Center Offers Integrated Virtual and Class Training Solutions

There are residential Area Command and Control Center, Conflict Simulator, Vehicle Recognition System, Facial Recognition System, Laser Shot System and Operation Planning Modules in the Center for the Development of Anti-Terror Technologies. In the Anti-Terrorism Training Technology Center, both virtual and class training solutions are offered in an integrated manner. In the training center, similar to those in the regions where security operations were conducted, a residential neighborhood consisting of 5 houses was created and these houses were made intelligent. At the center, where alternative scenarios are controlled from a single center, with the effects of fog, smell and light, the military and security personnel aim to make their training more efficient and more cost effective.

DEFENCE & SECURITY INTERNATIONAL EXHIBITION

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Success and Momentum Propel ODTÜ Teknokent and the TSSK Forward in 2017

ODTÜ Teknokent, Turkey's Leading Technopark, hosted Defence Turkey magazine for an onsite interview with Mr. Tolga Özbolat - Director, TTO and Technology Collaborations - ODTÜ Teknokent
Building up on strength and collaborative experience, ODTÜ Teknokent is poised for success with talent, dexterity and an appetite for the International market

Defence Turkey: Please accept our very special thanks for devoting your time to answer our questions. As a start, could you please tell us about ODTÜ Teknokent in terms of the activities and projects being carried out?

It is our pleasure to host you here today at ODTÜ Teknokent. As you know, ODTÜ Teknokent is the first and still is Turkey's most innovative technopark. It serves a great ecosystem to its tenant companies, to ODTÜ faculty members, researchers, where we aim to support technology based entrepreneurship, increase the university-industry cooperation, commercialize R&D through the technology transfer office, facilitate interactions and collaborations between companies and finally work for the international competitiveness of the companies. Therefore, ODTÜ Teknokent has a wide range of programs, activities and projects addressing different needs of different stakeholders.

Among these are, the "Yeni Fikirler Yeni İşler Acceleration Program", the "Animation Technologies and Game Development Center - ATOM" together with various Incubation Centers as per the promotion of technology-based entrepreneurship; the "Technology Transfer Office - TTO" for the commercialization of R&D; Defense (TSSK) and ICT (T.ICT) clusters as a an expeditor of collaboration among companies; and finally the San Francisco Business Acceleration Center (T-Jump) together with liaison offices abroad paving the way for international cooperation and to act as enablers for companies to open up to global markets.

With its more than 330 tenant companies, 60% of which were initiated on its premises and employ more than 5,500 staff, 95% of which have bachelor, master of PhD degrees and with 125.000 m^2 of closed area reserved for R&D operations, ODTÜ Teknokent has undersigned exemplary success stories to serve as a model for other technoparks in Turkey.

The Award Ceremony of YFYI Acceleration Program

The companies operating at ODTÜ Teknokent are involved in R&D activities in software and information technologies (49%), electronics (21%), mechanics and design (15%), medical technologies (4%), energy and environment (5%) and advanced materials, agriculture, food, aviation and space, automotive account for the remaining (6%) altogether.

Due to the aforementioned services and its activities, ODTÜ Teknokent was selected as the most successful technopark having ranked FIRST PLACE five times and awarded as the most successful technopark in the Technology Development Zones Performance Index Study for the years 2011-2015 executed by the Ministry of Science, Industry and Technology.

Defence Turkey: What is the main target of the TSSK?

Thank you for raising this question, since I think the TSSK is very important as it is a cluster that was founded in ODTÜ Teknokent. By the year 2010 more than 100 firms had gathered together under the TSSK (Teknokent Defense Industry Cluster) in order to have a voice united through strength and developed more than 500 successful projects focused on the defense industry. These companies complement each other and add value to each other and defense capabilities, developing new products and services for aviation and security areas that have vertical expertise.

The development of needs that are critical and that have to be nationally produced, by national defense industry firms, occur within the scope of R & D-focused collaboration with universities. National defense industry companies, with universities and other companies, within the framework of R&D-oriented collaboration, set out with the vision to produce technology for the international markets, ODTÜ Teknokent Defense Industry Cluster.

Defence Turkey: How do you facilitate defense companies to work together and how are the cluster activities financed?

Within this context, support is provided for the pioneering of national and international business development activities, key staff on behalf of firms benefit from governmental support. Together, the cluster identifies targets for the development of a common infrastructure to meet the needs of cluster member firms. Universities, large industrial organizations, relevant public institutions, organizations with cluster members to ensure cooperation, and key personnel work toward reaching the targets set forth. The gathered cluster has its own unique management structure, representatives of the elected members of the firms have been working in collaboration with TDZ management on the management structure.

Besides the Ministry of Economy, SSM and TUBITAK support TSSK members and SMEs in the defense & aerospace area providing R&D and internalization support to enable them to develop products towards long term program planning in their strategic plans.

Defence Turkey: With more than 330 companies and over 5,500 staff you have a structure, which is growing every day. What are your comments on the added value and innovation contributed to the sector by the Defense - Aerospace, Space and IT companies that active within your body?

The driving force of clusters is the synergy that comes from R & D projects performed between university, industry and research.

Currently; in the "Anka" UAV program, ground based flight control & payload control computer, digital data recorders and ground station software are provided by TSSK companies. In the "Atak" helicopter program, airborne digital data recorders, anti-tank missile launcher control system, missile video coding/ decoding units, moving map computers and training simulators are provided by TSSK companies. There are many other examples can also be given. Moreover, TSSK companies are taking a role and will take more roles in major platform programs by also converting some of the foreign sourced subsystems to local indigenous products via a series of local R&D projects under a plan managed by SSM.

Defence Turkey: How do you evaluate the export performance of the TSSK Cluster members in 2016? Where does the TSSK see itself within the next five-year period?

I can answer these two questions together. There are more than 110 member firms and more than 2,200 R&D personnel employed. Currently, about 500 defense industry related R & D active projects are being carried out. Since the end of 2013, the clusters' turnover has exceeded 900 M TL and exports exceeded $ 180 Million. With the number of member companies and the R&D personnel, the TSSK is quite strong and the numbers show clearly where the TSSK stands. Moreover, the importance of R&D focused clusters is also of significance to mention for our national defense industry. The TSSK is located in the defense industry sector, and its structure consists of large, medium and small scale companies. Beside intra-cluster development and internationalization activities, with the accumulation of owned experience in the sector, by transferring of expertise into other national and international sectors, with the correct use of resources, it is ensuring the mission of accurate planning for new investments.

4th Project Market Day

Defence Turkey: What can you say about TSSK's activities in terms of events? And would you also inform us about your upcoming Project Market Day?

Throughout the year, the TSSK organizes various sector specific events, these are B2B meetings, special events with main contractors, seminars, soft skill and technical training. In January of each year, there is a very big sector meeting called Project Day which is held at the ODTÜ Cultural and Convention Center. Last year more than 800 people visited the event, where TSSK companies showcased their products/services and their capabilities to main contractors. The event is held under the auspices of SSM and hopefully Deputy Undersecretary Mr. Celal Sami Tüfekçi will honor the event with his precedence and do the opening speech. Also, main contractors support the event and the TSSK, and we are happy to welcome valuable representatives of the Turkish defense sector.

Defence Turkey: Are there any other points that you would like to mention to the readers of Defence Turkey magazine?

I believe that the TSSK is very important, whereas its majority of member companies are R&D focused SME's, which are the driving force for the economy. We work for the international competitiveness of member companies and boost the university-industry cooperation by various projects and activities. Moreover, we cooperate with all the important institutions, clusters and companies within the sector. I believe a stronger TSSK means a stronger defense industry.

FNSS and PT. Pindad, Completes Conceptual Design of the Modern Medium Weight Tank (MMWT)

FNSS of Turkey and PT. Pindad of Indonesia have advanced on their Joint Development Modern Medium Weight Tank (MMWT) project. The conceptual design of MMWT has been completed and was revealed during the Indo Defense 2016, International Tri-Service Defense Expo & Forum, from 2 – 5 November at the Jakarta, Indonesia.

Turkey and Indonesia initiated the project to develop MMT in 2014. The production of the first prototype has already started. FNSS and PT Pindad make up the prime contractors of the project, whose intellectual property rights will be owned by the two countries.

MMWT design comprises advanced ballistic and mine protection with broad range of fire power, from close support of infantry to anti-armour. MMWT's precision direct fire capability ensures required lethality with an outstanding tactical and strategic mobility. Rear configuration power pack of the vehicle is combined with advanced electronic controlled systems and heavy-duty suspension system.

The vehicle's new generation engine supplies adequate power, coupled with a fully automatic electronic controlled transmission, which results in a minimum of 20 hp/ton ratio, depending on the configurable protection system. MMWT gets its advanced mobility capability from 6-wheeled suspension system built on torsion bars with double pinned tracks. The power pack of the vehicle is equipped with high capacity cooling pack and fuel tanks. The cooling pack is cooled by an intelligent software driven hydraulic fan for optimum torque extraction and fuel economy, and two separate fuel tanks provide a minimum operating range of 450 km. An auxiliary power unit

enables turret operation when vehicle engine is not running, by charging the battery system. Advanced battery monitoring system is also equipped for optimum power management and Silent Watch capabilities. The interior of the vehicle is engineered carefully considering ergonomics of crew and different tactical and battlefield conditions including driving, firing and ammunition load and unload. Special type of driver seat enables operator to have adequate field of view with accessibility to all cabin equipment. MMWT comprises state of art modern technology platform with superior firepower supported with battlefield management and laser warning systems, providing tactical awareness to the commander. It will have high-end mine and ballistic protection in its class and in this sense MMWT guarantees required fire support against battlefield threads with speed of response at a very short notice, providing superior survivability and mobility on the battlefield.

Conceptual Background

MMWT brings new technologies and innovative fighting skills to the battlefield. MMWT direct- fire combat roles may include:

- Combat operations against medium and light armour, including; IFVs, APCs, reconnaissance vehicles, combat support vehicles, armoured engineering vehicles, artillery equipment, recovery vehicles and logistic support vehicles.

Fire support tasks against; dismounted infantry, logistic support sites and defensive positions.

For these roles, the MMWT combines an effective direct-fire weapon with a capable sighting system. This combination enables MMWT to achieve first round hits at battle at long ranges. The tank can fire both AP and HE ammunitions, as well can employ secondary weapons such as 50-cal or 7.62 mm MGs for medium-range area shoots and close-range self-defence.

Although medium tanks are seen as a no-match for heavy main battle tanks (MBTs) in the 60-70 tonnes range, utilizing its stealth and mobility, MMWT can be tasked against MBTs in specific scenarios, such as mobile screening operations, flank attacks, ambush attacks, emergency delaying operations and support of friendly MBTs.

Moreover, as MMWTs tend to be more easily transported and, once on the battlefield, have very good tactical mobility and these factors, together with a reasonable level of armour and capable weapons make them suitable for other roles including:

- Rear area security tasks against light mobile or air-landed forces,
- Counter penetration roles,
- Delaying operations,
- Combat recce tasks,
- Screening operations,
- Escorting of light armour or soft-skinned vehicle convoys, and
- Deep penetration operations in the enemy's rear areas.

Havelsan Senior Management Partners with Quantum 3D Staff in the U.S.

Havelsan Senior Management met with company personnel at the opening ceremony in the United States after Havelsan acquired Quantum 3D, a developer of simulator technologies.

Havelsan Chairman Mr. Yüksel Öztekin, Deputy Chairman Taner Düvenci, General Manager and CEO Mr. Ahmet Hamdi Atalay, Deputy General Manager Mr. Lütfü Özçakır and Technology and Academy Director Mr. Izzet Gökhan Özbilgin attended the ceremony.

Havelsan Chairman Mr. Yüksel Öztekin said, "I believe that all our affairs will be better together. I would like to express my happiness for being here and I wish good luck".

Making a speech after the ribbon cutting on behalf of Havelsan, Deputy Chairman Mr. Taner Düvenci noted that the entire legal procedure was completed and gave the message "We will be stronger together".

Quantum 3D's General Manager and Mr. CEO Pratish Shah also expressed his satisfaction working with Havelsan and emphasized that they will continue to lead the sector with air, land, sea, maintenance training platforms and services.

Turkey to Purchase 52 Super Mushshak Aircraft from Pakistan

The Turkish Undersecretariat of Defense Industries and Pakistan Aeronautical Complex have signed a MoU for purchasing of 52 MFI-395 Super Mushshak Trainer Aircraft during IDEAS 2016 in Karaachi on 23th November. Air Marshal Arshad Malik, Chairman Pakistan Aeronautical Complex (PAC) and Mr. Mustafa Seker, Deputy Undersecretary for Defense Industries have inked the contract on behalf of the parties. As per the MoU Pakistan Aeronautical Complex, Kamra will provide 52 Super Mushshak Trainer aircraft to the Turkish Air Force for primary training of its pilots. Pakistan Prime Minister Mr. Muhammad Nawaz Sharif, Pakistan Minister of National Defense Mr. Khawaja Muhammad Asif, Minister for Defense Production Rana Tanveer Hussain and Air Chief Marshal Sohail Aman, Chief of the Air Staff Pakistan Air Force along with high-ranking officials of Pakistan and Turkey were also present at the occasion.

The Super Mushshak aircraft is already in service with Saudi Arabia, Oman, Iran and South Africa as well as The Qatar and Nigeria have placed an order in advance of the IDEAS exhibition.

The Super Mushshak is an advanced variant of the Mushshak Basic Trainer, and is produced at the Pakistan Aeronautical Complex. Super Mushshak, with advanced avionics is an upgraded version of Mushshak fitted with a more powerful engine, cockpit air-conditioning, electrical instruments, and electric cum manual elevator and rudder trim. The aircraft has been developed to meet FAR part 23 certification in categories normal, utility and aerobatics. It has a spacious side-by-side cockpit giving a good view to the pilot (instructor) and co pilot (student) for the effective "watch me" instruction. Super Mushshak meets the requirement of a modern primary training syllabus and is an ideal basic trainer for basic flight training and instrument flying. The aircraft has a service ceiling of 22,000 feet, and a maximum speed of 268km/h. The range of the aircraft is reported at 814 kilometers. The Turkish Super Mushshak aircraft are scheduled to be delivered in three batches – the first in 2017, the second in 2018 while the last batch will be delivered in 2019. Turkey is expected to replace the older SF-260 and the Cessna T-41D aircraft in inventory with the Super Mushshak primary trainer.

3rd High-Tech Port Fair was Held in Istanbul

The 16th International MÜSİAD EXPO organized by the MÜSİAD biennially was held at the CNR Congress Center in Istanbul on 9-12 November 2016. The high technology fair, 3rd High Tech Port by MÜSİAD, took place simultaneously with the MÜSİAD EXPO.

Many domestic and foreign defense and military representatives attended the event held under the auspices of the President Mr. Recep Tayyip Erdoğan.

In his remark at the opening ceremony of the event, President Mr. Recep Tayyip Erdoğan stated that he has been closely following the activities of MÜSİAD since its establishment in 1990 and he touched upon the importance of this organization's contributions to the economy. Pointing out that Turkey has made historical progress especially in the economy in the last 14 years, President Mr. Erdoğan stated that the average rate of growth during the years 2003-2015 has been 4.7 percent and added that the growth figures were quite over the world average despite all the mishaps occurring in the last three years. President Mr. Erdoğan expressed that even in 2015, the year in which 2 elections and severe terrorist attacks took place in Turkey, Turkey reached a growth rate of 4 percent while the world average was 3.1 percent and where the growth rates of all other developing countries except a few remained at 2 percent.

Addressing the attendees at the opening ceremony of the MÜSİAD Expo, MÜSİAD Chairman Mr.Nail Olpak said: "The advances experienced in technology these days have reached a level that can bring great changes to every area in a short time. Technologies only imagined just a few decades earlier have now transformed into ordinary tools and are used in our daily lives. These technologies are progressing towards the

Fourth Industrial Revolution of the World, a future that will change the production processes, as machines communicate amongst themselves.

This development we are talking about also affects the economy in every way: Because of determining both the process and result of technology and, at the same time, production, we are seeing the dominance of technology-intensive and high-value-added products invade the commodities markets day after day. R&D and Innovation investments are also performed this way for their qualities. These qualities are again being passed to a centrally located competitive environment in the global economy in place of cost for this same reason, turning each one into an indicator that points to both the positions and visions of countries.

Therefore, business that is performed focusing on increasing the share of technology-intensive and value-added products in production have also increased in intensity in order to be able to continue the advancement of Turkey's economy, which has been steadily growing for the last ten years, without sticking to a middle income. Our country has reunited with qualities that can compete internationally by having gone a remarkable distance in strategic sectors, like defense and aviation industries in particular, through investments in R&D and Innovation that have shown a significant increase, parallel with economic growth.

As MÜSİAD, we have brought the High-Tech Port project to life in order to close the distance that has been crossed in Turkey's defense and aviation industry. Through the High-Tech Port exhibition that we've designed to both exhibit national technologies and also to show Turkey's vision to the world, we've prepared fertile grounds not just to market your product by bringing together investors, producers, project owners, business people, and stakeholders from relevant government agencies and organizations but also for the transfer of technology.

The first High-Tech Port was held at our 15th MÜSİAD Expo in Istanbul from November 26-30, 2014 with the participation of our President, Mr. Recep Tayyip Erdoğan. The following year we were in Qatar: The second one of these important projects was held in Doha from October 6-8, 2015 with the participation of the Prime Minister of Qatar, Sheikh Abdullah bin-Nasir bin-Caliph al-

Sani, under the auspices of the Emir of Qatar, Sheikh Tamim bin-Hamad al-Tani, together with our Undersecretary of the Defense Industry.

Sixty-seven companies and institutions from Turkey met to develop commercial relations between the two countries in the area of defense and aviation, coming together with business partners and stakeholders from Qatar. A business climate was realized that approached a total value of $ 500 million through more than 600 registered business meetings.

The third High-Tech Port will be held in a separate hall this year within the 16th MÜSİAD EXPO. We welcome prominent companies from the defense and aviation industry to our exposition. Defense ministers and armed forces commanders from more than 20 countries will attend the third High-Tech Port. Of course, high-tech production companies from Turkey and major manufacturers like Airbus, Boeing and Lockheed Martin will also be exhibited at the fair.

Both Turkey's sufficiently great and growing market and the level that Turkey's aviation and defense industry has arrived at, as well the profile of visitors to country delegations from OEM officials are taking the stage as the most productive business development in the area of High-Tech Port. We can say that High Tech Port is the right address by providing a business development environment and opportunities for gaining new suppliers and business partners among the companies which are engaged with in high-tech production and active in the Turkish Defense and Aviation Industry."

Following the speeches, the opening ribbon of the Expo was cut and after this ribbon cutting ceremony the President and his accompanying delegation paid a brief visit to the stands of the Turkish Defense Companies at the 3rd High Tech Port hall.

Many defense industry and technology companies such as Aselsan, Roketsan, TAI, Havelsan,

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TEI, STM, Otokar, FNSS, Nurol Makina, MKEK, Katmerciler, Vestel Defense, AYESAŞ, Nurol Technology, SDT, Turkish Technic, TÜBİTAK institutes, Bites, BNA, TÜRKSAT, Meteksan Defense, TDA, SaSaD, SAHA Istanbul in addition to the public institutions and associations attended the High Tech Port by MÜSİAD exhibition. The products and capabilities of 75 companies were demonstrated at the hall and various military and defense delegations from 20 countries visited the companies and gathered information on the displayed products and capabilities.

Moreover, the companies launched their latest high technology products throughout the event.

Katmerciler Introduced the "Hızır" 4*4 Tactical Wheeled Armoured Vehicle

Katmerciler introduced the "Hızır" 4x4 Tactical Wheeled Armoured Vehicle which it developed for fulfilling the demands of the Land Forces and Special Forces Command and turned into prototypes to the public with the participation of President Mr. Recep Tayyip Erdoğan. Katmerciler also displayed the Patrol and Command Control vehicle developed with the Nefer armor protection system applied over the Jeep Rubicon, together with KHAN APC vehicle at the event.

In addition, "Altay" Main Battle Tank - of which the serial production negotiations

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Hızır 4*4 Tactical Wheeled Armoured Vehicle

continue - has been one of the platforms that stood out at the event. President Mr. Recep Tayyip Erdoğan and Vice Chairman of the Board of Koç Holding and Chairman of Otokar Mr. Ali Y. Koç visited the Otokar stand in which the FTR (Fire Test Rig) of the Altay tank was displayed and gathered information on the national Main Battle Tank Altay from the CEO of Koç Holding CEO Mr. Levent Çakıroğlu and Otokar General Manager Mr. Serdar Görgüç.

Mr. Ali Y. Koç said in his statement, at the Otokar stand, that despite many international and national unrest, Turkey continued to remain amongst the leading countries of the world with its economic performance and added the following: "In order to reinforce its global position and overcome the threats, Turkey has to continue developing its innovation and technological power. As the Koç Group we are pressing ahead our investments increasing our R&D and innovation capabilities in a determined manner in addition to our faith and trust in our country's potential and its future. The national defense projects provide significant contribution to the industrial development of our country. Turkey's greatest land systems project Altay designed and developed under Otokar's main contractorship has brought great momentum to our defense industry. With the help of Altay project, our defense industry managed to develop its own resources and capabilities within such a short period of 7 years and Otokar and sub-contractors acquired remarkable know-how and experience and thus our sector created its own technology. This event taking place today also puts forth the level that the Turkish defense industry reached at the international arena."

Mr. Ali Y. Koç also stated that they remain ready to take part in the serial production of the national Main Battle Tank Altay of which Otokar was assigned as the main contractor and continued, "With our human resources specially trained for this task and our experiences, we are ready to provide our best for our country. For 29 years, we have been making our mark as Otokar with the notable projects providing momentum to the development of the defense industry. Approximately 30 thousand military vehicles of Otokar are providing services around the various regions of the world utilized by nearly 30 armies, Turkish Armed Forces being in the first place, the friendly and allied nation's armies and task forces of the United Nations. We have the sufficient competency to successfully accomplish the mass production of Altay which will become the national pride of Turkey. If assigned, we are ready to fulfil all responsibilities falling at our plate. Beyond merely fulfilling the requirements of our country's defense industry, we are aiming to raise the level to accomplish the export of Altay. I believe that the interest of the friendly and allied countries to Altay will provide positive contribution to the export activities of our country's defense industry in the long run."

Otokar also displayed the Arma 8x8 and Arma 6x6 Armored Personnel Carrier vehicles and its indigenous weapon turret systems at its designated stand area.

Nurol Makina Launched the delivery of Ejder "Yalçın" 4x4

One of the leading land platform manufacturing companies of the Turkish Defense Industry - Nurol Makina and Industry Co.Inc.- conducted the press launch of the Ejder Yalçın 4x4 vehicle with the Aselsan production 12.7 mm 'Sarp' Turret weapon system installed over it at the High Tech Port fair.

Addressing the participants at the launching ceremony, Deputy General Manager of Nurol Makina Dr. Anıl Karel stated that with the help of its strong power group and fully independent suspension the Armored Personnel Carrier Vehicle, Ejder Yalçın 4x4 had the capability of performing in all types of fields and added that they would continue to manufacture more improved configurations with the deliveries they would be conducting in the upcoming period.

Underlining that they initiated the delivery process within the scope of the 180 vehicles ordered by the Special Forces Command, Dr. Anıl Karel expressed that 7.62 mm machine gun system is to be integrated to these vehicles that will be delivered. Dr. Karel stressed that the protection level of the vehicle was increased a level higher compared to the previous configuration.

Dr. Anıl Karel emphasized that the Ejder "Yalçın" 4x4 Armored Vehicle Carrier was in the radar of many foreign countries adding the fact that the procurement processes lingered in the foreign

Nurol Makina Deputy General Manager Dr. Anıl Karel

sales however they expected to share the good news soon with the public.

Vestel Defense introduced the Tactical Class "Karayel" UAV platform's armed version that is integrated with the Roketsan production MAM missile to the press while the various delegations from the gulf countries showed great interest in the Armed "Karayel" platforms and gathered information from the officials.

One of the prominent participants of the fair, FNSS, launched the presentation of the 25 mm single seater turret configuration of the AV8 8X8 Tactical Wheeled Armored Combat Vehicle (the production of which continues for the Malaysian Armed Forces) and "Kunduz" Azmim Amphibious Armored Engineering Bulldozer which entered into Turkish Armed Forces inventory previously. The New Generation Tracked Armored Combat Vehicle Kaplan-30 took its place at the FNSS stand as well.

The preliminary prototype of the "Sapan" electro- magnetic launching system that was previously presented to the Minister of Science, Industry and Technology Mr. Faruk Özlü was also launched at the TÜBİTAK stand. The system which has not yet been released as a prototype is aimed to be manufactured as a product, according to the results of the feasibility report.

Aselsan has Unveiled Anti-Drone and Man-Portable Drone Jammer Systems

One of the standing out technological products at the fair were the IHTAR Anti- Drone system of Aselsan which is capable of detecting, tracking and preventing the micro and mini UAV systems that is under the prototype stage currently and the Man- Portable Drone Jammer "IHASAVAR". Aselsan representatives shared the details of the utilization areas and working principles of the two products launched at the event with our magazine.

With the "IHASAVAR" Anti-drone system composed of the Aselsan production "Acar" radar system, "Gergedan" counter measure jammer and electro-optical thermal cameras; the neutralization of the threatening micro and mini UAV systems is aimed.

Man-Portable Drone Jammer System

The target initially detected through the "Acar" radar could be observed over the map on the command control screen. The operating system then directs the electro optical cameras towards the target through the map. The target drone could be neutralized via the jammer system by the operator. With the GPS jammer, the target can give different reactions compared with the reactions of the drone model. As a result, some of the drone models are suspended in the air while others are capable of conducting safe landings automatically and some drone models confuse their direction and steer away from their target.

This system that could be installed to the armored vehicles could also be utilized at the critical facilities such as the oil pipelines, airports, stadiums on the masts. In cases where the installation of multiple systems is required at the various locations of campus of the facilities with the great areas, the system is directed centrally by the command control office.

In addition to the Anti-Drone "IHASAVAR", Aselsan also launched the Man-Portable Drone Jammer System which offers the mobile utilization of an operator at the High Tech Port event.

Within the scope of the project initiated with the aim of neutralizing the recent UAV threats emerging especially at the operational regions, the system developed is composed of a backpack. This backpack containing a Jammer, a Battery and a control unit additionally has a directed antenna in the form of weapon of 2 kg. The user detecting the target through the binoculars over the directed antenna system could direct the RF signals generated by the jammer in a width of 60 degrees, extending wider as it gets further. Through this broadcast, the signals between the GPS satellites and the user are terminated and thus the drone gets neutralized. With the help of this system capable of jamming the Remote Command and Data Link frequencies, the drone's capacity of simultaneous image capturing and data transfer is also prevented.

Man-Portable Drone Jammer system is particularly intended to be actively used at the border regions, border patrols and base regions.

The 4th of the High Tech Port by MÜSİAD event is planned to be conducted at a foreign country which has not yet been declared. The 2nd High Tech Port event, which took place in 2015, was executed at the capital city of Qatar, Doha.

IHASAVAR

Turkish Defense Industry's New Force – Katmerciler

Providing innovative and powerful solutions to the Turkish Armed Forces and the National Police that have been struggling against the terrorism, Katmerciler is now the focus of the international defense sector as well.

Turkey has been conducting a successful battle against the terrorist organizations both in the intrastate and abroad for a long while with its highly experienced army and police force. All the vehicles entering into the inventory of the Turkish Army, which is in the meantime the second greatest army of the NATO, are recognized as vehicles qualified in international scale as well.

Some of the vehicles which are recently at the agenda of the Turkish Armed Forces and Law Enforcement agency belong to Katmerciler that is on its way of becoming the new force of the Turkish Defense Industry. Drawing the attention with its innovative products towards defense and security sectors, Katmerciler achieves to draw the interest of the international sector at the defense events with its wide product range towards the industry.

Katmerciler's most popular vehicle is the Tactical Wheeled Armored 4x4 "Hızır" featuring the characteristic of being the strongest in its own segment and catching the eye with its superior qualities. "Hızır" was launched in the last November at the HighTech Port event taking place in İstanbul with the participation of President Mr.Recep Tayyip Erdoğan. Katmerciler's product portfolio is not only limited with "Hızır". Besides "Hızır", the company is manufacturing many vehicles in various categories such as the Armored Personnel Carrier Vehicle "KHAN" in line with the NATO standards, Anti-Riot Vehicle "ARV" and 4x4 Armored Ambulance. Moreover, Katmerciler offers a significant choice to the defense industry with its composite ceramic armoring system namely "Nefer" with the same protection level with the armor steel, yet lighter.

"Hızır" - Strong Combat Vehicle

"Hızır" is an Armored Tactical Wheeled Vehicle developed in accordance with the security forces' operational requirements at the Company's own R&D Center in 4x4 configuration, aligns with the NATO standards, has the capacity of nine personnel and features protection level against the high ballistics, mines and improvised explosives. It features the highest engine power in its category and is a combat vehicle designed and developed in a way to display high performance under intense conflict conditions. With the assistance of its aforesaid capabilities, "Hızır" is a candidate to become a reliable vehicle for the Armed and Security Forces. It conducts its tasks as a platform vehicle that provides versatile, affordable and maintainability in various configurations such as the Command Control Vehicle, CBRN vehicle, Weapon Carrier Vehicle (practical integration of various weapon systems), Border Patrol Vehicle, Armored Recce Vehicles

"KHAN" - First Member of the Armored Personnel Carrier Family

KHAN, developed by Katmerciler according to the NATO standards, providing ballistic protection and high level of protection against the grenades, is the member of 4x4 Tactical Wheeled Armored Personnel Carrier family. It features the capacity for carrying nine personnel. It has a agile, dynamic, versatile and maintainable monocoque steel armor carcass that enables high ballistic protection over the Toyota Land Cruiser chassis. It is capable of fulfilling all requirements of the internal security forces for rural or urban operations conducted under all types of weather conditions. KHAN, within its own category, is a relatively more comfortable vehicle with higher internal volume and maneuver capability. Besides, instead of an additional one, it has a one-piece side armor plate in order to render the vehicle stronger than its rivals in its segment in terms of ballistics.

ARV is the Reliable Partner of the Law Enforcement

The Anti-Riot Vehicle known as ARV is a vehicle that has been manufactured by Katmerciler for long years. ARVs, continuously developed with the R&D studies, are being exported to many countries worldwide on account of their high ballistic protection level. The vehicle cabin including the side screens and windscreens are being manufactured in various ballistic protection levels. 75% of the ARVs manufactured in the last five years for the Turkish National Police and Turkish Gendarmerie General Command were produced by Katmerciler.

Armored Ambulance: In NATO Standards

Ford F550 chassis is being utilized in the armored ambulance developed in NATO standards and introduced to the sector by Katmerciler. This vehicle bears all main protection features of an armored personnel carrier vehicle and is ready for production with all the equipment required by any military ambulance. Even though the outer appearance of the vehicle resembles an armored vehicle, its interior design and standards as well as its height are developed in a way to align with the purposes and prerequisites of an healthcare vehicle. After Turkey, other NATO countries are the target market of the company.

Advanced Technology in Nefer Armoring System

Nefer Armor system applied over the 4x4 Armored Command and Patrol vehicle of Katmerciler is also amongst the novelties introduced to the sector by the company. This composite ceramic based armoring system is lighter than the armor steel and therefore while it provides the same level of protection with the armor steel, it does not make the vehicle heavier. This system could be optimized for both rural and urban usage over the vehicles featuring 4x4 off-road capabilities. As the first example of its category in Turkey, the system was demonstrated over the Rubicon Jeep. Nefer Armor System could

be implemented over the vehicles such as Toyota Land Cruiser, Volkswagen Amarok, Fiat Doblo, Ford Tourneo as well.

These vehicles with superior mobility and reaction speed have their unique place in their class and could resist all types of ground and weather conditions without any problems. As the cutting-edge high technology composite and ceramic based material system is developed especially for the vehicle in this armoring system, the vehicle is equipped with the full protection features without losing anything from its performance capacity. In other words, as the "Nefer" Armor System does not make the vehicle heavier, a vehicle with higher maneuver capability than its equivalents yet comfortable comes to light. From an external perspective, one could never say that these vehicles are armored; therefore they are quite convenient for the government and state authorities such as ministers, members of the parliament, mayors and chiefs of police requesting high security and protection.

Katmerciler Defense and Security Portfolio

In addition to "Hızır", "KHAN", "ARV", Armored Ambulance and "Nefer" Armor System the following vehicles exist in the product range of Katmerciler: Armored ADR Fuel Tanker, Riot Control Shield, Armored Tipper, Remote Controlled Armored Excavator, Armored Low Bed Trailer, Armored Water Tanker, Armored Backhoe Loader Construction Machine.

About Katmerciler

The company was established in 1985. It entered into the defense industry with the production of the Anti-Riot Vehicle (ARV) in 2010. Katmerciler is the strong solution partner and supplier of the defense and security sector with its 4x4 wheeled tactical armored personnel carriers and product range composed of


© Katmerciler

vehicles and equipment designed and developed at the company's R&D Center which align with the standards of NATO and therefore are suitable for the armed forces and security forces.

The company exists amongst the top 500 greatest companies and top 1000 exporters of Turkey. Katmerciler has been publicly traded at the Borsa İstanbul since 2010. The company conducts export activities to over 50 countries. The manufacturing activities are being executed in Turkey at the modern facilities in İzmir Çiğli Organized Industrial Site and Ankara Başkent Organized Industrial Site. Katmerciler is a leading and dynamic company that makes its mark in many novelties in many areas with its powerful R&D Center and its innovative approach. The company is capable of generating solutions according to the demands with its operation philosophy that does not sacrifice from quality and thus makes difference in the sector from production stage to the after sales services.


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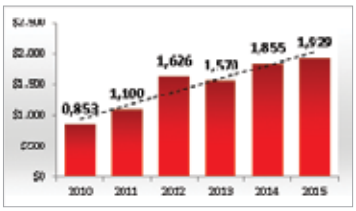
Turkish Defense Industry Data for the year 2015

The performance of the Turkish Defense Industry in 2015 was announced to the public with a report by the Defense and Aerospace Industry Manufacturers Association, (SaSaD) in the light of the data gathered from the companies that take part as manufacturers in the Defense Industry Sector.

According to data from the year 2015, the total of production and sales decreased slightly compared to the previous year. According to sector data, the decline compared to the previous year was due to the contraction in the domestic market, as well as the low sales caused by political reasons in the Middle East market. The report also noted that this situation is temporary and that this negative effect will gain positive momentum in the light of recent data. The amount of per capita turnover decreased compared to 2014; while the per capita turnover in 2014 was $163,273, this figure was $ 153,402 in 2015.

It is evaluated in the report that the total sales amount of the sector decreased by 2% compared to



Export Data

2014, which means that the trend of increase in exports stopped and sufficient expansion in the internal market could not be achieved.

According to the data, the Turkish Defense and Aviation Industry exports were amongst the first 15 countries in the World Defense Industry exports, while the export figure of 2015 was realized as $ 1,665 billion. According to SIPRI 2016 data, Turkey ranked 12th in the World Defense Industry Country rankings. However, it is stated that the Undersecretariat for Defense Industries is behind the target of $ 2 billion for 2016. According to the Defense Industry Export Association figures, $ 1,655 billion revenue was achieved. In the light of these figures, exports of $ 1,929 billion were realized in 2015. According to the breakdown of exports, 30% of total exports were made to the US, 17% to Europe and 53% to other countries.

R&D expenditures in 2015 were $904 million, with a $ 21 million increase from the previous year. 616 million dollars of this figure were project incentives, while the remaining $ 287 million dollars were from equity sources.

The number of qualified personnel employed in the sector was disclosed as 31,375 people according to the 2015 data. According to the report, 34% of this figure is composed of engineers, which indicates the intensity of design and development activities.

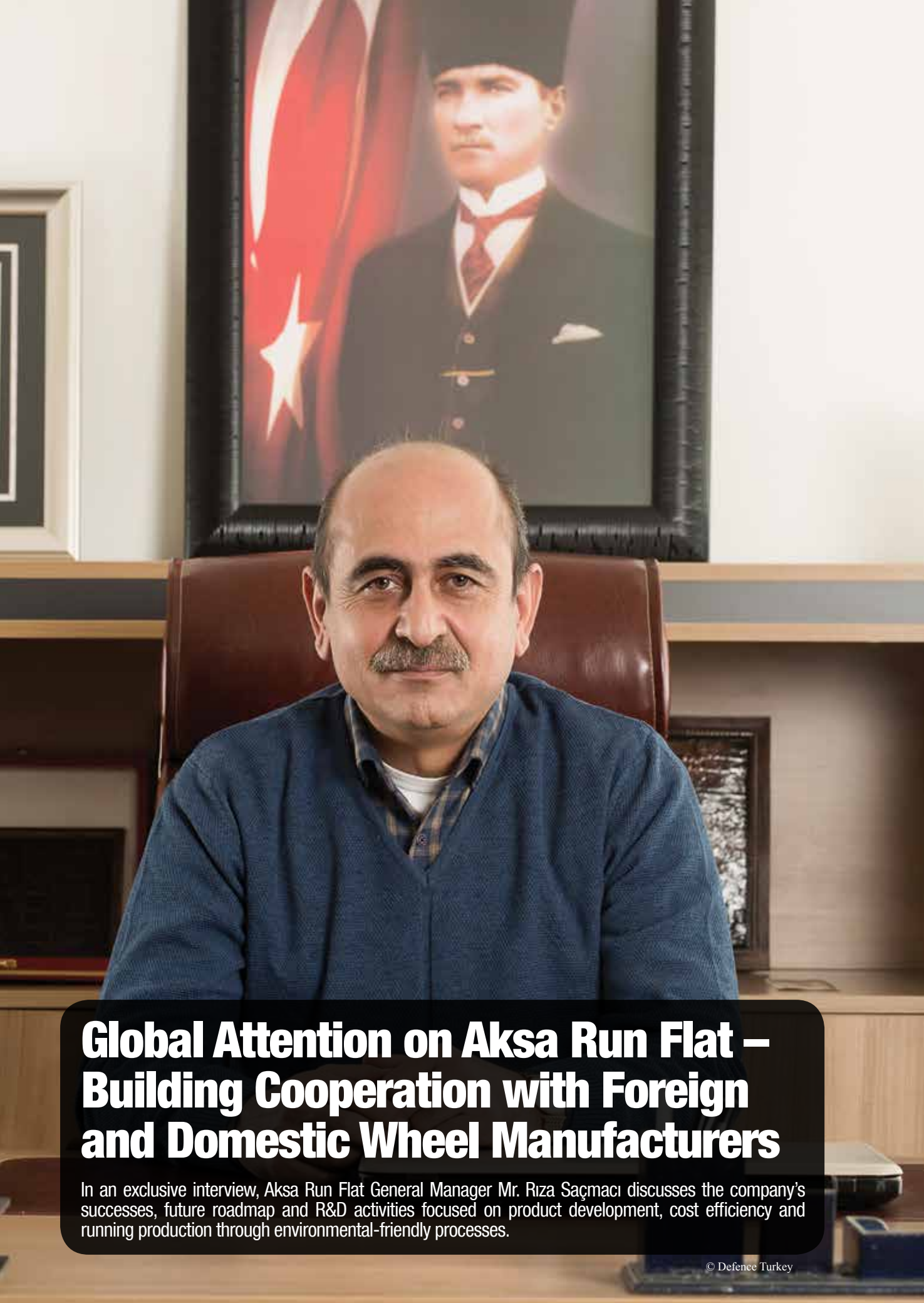
Various indicative evaluations took part in the conclusion of the report. According to this, it was pointed out that that the Turkish Defense and Aerospace Industry has increased its competitive power in the world market with its indigenous products but it was considered that one of the major obstacles in the sector is the deficiency of the credit mechanism in the export markets.

The TAFF Companies Ascending, Among R&D Leaders in Turkey

The results of “R&D 250 Research”, prepared according to the data obtained within the scope of the research “Top 1000 Exporters Companies of Turkey” released by Turkey Exporters’ Assembly have announced. The listing the companies making the most R&D investments, the Turkish Armed Forces Foundation with its 4 subsidiaries and 2 affiliates, has taken place in the top ten on the list.

Aselsan ranked number one on the R&D 250 List, as it was in 2014. Aselsan left behind its competitors, both in terms of expenses and staff. TAI, Roketsan and Havelsan showed success by placing on the list as the third rank, fifth rank and eighth rank, respectively. The foundation’s affiliates; NETAŞ, Mercedes-Benz Turk and TEI, ranked number nine, ten and fifteen respectively. The management strategy of TAFF, which allocates 70% of the companies’ profits to the companies and ensures that the entire profits are transferred to the investment and R&D, has played an active role in this significant area of focus.

The research has revealed that the R&D expenses of the companies, made in 2015, reached 4.6 billion TL with an increase of 1 billion TL compared to those in 2014. The share of R&D expenses in gross domestic product was recorded as 1.01 percent. The staff working in the R&D Departments of 250 participating companies was recorded to be 15,975 employees. 4 TAFF subsidiaries accounted for 21,14% of this figure with their staff of 5,129 individuals. The subsidiaries did not leave the leadership to any other company in the number of staff employed in R&D departments. Besides this, these four subsidiaries together with 1.8 billion TL accounted for 15.44% of the total R&D expenses, valued at 4.6 billion TL.



Global Attention on Aksa Run Flat – Building Cooperation with Foreign and Domestic Wheel Manufacturers

In an exclusive interview, Aksa Run Flat General Manager Mr. Rıza Saçmacı discusses the company's successes, future roadmap and R&D activities focused on product development, cost efficiency and running production through environmental-friendly processes.

Defence Turkey: Mr. Rıza Saçmacı, first of all thank you for your time. Could you briefly inform us on the establishment process of your company, staff and facility structuring as well as areas of activity?

Throughout my business life, I have always acted with a perspective attaching importance to domestic capital. I can say that the most important factor in the emergence of Aksa Run Flat was the lack of a domestic producer in this area in our country's defense industry. During the period when I worked for the development of the very first Run Flat, we ran a few trials at the facilities of the National Police and designed the appropriate product and connection form. Then we successfully conducted our initial field test at the facilities of Nurol Machinery and consequently started serial production.

Our factory consists of 2 divisions; the raw material production line and the assembly line. We manufacture the main raw material used within our Run Flats on this production line. All our staff is composed of trained, competent, qualified individuals who are aware of their responsibilities.

The Run Flat application is available to almost all of the ground vehicles with the proper wheel and wheel rim combination. Our products are presently being used in personal vehicles, public transportation vehicles and military vehicles. We have been executing projects with our country's leading vehicles (BMC, Otokar, Katmerciler, Nurol Makina, FNSS) since the first day of our establishment.

Defence Turkey: Your Run Flat technologies are being actively used in the platforms of various categories from the Tactical Wheeled Armored Vehicles to V.I.P. vehicles used by the Military and Security Forces. What would you like to say on the characteristics of your product, the advantages it brings to the users and its technical superiorities when compared with the rival products in respect to the cost, logistics and technology?

Aksa Run Flat became one of the worldwide brands in respect to the product range. As you have also mentioned, we are capable of installing the Run Flat application to almost all the vehicles. One of the most prominent technical superiorities of our products is its quite practical installation and disassembly compared to the other products of many rival companies. Personnel trained in this area are capable of conducting all the operations with a simple gadget without requiring any expensive and complex equipment. And this creates major advantages considering the cost, work safety and ease of application against our competitors. We are always on top of our work to provide remote or on-site support with our competent staff and our quick response times according to demands. This is one of our features that enables us to be superior to our competitors. Presently we are at a level in which we are capable of competing in the world market with our products with convenient prices and without compromising quality. A concrete example of our quality is in the fact that we achieved more successful results than the worldwide leading companies in the Run Flat field test that was run at the BMC facilities under the auspices of the Undersecretariat for Defense Industries, registering this success on official platforms.

Defence Turkey: What are the defense industry projects you have been involved in since 2011, both in our country and in foreign countries? Which defense industry projects do you aim to take part in during the upcoming period?

Aksa Run Flat vehicles have been used in vehicles such as Ural, Kirpi, TOMA, Amazon, Loader, Backhoe Loader, Ford Ranger, Toyota Hilux and Toyota Land Cruiser in our country. We conducted defense industry export

activities to certain countries within the scope of those foreign projects. We aim to take part particularly in the European and American markets in the upcoming period.

Defence Turkey: You are in close cooperation with the major companies of theTurkish Defense Industry such as FNSS, Nurol Machinery and Otokar. What type of collaboration you are building during the development stages of the vehicles, especially throughout the R&D studies with other companies in this respect?

Our R&D studies are one of the most essential components of our production plan because as Aksa Run Flat we always endeavor to achieve the best and to keep up with the latest technological developments. Within such a framework, the leading vehicle manufacturers such as BMC, Otokar, Katmerciler, Nurol Machinery and FNSS conduct information exchange with the Aksa Run Flat on the vehicle's wheel-wheel rim Run Flat configurations throughout the production stage. As I also mentioned previously, Run Flat can be implemented on approximately all ground vehicles with the help of the proper wheel rim configuration. At this step of production, in respect of the applicability of Run Flat, we attach great importance to the mutual exchange of information with vehicle manufacturers. Therefore, we always strive to build direct communication with the vehicle manufacturers both in our country and in foreign countries.

Defence Turkey: We are monitoring that the Turkish Defense Industry Land Platform manufacturers are forming a settled structure in the Middle Eastern countries and in certain Asia Pacific countries and thus becoming active players in such countries. What type of a plan and strategy did you build in relation with the launch of your product to countries especially to United Arab Emirates, Qatar, Saudi Arabia, Malaysia and Indonesia?

We are aware of the demands emerging in the Middle East and Asia Pacific countries for the Run Flat and we have been closely following these regions for a while. Launching the Aksa Run Flat to markets in those regions through granting distributorship in certain locations and becoming the leading Run Flat supplier in the target markets are amongst our main targets. In order to introduce our products to these regions we wish to display our quality to other countries by participating fairs and events.

Defence Turkey: Do you plan to build cooperation in certain areas in the upcoming period by gathering with the Turkish and Foreign Wheel manufacturers conducting worldwide production activities?

Run Flat Assembly

Currently there are certain projects in which we collaborate with Petlas - Ako wheel rim as Aksa Run Flat. When the Wheel rim - wheel - Run Flat configuration is properly achieved, all of these three products become capable of displaying better performance. I can say this easily as a result of the experiences gained and the results we achieved in the tests. Therefore, making the wheel - wheel rim selection correctly and being in touch with the wheel and wheel rim manufacturers as soon as the vehicle enters the project stage are important criteria for our company. To this end, building cooperation with the wheel manufacturers and gathering our product with the foreign wheel companies exist among our plans for the future.

Defence Turkey: What would you like to say on the investments you made in R&D, the incentives you received and the R&D projects you have been conducting?

We attach great importance to the R&D activities in order to develop our products, to decrease costs and to run our production through environmental-friendly processes. We believe that all the manufactured products could be further improved and therefore we continue to increase our R&D activities uninterruptedly and carry them forward. We build the prototypes of our raw material, and the mechanical, physical and chemical tests of the products we manufacture through our devices with laboratory scales in cooperation with universities. Building an R&D laboratory in which we could be capable of running all our tests is also among our future plans.

We conduct the performance tests of our products through our special test device which we designed as wheel rim - wheel - Run Flat and we determine the direction of our R&D activities according to the results of such tests.

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

As the Aksa Run Flat family, we strive to reach a significant position in the global market and become a worldwide brand in this area. I believe that we will be elevating all our targets to achieve success by acting in line with our plans in the future years.

Mr. Cem Akalın - Managing Editor of Defence Turkey Magazine met with Mr. Rıza Saçmacı - General Manager of Aksa Run Flat in Ankara.

The Reception of IDEF 2017 Launched

The countdown has begun for the International Defense Industry Fair IDEF 2017, to be held on 09-12 May 2017, is one of the world's five largest defense industry fairs. The publicity reception for the 13th IDEF 2017 was recently held with the participation of the Minister of National Defense, Mr. Fikri Işık and the broad participation of the defense industry circles.

The Minister Mr. Işık stated in his speech at the reception that Turkey asks for peace and stability in its region and strives for spreading peace and stability. "It is not possible to protect the peace without having a combat ready army. The most important way to protect the peace is an army which is always ready for war. In this respect, we as the Republic of Turkey, strive for increasing our deterrent force in order that the peace and stability be permanent while striving to spread peace and stability. For this reason, we strive toward improving the warfare readiness level of the Turkish Armed Forces and the human resources of the Turkish Armed Forces each passing day" said the Minister.

The Minister of National Defense Mr. Işık emphasized the importance of the national defense industry in continuation of his speech. "Today, Turkey is not a country that just purchases, uses and consumes weapons. Today Turkey has become a country that is producing weapons, developing technologies, adapting them into the defense industry and implementing them. We still have deficiencies. We do our best in order to fulfill these deficiencies.

Minister of Defense – Mr. Fikri Işık

We have achieved very important milestones." he said.

The Minister, Mr. Işık has requested foreign guests to show further interest in IDEF 2017 and expressed his belief that the fair in 2017 will be more productive and better than the fair in 2015.

The Turkish Armed Forces Foundation General Director, Mr. Orhan Akbaş stated in his speech that IDEF has been organized successfully by the Foundation for 23 years and has become one of the world's five largest defense fairs in terms of the number of participants.

The General Manager Mr. Akbaş also shared information on IDEF'17 with the guests.

The special introduction days for the forces will be specified for the first time at IDEF 2017 Fair, to be held at the TÜYAP Fair Convention and Congress Center this year. The 2nd day of the fair will be allocated for Turkish Land Forces Command and General Commandership of Gendarmerie, the 3rd day for the Turkish Naval Forces Command and the 4th day for the Turkish Air Force and General Directorate of Security. It is expected there will be the highest level of participation in the introduction days; and also small-scale demonstrations will be organized for the guests.

It is expected that over 800 companies or their representatives from minimum 50 countries will attend the fair to which over 300 authorities from over 100 countries have been invited by the Ministry of National Defense and the Turkish General staff. It is planned to ensure that each delegate and participating company makes one on one interviews with the other delegates and participating companies by opening 18 interview offices at IDEF 2017.

The Introduction Reception, planned to be organized within the scope of the activities of IDEF 2017, to be held at the TÜYAP Fair Convention and Congress Center/ Istanbul on 09-12 May 2017, was successfully completed with the wide participation of local and foreign guests, in particular the Minister of National Defense and Chairman of the Board of Trustees of the Turkish Armed Forces Foundation, Mr. Fikri Işık.

The Turkish Armed Forces Foundation General Director, Mr. Orhan Akbaş.

Emerging Markets Focus on Platform Sustainment to Thrive in the Global Defense Industry

By Brad Curran – Industry Principal, Aerospace & Defense, Frost & Sullivan

The global defense market is a stable $650 billion, and will have a slight growth rate of 1% through 2026.

Asia-Pacific (APAC), Middle East and North Africa (MENA), and Europe will gain market share as forces and systems are modernized.

The command and control, communications, computers, intelligence, surveillance, and reconnaissance/electronic warfare/information operations (C4ISR/EW/IO) technology segment will retain the largest share of global procurement spending.

By 2026, current defense market leaders in the US and Europe will focus on systems, while nations such as South Korea, Japan, India, Poland, and Turkey will supply the majority of platforms. Countries with advanced defense technology will emphasize speed, range, accuracy, and networking of weapons, leaving more aircraft, ship, and ground vehicle manufacturing to mid-tier nations.

Electric rail and laser weapons and hypersonic missiles will begin to replace current weapons. Defense majors are focusing on missile defense, counter rocket artillery and mortar, counter space, battle management, frequency spectrum dominance, and unmanned air, ground, and sea applications.

Commercial Off The Shelf (COTS)-based IT networks will be in high demand in the Middle East and Asia. In 2026, the C4ISR/EW/IO segment will continue to be the largest defense segment in the defense procurement market.

Small ISR aircraft, wheeled armored vehicles, targeting pods, cybersecurity, logistics, maintenance, training, missiles and missile defense, radios, radars, aircraft parts, helicopters, and explosives detection will also be high priority products and services.

By employing COTS standards-based products, mature platforms and good-enough technology designs nations hope to ease integration, enable technology refresh, and lower training requirements. This will help to reduce overall systems costs and speed acquisition.

Technology	2015 Value ($ Billion)	2026 Value ($ Billion)
C4ISR/EW/IO	108.00	124.00
CBRNE	12.00	13.00
CSSE	37.00	39.00
FWA	99.00	105.00
Missiles and rockets	73.00	80.00
Ordnance	41.00	44.00
RWA	54.00	58.00
Ships	101.00	110.00
Tactical vehicles	51.00	52.00
T&S	27.00	29.00
Unmanned systems	12.00	24.00
Weapons	35.00	37.00
Total	**650.00**	**715.00**

The top five global defense firms are: Lockheed Martin, Boeing, BAE Systems, Raytheon, and Northrop Grumman. The defense industry will witness considerable consolidation, and partnering due to manufacturing overcapacity, but this will enable local nation firms to benefit from joint ventures and technology transfers. The renewed emphasis on national borders and more independent foreign policy will also open up the market for additional border security and collaboration tools in 2017 and beyond.

Mature and proven systems that are moderately priced will gain market share. Maintenance, spares, logistics, and training services will become essential components of new sales.

Global defense industry participants will continue to face overcapacity and saturated markets. Expect mergers and local partnerships with firms producing dual-use technologies.

Some of the top defense technology trends for 2026 for both established and emerging markets include:

Robotic, miniaturized, embedded

Technology	2016	2026
C4ISR/EW/IO	Cyber protection of weapons systems	Merge cyber attack and cognitive EW
CBRNE	Standoff explosives detection	Small form factor deployed sniffers
CSSE	Predictive maintenance and resupply	Power-by-the-hour leased platforms
FWA	Composites and embedded diagnostics	Optionally manned and unmanned wingman
Missiles	Increase range, speed, accuracy, and lethality	Hypersonic networked weapons
Ordnance	GPS and PNT individually guided	Combat cloud networked munitions
RWA	Tilt and push rotor development	High speeds, long range, and interchangeable
Ships	Upgrading missile and torpedo defenses	Active defense and more autonomy
Tactical Vehicles	Active defense systems	Lightweight composite armor
T&S	Distributed T&S	Holographic, virtual, and adaptive T&S
Unmanned	Unmanned air, ground, and sea systems	Swarms of armed attritable UAVs
Weapons	Gunpowder-based bombs, shells, and bullets	Electric propulsion and laser strike

piezoelectric (PZT)-based sensors, and wireless technologies will enable autonomous, small form factor, distributed, low power, and networked sensors that will feed targeting data to weapons platforms hundreds of miles away. These difficult-to-detect radars and acoustic, magnetic, and optical sensors will enable long-range, high-speed, accurate, and scalable fires.

Frequency spectrum and cyber-attack tools inherent in combat systems will defend against adversary disruption and exploitation, while simultaneously determining target vulnerabilities and exploiting them.

Hypersonic aircraft and missiles, rail (electric), and laser weapons will begin to replace gunpowder-based guns and missile warheads for distant, high-speed, precise, and line-of-sight targets. High speeds will make defensive coordination and active countermeasures more difficult, while reducing adversary reaction and decision times. These types of weapons will be able to respond quicker to calls for fire support and also lesson the amount of collateral damage in target areas. Missile defense, counter rocket artillery and mortar, counter space, and counter unmanned aerial vehicle (UAV) applications will be developed first.

As stated, current defense market leaders will focus on systems, while nations such as South Korea, Japan, India, Poland, Turkey, and Brazil will supply the majority of platforms. Countries with advanced defense technology will emphasize speed, range, accuracy, and networking of weapons, leaving more aircraft, ship, and ground vehicle manufacturing, and sustainment services to emerging mid-tier nations.

New operational concepts such as laser weapons, dispersed forces-concentrated fires, unmanned vehicle swarms, anti-satellite systems, active defense systems for ships, ground vehicles, and some aircraft, counter rocket-artillery-mortar systems, and electromagnetic spectrum operations that include cyber-attack will force new tactical thinking and technology innovation.

Anka-S Program Coming to an End - First Delivery set for 2017

Within the scope of the Anka-S project signed between the Undersecretariat for Defense Industries and TAI on 25 October 2013 in order to meet the needs of the Air Forces Command. Additional capabilities are being added to the Anka-S configuration, developed using the benefits of the Anka Block-B Unmanned Air Vehicle (UAV), which can reach an altitude of 30,000 feet and fly 24 hours in the air, with a payload capacity of 200 kg.

In the Anka-S system, which is developed to be able to operate anywhere in the world without distance restrictions via Intelligence and Surveillance Satellites and the Turkish Armed Forces Communication System (TAFICS), there are significant additional capabilities compared to other configurations. Accordingly, while the autonomous features of the Anka-S system are being enhanced, its mission capability is being upgraded through the new generation of high-definition (HD) night and day camera and radio relay payloads. In particular, with the ability to be controlled from via satellite, the Anka-S UAV system, will reach thousands of miles with its mission range, will provide significant added value and capability to the Turkish Armed Forces in a strategic sense.

Regarding the Anka-S UAV, the flight tests which were initiated in the last quarter of 2016 and the serial production activities are still ongoing. A total of 10 UAVs and related ground systems will be delivered to the Air Forces Command. In addition, the training simulators will be developed for the training of the pilots and operators who will be working under the project. The infrastructure activities for the maintenance-operation as well as technical support on site are still ongoing.

User and operator level training have started for Air Forces Command personnel and the qualification activities of the system are being performed. Following the successful completion of the qualification and acceptance tests, to be carried out under the supervision of the Air Forces Command and the Undersecretary for Defense Industries, 6 UAVs and related ground systems are planned to be delivered in 2017 and 4 UAVs and related ground systems are to be delivered in 2018.

An Evaluation on Super Incentive Implementation

By Ziya Akbaş, Aselsan Independent Board Member

I. Preface

The Investment Incentive Program, which was introduced to the public in April 2012, entered into force on 15 June 2012 with the decision on State Aids for Investment No 2012/3305. Procedures and principles for the implementation of the Decision have been defined with the Communiqué numbered 2012/1.

A decision regarding the renewal of the incentive system has been taken in order to continue the progress of the economy, which created positive results thanks to the program mentioned above, and to make Turkey an investment base.

The Council of Ministers, which introduced this new system as "Super Incentive", has taken "Decision on granting Project-based State Aids to Investments No. 2016/9495" which will attract investors by this system. In this article, the details of the system are mentioned below.

II. Turkey As Investment Base

Projects, which are worth 100 million dollar and of a special importance for the Turkish economy, will be determined and negotiations will be held via notification or invitation method with the investors who seek to invest in this context.

These activities will be carried out by the Council of Ministers and also the incentives for the projects will be approved by the Council of Ministers.

Sectors Subject to the Project Based Super Incentive Implementation

Possible sectors that may be included in the scope of Project Based Incentive Implementation are listed below:

- Integrated Metallurgy Investments (Iron and Steel Investments)
- Health and Pharmaceutical Investments, Blood Products
- Space, Defense Industry and Aviation Investments
- Technical Agricultural Investments
- Investments in Energy Technologies (such as investments based on nuclear energy and machinery manufacturing)
- This Decision aims to:
- Meet the critical needs of our country that may arise in the present or the future
- Ensure the supply security
- Reduce the foreign dependency
- Provide technological advancement
- Maintain innovative and high-value-added investments based on R & D

Scope of Support to be Provided

Details regarding the scope of the support which to be provided in project-based incentive implementation are given below.

Thus the Council of Ministry is authorized to;

- apply the corporate tax rate up to 100% discount and determine the investment contribution rate which not to be exceed 200% or to apply on corporation tax exemption that limits to earnings from investment up to 10 account periods from the date of the investment goes on to operation according to the Article 32 / a of the Corporate Tax Law No 5520 dated June 13, 2006,
- give the benefit of the income tax withholding incentive provided in the temporary article 80 of the Income Tax Law no. 193 dated 31.12.1960,
- Grant exemption of customs duties,
- establish a free easement right will be for 49 years or grant an occupancy permit and if the investment is completed and the projected employment is provided for 5 years to transfer the treasury immovable free of charge, directly without collecting any revenue share, in favor of the investor to be determined in case the investment is made on the Treasury real estate,
- cover up to 10 years of employer share of insurance premium regardless of the lower limit of the basic earnings which provided in the additional Article 2 of the Law No. 5510 dated 31.05.2006,
- cover up to 50% of the energy consumption expenditure for the investment during the operating period for maximum 10 years,
- provide a dividend or a grant support for the investment loan used in the financing of fixed investment amount up to 10 years,
- provide wage support up to 20 times of the monthly gross amount of the minimum wage to a maximum 5 years for each qualified employee in the designated number of special importance for investment,
- become a shareholder in an investment where the amount of the investment shall not exceed the 49% and with the condition that the acquired shares are offered to the public or sold to the investor within 10 years.
- apply VAT Return (Building – Construction)
- apply VAT Exemption
- exempt investments with investment incentive certificates from stamp duty with regard to the arrangements for the implementation of the Tax Law No. 488 which is in the Law on Amendments in Certain Laws

for the Improvement of the Investment Environment numbered 6728 and dated 15/07/2016 which enacted and published in the Official Gazette dated 09.08.2016 and numbered 29796.

Recommendations

According to the findings made in the above detailed analyzing in regard to the Super Incentive System, it is obvious that this law will make Turkey an investment base. I believe that the planned support will need to be expanded.

In this context, the incentives that are considered to be expanded are listed below:

- government incentives should be monitored and implemented with an integrated manner by a single authority,
- Investments in which have been started and continuing in the prior period and investors of them should also be protected,
- In terms of trade and legal legislation, the issues which will concern the investors should be revised,
- The "Investment Advisor" companies, which will be the biggest supporter of the investors in notifying, directing, informing, preparing necessary documents and following-up of the incentives, should be authorized by the ministry,
- Investors should be followed by the same expert from the beginning of the investment to the completion visa.

III. Conclusion

As a result, this new incentive package needs to be explained in detail to international and national investors and when the explanation stage is completed, investments will be attracted to Turkey rapidly. It is clear that the Government and the Public are having important duties on advertising the new incentive package. In this context, it is recommended to take the support of economic entities, the media and large organizations at the same time.

FNSS Continues to Certify its Suppliers

Within the scope of the targets of the Undersecretariat for Defense Industries to develop the integration of the sub-industry with the SMEs in the defense industry, FNSS, which has been certifying the domestic suppliers since 2012, presented these companies to the press with a ceremony held in 2016.

The Supplier Award Ceremony regarding "FNSS Approved Suppliers and the Suppliers that contributed to the production of Pars III 8x8 Tactical Wheeled Armored Vehicle Prototype" was carried out at the FNSS production facilities located in Ankara Gölbaşı on 2 December. The representatives of the Undersecretariat for Defense Industries, the Chamber of Commerce and the press participated in the ceremony, together with the companies that will receive new certificates and the suppliers whose certificates are to be renewed.

Within the framework of 3 main categories, namely administrative structure, quality management system and applications as well as production and operational capabilities, a total of 58 suppliers were awarded with the "FNSS Approved Supplier Company" certificate, which will be valid for three years. The plaques of indigenous suppliers contributing to the production of the PARS III 8x8 Tactical Wheeled Armored Vehicle Prototype, which FNSS has developed in an export project, were presented with the certificates.

Through the "Approved Supplier" certification process, FNSS aims to establish a common quality culture based on trust with its suppliers who have shown outstanding performance and accordingly to ensure zero error in material procurement.

Land Platforms Seminar Gathered Industry

The 3rd Annual Land Platforms Seminar was held with the support of the Undersecretariat for Defense Industries in Ankara on 7-8 November 2016 with the participation of 870 participants.

Navy Captain(Ret.) Zafer Betoner, who also organized the event, gave the opening remark of the seminar. Stating that they aimed to contribute to the developments in the sector through this seminar, Betoner mentioned that 33 different presentations would be given throughout the two-day event and that 36 companies would be presenting their products and capabilities to the participants at the foyer area.

Following Zafer Betoner's speech, TOBB Defense Industry Assembly Vice President Mr. Haluk Bulucu took the floor. Noting that Turkey had gained very important ground since 1960s, Bulucu added that the Turkish army will continue to become one of the most important armed forces in the world within the next 20 year period.

Making a presentation on behalf of the Undersecretariat for Defense Industries, the SSM Head of Land Platforms Mr. Fatih Yakıcı shared that this seminar was very useful as it allows exchange of ideas by gathering the main contractors with the subcontractors and made important statements on the achievements accomplished during the last two years and on the strategies that would interest the subcontractors and the main contractors within the next period.

Mr. Yakıcı: "We will be delivering 1300 vehicles in 2017"

Stating that the year 2016 was quite intense and restless, Mr. Yakıcı said, "As the Land Platforms Department we signed 9 contracts in 2016 and we plan to sign 2 more contracts by the end of this year. Moreover, we issued 8 RFPs this year. Along with these projects we also received urgent vehicle procurement requests

Navy Captain(Ret.) Zafer Betoner

quite intensely this year and we exerted intensive efforts for rapidly fulfilling such requests. A total of approximately 700 more vehicles are planned to be included in our inventory by the end of this year. Taking our existing projects into consideration, a delivery of 1300 vehicles in total is planned to take place next year. Especially due to the urgent requirements of General Directorate of Security and Gendarmerie General Command a demand for vehicles through direct procurement has emerged. Without doubt, we exerted efforts to finalize our development projects along these direct procurement projects this year. We signed the contracts for our Anti-Tank Vehicle project and Fuel Tanker project, in particular. We plan to sign the contract for our armored amphibious assault vehicle by the end of this year as well. We reached the final stage within our

SSM Head of Land Platforms Mr. Fatih Yakıcı

special purpose tactical wheeled armored vehicle project and will be signing it in the first quarter of 2017. Without doubt, the "Altay" Main Battle Tank is a crucial project. We plan to complete the prototype production and qualification period of the Altay MBT in the first quarter of 2017 as well. Surely, we will be finalizing the serial production activities again in the first quarter of 2017. Moreover, concerning the studies for our new generation light weight armored vehicles project for the future, which will also be conducted by our Undersecretariat, we will be gathering with you to discuss the model we will build and speed up and finalize this project too."

Mr. Yakıcı stated that this intensity will be continuing during the next decade and added, "Currently there is excessive demand towards direct procurement, especially by our General Directorate of Security and our Gendarmerie General Command, these projects will create an important level of intensity in the next few years but taking the future development projects into consideration, we may claim that the next 5-10 years will be quite intensive. In line with this intensity and towards immediate deliveries, our companies went for increasing the demand and investing in capacity increase and made new investments. More investments are required for the realization of the projects I have just mentioned. Unfortunately, with the new investments this year we experienced certain deficiencies in immediate deliveries due to the project management and quality management of our companies. Regardless of the amount of the delivery, rule number one in the defense industry is achieving the best quality in a given product. So, the immediate delivery should not result in the decrease in quality. Especially concerning our armored vehicles, the quality and control of the features in relation with the survival, firing and mobility

capabilities are of great importance. Our companies should always attach the required importance to the quality management activities and pretests at the stage of the execution of the projects to this end".

Indigenization in Sub-Systems is the Target

Stating that the design, development, production and integration activities of the land platforms were being successfully carried out by the Turkish companies, Yakıcı underlined that the foreign dependency in the sub-systems had to be decreased from now on. Mr. Yakıcı said "Our foreign dependency in engine, transmission, running gear, suspension, weapons and ammunition continues. The indigenization of the sub-systems particularly the weapon and ammunition systems is of great essence due to recent incidents. Especially, in order to abolish the limitations we will be facing and for the indigenization of the sub-systems, we are working in coordination with our Industrialization Department and Sub-Systems Department. However, here we are facing an important resistance by our main contractors against indigenization within the scope of our projects. As they do not wish to alter the immediate delivery processes and change their supply chain, they procure the available imported systems. Our request from our main contractors is that they prefer the domestic substitutes of the qualified products, especially imported products. Their planning of their supply chain accordingly is of great importance to us."

Mr. Yakıcı mentioned that according to their assessment the sub-systems are qualified to compete with their rivals in the world in respect to quality and price and added that they were exerting great efforts to that end. Mr. Yakıcı stated that the development programs regarding the critical technologies such as the engine and transmission continued and that they expected to acquire the first results soon. Expressing that the development of running gears, shafts and suspension systems were being conducted with the Sub-Systems Department, Yakıcı announced that they will be initiating the development projects for the production of the 7,62 mm and 12,7 mm machine guns through domestic resources with the Department of Weapon Systems.

Pointing out that the main contractors' collaboration with the universities and sub-systems manufacturers for conducting studies on new technologies was very important to them, Mr. Yakıcı expressed that they aimed to utilize all the sub-systems indigenized in the new generation light weight armored vehicle project and that they expected sub-system projects full of technology from the companies.

Mr. Yakıcı underlined the importance of the maintenance and logistic support regarding vehicles in the operation field and added that the formation of authorized services in charge of immediate and on-site response to the breakdown of the vehicles was critical. Mr. Yakıcı continued: "Most of our vehicles are being utilized in the Southeast Anatolia and in cases of breakdown an immediate provision of maintenance and spare parts are required. Our companies continue to build authorized service networks within this context. The indigenization of the sub-systems we procure here is one of our significant priorities. In cases of the breakdown of the sub-systems particularly ones procured from abroad, we are losing grave amount of time during their replacement with the new ones. Therefore, we attach great importance to indigenization. Moreover, I would like to mention that the main contractor with which we collaborated previously for many years will be in charge of the maintenance of the system throughout its life cycle, and that we will be starting to implement the life cycle logistic support system especially within the development programs."

Noting that they were designing new systems for the faster evaluation of the direct procurement projects and their immediate delivery, Yakıcı added that they aimed to implement the concept employed by many countries in the world, that is expediting the prototype products of the companies. Yakıcı emphasized that they will be implementing this concept within the scope of the pilot projects and continued, "We plan to make regulations for enabling the effective implementation of this method in land platforms sector within the scope of the feedback we will be receiving."

The presentations of the main sponsors of the event began following the opening remarks.

FNSS – Business Development and Programs Director Mr. Aybars Küçük made a presentation on the products developed by FNSS since its establishment and on their projects and studies for the future. Mr. Küçük shared that they manufactured 1700 Armored Vehicles for the Turkish Armed Forces (TAF) within the scope of the ZMA project they signed in 1988 and successfully completed their first domestic defense industry project and added that following the

delivery of these vehicles in 1996, they signed a second contract with the TAF in 2000. Küçük stated that following this achievement, they started to develop and manufacture their licensed indigenous design vehicles in 2005.

Mentioning that they developed and manufactured the Armored Amphibious Assault Bridge namely the "Samur" for the Turkish Armed Forces, which is one of the indigenous design projects in land platforms area, Mr. Küçük noted that 52 vehicles to be procured as part of the program have already been included to the TAF's inventory. Mr. Küçük stated that the Armored Amphibious Assault Bridge and AACE Amphibious Armored Combat Earthmover "Azmim" were developed through the contracts signed during the same period and added that the 12 "Azmim" vehicles they manufactured and delivered to the TAF were fulfilling their tasks successfully.

Relaying information on their programs with ongoing development processes, Mr. Küçük continued, "Within the framework of the Self- Propelled Low Altitude Air Defense System - "Korkut" project we signed a contract for the development and production of the vehicle with Aselsan. 3 vehicles were developed and their prototypes were delivered. We moved onto the serial production stage within this project and soon we will be signing the sub-contractor contract."

Features of the Vehicles Becoming Clearer in the Anti-Tank Vehicle Program

Mr. Küçük continued, "We developed the vehicle of the Hisar Low Altitude Air Defense System. 2 prototypes were produced and currently they are at the acceptance stage. Our latest project has been the Anti-Tank Vehicle program which we recently signed. Within the scope of this program we will be developing and manufacturing 184 tracked, 76 4x4 wheeled vehicles and weapon turrets. The tracked vehicle is an amphibious vehicle in 17 ton category; it will have a very strong weight ratio. Our 4x4 vehicle will be a very special vehicle as well.

FNSS – Business Development and Programs Director Mr. Aybars Küçük

The engine of this vehicle will be positioned at the rear end and this will enable significant advantages besides a very high cross-country capacity and road holding ability. With its engine at the rear end, the air deflation and cooling water inlet will be positioned at the roof of the vehicle. This will create a more balanced vehicle structure that enables the vehicle's diving into the water with a higher right angle and lets it to move without sinking. This vehicle will be a vehicle designed especially for the anti-tank operations. As part of this project, we are developing weapon turret systems to integrate into the wheeled and tracked vehicles as well. These weapon turrets will have the main weapon integrated with Kornet and OMTAS missiles and a 7,62 mm collateral weapon".

Noting that they aimed to develop and manufacture an Armored Amphibious Assault Craft for the LPD vessels of the Turkish Naval Forces, the negotiations of which are continuing, Mr. Küçük added, "Hopefully the negotiations will be fruitful and we will sign the contract with our Naval Forces Command. 27 Armored Amphibious Assault Crafts will be manufactured for this program. We attach great importance to this project. At this point we are speaking of a very different vehicle. These crafts are launched through a vessel, they are capable of sinking into the sea and able get out, they even return to their normal position if they overturn and continue their operation. It is a challenging project in respect to the engineering, yet it excites us very much. We wish to sign its contract this year."

Stating that they signed domestic contracts amounting to $ 2 billion and $ 2 billion worth international contracts since their establishment Mr. Küçük added, "Over 502 vehicles of our company entered to the inventory in Malaysia. In addition to this, we accomplished the sale of our 3rd generation 6x6 and 8x8 'Pars' vehicle to a Middle Eastern country last year. Finally, we assumed the modernization of a 121 mm mortar vehicle over $ 100 million."

Production of the first Prototype as part of the Indonesia Modern Medium Weight Tank Program in the first Quarter of 2017

Sharing that they made significant progress with their Indonesian partners regarding the medium weight class tank project conducted under the auspices of the Undersecretariat for Defense Industries, Mr. Küçük continued, "Here, we are developing a tank in approximately 32-35 tons of weight. The weight will adjust based on the armor configuration over it. We are developing a tank with the weight suitable for the field in the given region. The turret over the tank was directly selected by the Indonesian Ministry of Defense. It has a 105 mm long turret and it has the turret's own systems over it. We aim to develop our own turret systems with the Turkish Defense Companies and we wish to initiate the serial production with our own turrets. Our turret selected by Indonesia exists over the prototype at the moment. Engineers of our Indonesian partner PT PINDAD have been collaborating with us since the beginning of the project and throughout all development and production stages. We will be manufacturing the first prototype at the FNSS facilities. Presently we started the production and the production of the first prototype will be completed by the first quarter of the coming year, and subsequently the engineers who were trained here and involved in all the processes

will be manufacturing the second prototype with our support at PT PINDAD facilities. The second prototype manufactured in Indonesia will be displayed in operation at a special day of the Indonesian Armed Forces on 5 October 2017 and afterwards the user acceptance tests will be launched and the Indonesian Army will be receiving the certification."

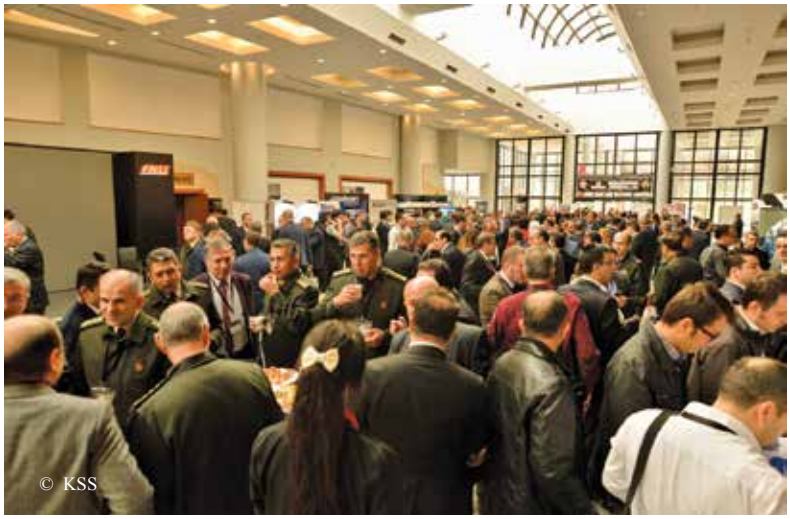
Otokar Altay Tank Program Director Mr. Mehmet Karaaslan gave a presentation following Mr. Aybars Küçük's presentation.

"Altay" MBT to be Ready for Serial Production in March 2017

Mr. Karaaslan stated that they reached the end of the acceptance tests conducted on the prototypes manufactured as part of the "Altay" program and that they were getting prepared for the serial production. "Two preliminary prototype tanks were built as part of the project. These were mobility capability and firepower test preliminary prototypes. Subsequently we manufactured the prototypes we refer as the PV1 and PV2 for the test determining the acceptance. There was a fuselage - turret (ballistic test fuselage turret) prototype prepared for the final survivability tests. Presently, we reached the final stage of the tests regarding this vehicle. We wish to complete the tests by the end of this year and deliver the project with all tasks accomplished with all the documentation and including the technical data package in March 2017. We plan to close the design period in this way. There is a preparation stage for the serial production. If we manage to complete the serial production activities in January 2017, delivering the first tank out of the serial production line in 2018 to our Undersecretariat and to our user seems quite possible," said Mr. Karaaslan.

Otokar Plans to Deliver the first 250 lot of "Altay" MBT until 2023

Sharing the tests run with the Altay tank so far with the participants, Mr. Karaarslan said, "The tests were conducted with the MTR tank over 4,000 km under all types of field and climate



conditions. With the firepower preliminary prototype named FTR, we accomplished over 1,000 firings and the tests were successfully completed in line with the predetermined scenarios. With the PV1 tank subject to the acceptance, we left 9,500 km behind in the durability test identified as 10,000 km and we aim to complete this test within November. Firepower tests are being run with the PV2 tank again. We aim to complete these tests in December 2016. Ballistic protection and mine tests are aimed to be finished within this month too."

Mr. Karaaslan stated that the production of the first 250 tanks were planned for the serial production and continued, "With the production of the first 250 tanks planned for serial production data package, the integrated logistical support is expected to be provided. If the contract is signed in January 2017, the deliveries of the tanks will be starting within 2018 and the first party of 250 tanks is planned to be actualized by 2023. We submitted our final proposal to the Undersecretariat for Defense Industries on 29 August and the evaluation process continues. As Otokar, we have already identified all infrastructural and organizational requirements for the serial production, accomplished all the necessary studies and plans and we remain on call."

Deputy General Manager of Nurol Makina, Mr. Melih Şahin noted that as Nurol Makina, with their over 500 employees and staff of powerful engineers they delivered modern and indigenous solutions regarding the demands of the Turkish Armed Forces and General Directorate of Security and continued: "We accumulated a strong design engineering know-how. We take the development and existence of the qualities of the critical product technologies that will materialize the design within this structure very seriously. Our product range, that we set forth in respect to platforms, is growing day by day. The Ejder "Yalçın" Armored Combat Vehicle and "Ilgaz" Internal Security Vehicle Family are thriving each day. The Ejder family will be presenting better surprises soon. We will be introducing the new products of our family at the IDEF and other events that we will attend abroad".

Throughout the event, lasting for two days, 26 different works of 21 institutions and associations were presented within 5 sessions to the participants. During the sessions, the following presentations stood out amongst the many presentations, specifically titled 'An Assessment of Hybrid Warfare and The Future of Armored Combat Vehicles, Self-Righting Analysis of an Amphibious Armored Vehicle, New Generation of Military Vehicle Driver Sight Periscope, Air Defense against the Air to Ground Missiles, Innovative Solutions on Surveillance, Identification and Recognition Systems, Versatile Approaches in Armored Vehicles

The 4th Land Platforms Seminar is planned to take place on 5-6 November 2018 in Ankara.

Ankaref – IoT Service Provider

By Demet Ercan - Senior Account Manager of Ankaref

Founded in 2007, Ankaref is an ARGE company based at ODTÜ Teknokent which aims to contribute to the production and export of Turkey and to produce a "national solution" with IoT (Internet of Objects) and M2M (Machine to Machine) technologies. Ankaref has a total of 80 employees, half of which are R&D engineers.

Proving its success in the international arena, Ankaref was selected as the number one RFID company in Europe in 2009, took part in IT 500 in 2010, and was awarded with the Europe Business Award in 2012.

In 2013, Ankaref started to work together with the Ministry of Health for vaccine and antiserum cold chain and stock tracking system. Within the scope of this service, provided to the Ministry the cold chain of vaccines and serums that are tracked at more than 12.000 Family Medicine branches. The quality of the vaccines and serums that are tracked from the moment of passing through customs is guaranteed until they are administered to the patients. An important contribution is provided to increase the quality of health service by instantly collecting environment data from all locations. This project is amongst those which are considered successful by the World Health Organization.

In 2015, the world's first RFID-embedded Library Automation System was put on the market by Ankaref. Ensuring the security of the collections through the collection tracking and management system that it provides to the libraries, Ankaref provides accurate and error-free execution of library business processes. These solutions, which use RFID technology, also enable the libraries to serve users in accordance with international standards.

Ankaref sees the protection of Turkish cultural heritage and the better presentation to Turkish citizens as a social responsibility and is investing in the provision of "transformation" in the field of culture. Ankaref makes the technology infrastructure suitable for this sector with the IoT concept so that libraries and museums, their archive management and collection management more effective. With these technologies, Süleymaniye Manuscript Library and Mimar Sinan Fine Arts Painting and Sculpture Museum storages are monitored instantly and the presentation quality of Turkish cultural heritage is increasing.

With the RFID Archive Management solution provided to the Saudi Arabian Ministry of the Interior, it has enabled the management of more than 10 million endpoints in 132 locations. With this solution, developed by Ankaref, all the processes that are performed manually are completed by the automated system, and the business processes of the institution have continued to be accurate and error-free.

As of 2016, Ankaref is receiving data from more than 50 million endpoints and managing data through solutions offered by IoT (Internet of Objects), M2M (Machine to Machine) and RFID technologies. It also entered the top 50 on the Deloitte Technology Fast 50 list due to its success this year.

Gathering data from the field and correct management of such data for tracking manufacturing processes has gained Ankaref considerable experience in meeting sectoral needs, improving the livestock sector from logistics chain management and raising the quality of health care services. Receiving data from every required living creature and objects and managing these data centrally with the middleware software developed 100% by Ankaref, are amongst their abilities.

With the help of the middleware software developed by its specialized R&D personnel, Ankaref provides data to big data and business intelligence applications, which are becoming increasingly widespread in enterprise and individual use today, from devices that collect data from endpoints such as sensors, active or passive RFID tags and mobile devices.

Ankaref, experienced in IOT projects in the public and private sectors and with a desire to provide services to defense institutions, aims to use the know-how gained from its R&D studies for many years also in this field.

It aims to provide technology-based solutions to meet all kinds of requirements of institutions or organizations operating in the defense industry, from weapons, ammunition, supply chain management to maintenance operations.

The solutions developed in IOT projects are user-specific as a result of detailed process analysis. The users' requirements are met by the experiences gained in the specific fields as well as R&D studies, rather than the COTs software. Ankaref has proven that it provides quick solutions in different sectors such as improving and accelerating operational processes. Accordingly, it also aims to establish a business alliance with institutions and organizations at the defense industry.

Countries that implement the IOT concept in the defense sector are quicker in making decisions than their counterparts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through the data provided to their decision support systems. These countries more effectively manage field operations such as supply chain management, real-time location tracking of personnel and inventory, identification of fixtures, vehicles, weapons and ammunition, as well as spare parts and maintenance processes of war vehicles.

Security measures taken to ensure that operational processes are managed more reliably over internet network are of great importance. It is clear that the defense agencies are concerned about the security and privacy of data systems in Turkey and around the world. It is also important that the solutions offered have the ability to securely keep the data collected from the field, to have access only to authorized personnel, to generate

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alarms and control for non-standard situations. The main axis of security and defense is based on technology and knowledge.

Ankaref offers solutions by working together with the leading defense industry companies of Turkey, and has started to take its place in the sector. Up until today, they have provided solutions appropriate for the needs of defense industry companies in the fields of stock tracking systems, technological product procurement, personnel pass systems, etc. They are determined to be one of the most important representatives of the sector.

In Turkey, it seems easier to accomplish these solutions in the field of defense together with companies having field experience and working with expert staff having expertise in R&D standards and in the field of adopting the manufacturer's rationale. For this reason, Demet Ercan, who has experience in important projects in the defense sector, has joined Ankaref as of the year of 2016 and has started to create a team that deals only with the defense sector.

For a sound defense industry; it is essential to adopt the principle of ensuring sustainable and competitive technological competence, and to handle the planning, implementation and follow-up activities in a strategic management approach.

Adopting the principle of "building the future today", Ankaref aims to be a driving force for exports with high value-added solutions in the field of defense by providing national solutions and services that Turkey needs.

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“Kasırga” 302mm Multi Barrel Rocket System Delivery to Turkish Armed Forces

The first manufacturing of the 302 mm Missile and Weapon System used against land targets has been completed.

With the participation of National Defense Minister Mr. Fikri Işık; the Launching Vehicle, Carrying-Loading Vehicle, Command Vehicle and 302 mm Rockets were delivered to 58th Artillery Brigade Commander Brigadier Aykut Tonbul by Roketsan General Manager Mr. Selçuk Yaşar during the delivery ceremony held on November 18, 2016 at Roketsan facilities.

At his speech during the delivery ceremony, Minister of National Defense Mr. Fikri Işık said that they visited Roketsan and had the opportunity to examine the projects they carried out. “We delivered the “Kasırga” Missile System, which was initiated by our Ministry and conducted by Roketsan, to the Turkish Armed Forces. Our defense technologies developed by the Turkish engineers with domestic and national facilities give fear to the enemy, trust to the friend”.

The 302 mm Missile and Weapon System, designed and developed by Roketsan using national means and capabilities, has the ability to fire critical point targets from 30 km to 120 km in a compact and effective manner thanks to its high hit and destroy

capability. With these superior capabilities, the 302 mm Missile and Weapon System aims to provide excellent fire support to the Turkish Armed Forces by providing timely, accurate and high fire power to their maneuvering units.

Pakistani Submarines to be Equipped with Havelsan Systems

Within the scope of the contract signed by STM and the Pakistan Ministry of Defense Production on 22 June 2016 regarding the modernization of Agusta-90B submarines, the Submarine Integrated Command Control Systems will be manufactured by Havelsan. The partnership agreement regarding the project was signed on 27 December 2016 during a ceremony held at STM facilities

The agreement was signed by the Chairman Mr. Yüksel Öztekin and General Manager Mr. Ahmet Hamdi Atalay on behalf of Havelsan, and by the Chairman Mr. Serdar Demirel General Manager Davut Yılmaz on behalf of STM. Speaking at the ceremony, Havelsan Chairman Mr. Yüksel Öztekin said that signatures are an important step for both companies and continued, “These signings are of great importance for the defense industry exports of our country, beyond the business partnership of the companies.”

STM Chairman Mr. Serdar Demirel said, “We hope that the STM and Havelsan business partnership will set an example for new partnerships in other countries.”

Within the scope of Agosta-90B type submarine half-life modernization project; Havelsan, who previously proved itself with the systems of many underwater and surface platforms, will perform export activities to Pakistan regarding design, production and integration through national submarine integrated command and control system solution.

Top Tier Representation from the US and Turkey Shaping the Future in New Era of Defense Industry Cooperation at the 35th Annual ATC Conference

Shaping the Future: Business, Innovation, and Growth

The 2016 Annual American Turkish Council (ATC) Conference was held at the Ritz-Carlton Ritz Carlton Hotel in Washington, D.C.

The event, organized by the Turkey-U.S. Business Council (TAİK) and the American-Turkish Council (ATC), successfully convened once again, bringing together hundreds of stakeholders and thought leaders to address key bilateral commercial and diplomatic topics. This year's theme was: Shaping the Future: Business, Innovation, and Growth. The theme reflects the vision behind the Annual Conference: to fortify and develop the critical economic, political, and security linkages that support the longstanding U.S.-Turkey partnership. With over 500 participants, in more than 20 industries, CEOs, entrepreneurs, investors, key Members of the U.S. Congress and the Turkish Parliament, as well as Ministers and Cabinet Secretaries assembled to discuss macro and sector-specific topics.

The ATC's support of defense industry investment initiatives was evidenced by the comprehensive US-Turkey defense policy panel sessions, with top tier representation from the US and Turkey who led key discussions that framed the future landscape of cooperation between the two countries.

In addition to the Defense Industry, the conference included a variety topics with distinguished panelists and workshops across a variety of industries, including: manufacturing, defense procurement and security cooperation, telemedicine, construction, tourism, trade and investment and renewable energy to name a few, addressing geopolitical issues of common interest and sector growth in Turkey and what the implications will be for economic growth and connectivity with Europe.

Conference Participants included: LTG. Yavuz Türkgenci Director of Plans and Policy Directorate Turkish General Staff, Prof. İsmail Demir, Undersecretary for Defense Industries , Mr. Köksal Liman, Deputy Undersecretary for Defense Industries, Lieutenant General Kenneth F. McKenzie, Director, J-5, Strategic Plans and Policy, Joint Staff, Prof. Arif Ergin, President of TÜBİTAK (The Scientific And Technological Research Council Of Turkey), Executives of TAI, Havelsan, Roketsan , STM, Vestel, Kale Aerospace, SNC, Lockheed Martin, Raytheon, DowAksa, Honeywell and Pratt Whitney. Sierra Nevada Corporation (SNC) was a platinum sponsor for this year's event, with contribution from TRJet and ESEN System Integration. For the first time, a networking reception was hosted on the evening of the first day of the conference, rather than a formal dinner, that created a more interactive and social environment for this year's participants.

Mr. Howard G. Beasey - President & CEO of ATC

Opening Ceremony, Welcoming Remarks, Keynote Address and Remarks were presented by Howard G. Beasey, President & CEO, American-Turkish Council; General James L. Jones, USMC (Ret.) Chairman, American-Turkish Council; K. Ekim Alptekin Chairman, Turkey-U.S. Business Council (TAİK); Ömer Cihad Vardan,

President, Foreign Economic Relations Board (DEİK); General John. P. Abizaid, Strategic Advisor, Sierra Nevada Corporation.

Following the singing of the Turkish national anthem and the American national anthem, Mr. Beasey welcomed distinguished guests to the 35th Annual Conference on U.S.-Turkey Relations and thanked the event sponsors as conference participants set forth to begin a dialogue of discovery and information sharing designed to shape the future, creating a path leading to a new era of growth. Business leaders from the United States and Turkey explored avenues to foster growth to increase their bilateral trade.

Appreciation was noted for the efforts of participants in committing a significant amount of time and personal resources to be in attendance. The primary purpose of the conference each year is to highlight for the international community the fact that the US and Turkey are allies and are partners, sharing mutually in the growth and stability of one another as well as around the globe. Each year, well ahead of the conference itself, a conference theme is agreed upon that is intended to underscore the major themes and trends in the bilateral relationship during the past year. It was noted that the conference planners from both ATC and TEI coalesced around this year's theme with exemplary partnership. Turkey and the US form a central relationship because of location, because of what the countries stand for, the economic welfare, the national security, the individual freedoms and democratic rights of one has a critical bearing on the other. In addition to being national security allies, the US and Turkey are commercial partners thanks to the thousands of joint ventures that create jobs and improve the living conditions of millions of Americans and Turks around the world.

This past summer Turkey's government survived an attack on its democracy, an event that was recognized immediately by the United States, even as the events on the ground were unfolding. The United States continues to standby their partners and friends and allies and support Turkey's effort to recover and strengthen its institutions. As a result of the July 15th attack, Turkey and the United States has enjoyed a reinvigorated relationship and it was noted that the collective mission of the conference was to ensure that this dialogue continues to expand over the course of the coming year.

Panelists shared that the conference was occurring at a time when the world is going through serious turmoil and that it may be one of the most critical periods in modern history, and both Turkey and the US have front row seats...rendering Turkish-American partnership to be as relevant as it has ever been. Despite occasional disagreements, it was noted that fundamental strategic objectives are aligned and both Turkish and American leadership is urgently needed to chart the path toward peace and prosperity in Europe and the Middle East. It was stated that the conference focuses on the prosperity part of the equation and that over the 2 conference days, discussions will seek ways to harness and combine the entrepreneurial spirit, the technological ingenuity of the US and Turkish economies. The evolving technology landscape and its affect on industries from financial services to agriculture, cyber security were examined as well, and how to enhance cross border foreign direct investment in both countries to achieve a shared economic vision.

Defense Panel Discussions

U.S. and Turkey: Perspectives on Turkish Armed Forces Realignment, National Defense Procurement Process, and Impacts Upon Industrial Cooperation

After the failed coup attempt in July 2016, Turkey has undertaken an aggressive reform and realignment of roles and responsibilities within the Ministry of Defense. The Turkish General Staff, J-5 lead the discussion by addressing the Turkish Armed Forces modernization efforts and goals for the near term and in the future. The conversation also included the increased responsibility of Turkey's Under Secretariat for Defense Industries (SSM) for national security-related procurement programs and defense industrial base matters. Finally, discussions were held regarding the U.S. State Department and Department of Defense review of Security Assistance Programs, with a particular emphasis upon the Foreign Military Sales Program, to streamline and improve the responsiveness of these programs providing a detailed examination of reform efforts and the potential implication for future Defense Industry Cooperation.

Prof. İsmail Demir - Undersecretary for Defense Industries

The moderator for this panel was Mr. Paul Mongillo, Vice President Global Business Development, Raytheon Integrated Defense Systems. Panelists included Laura Cressey, Bureau of Political Military Affairs, Office of Regional Security and Arms Transfers, U.S. Department of State; Prof. İsmail Demir, Undersecretary, Undersecretariat for Defense Industries (SSM) and Mr. Matthew Hardiman, Director, Bureau of European and Eurasian Affairs, Office of Regional Security and Arms Transfers, U.S. Department of State.

Defense Industrial Cooperation: Active Programs, Continuing Investment, and Positioning for Continued Growth

This panel focused on existing cooperative initiatives and continued joint efforts between key defense industrial concerns and the prospects for building on past and existing programs to expand into other developing areas such as cyber, composite materials, drones, support systems and more. Despite past and ongoing successes, challenges remain and require illumination, understanding and resolution, so that growth can continue.

The moderator was Lt. Gen (Ret) Michael Moeller, Vice President, Business Development, Pratt & Whitney. Military Aircraft Engines. Panelists included Mr. Pete Costello, Senior Director, International Business Development, Honeywell; Mr. Nadi Köklü, Vice President, Technical Division, Kale Aero; Mr. Douglas Parks, CEO, DowAksa; Mr. Naki Polat, Executive Vice President, Aerostructure Group, TAI and Ms. Nancy Ziuzin Schlegel, Vice President, International Government Affairs, Lockheed Martin.

Despite the growth of many successful programs, it was stated that challenges remain that must be understood and resolved in order to ensure that future opportunities can be taken advantage of. Nancy Ziuzin Schlegel, Vice President, International Government Affairs, Lockheed Martin provided insight on this topic. In a complex and dynamic security environment, and as Turkey's security requirements evolve, from air and missile defense to maritime security and beyond, Lockheed Martin shared their commitment, standing ready to work with the Turkish government and Turkish industry to offer advanced technology and risk mitigation solutions while promoting long term, sustainable, high-tech jobs, growth and exports for Turkey. Bringing the best solution to the table, Lockheed Martin partners with countries around the world on programs like the Joint Strike Fighter, establishing interoperability among allies. Lockheed's F35 program provides the US and its allies with unmatched interoperable air defense networks for their partners. In Europe, with 8 of the 9 partners being members of NATO, the F35 will be the backbone of future air operations. Last year they delivered a record 45 aircraft to their customers and are on track this year to deliver 53 aircraft including 5 from the Italian production facility. By the end of this year there will be 200 F35s flying. Turkey has been a partner in this program from the beginning, from concept demonstration continuing to the production phase. Every F35 flying has Turkish equipment or parts installed, including some with center fuselages, which is the most complex structural section of the aircraft, which are produced by TEI. Lockheed works with a number of Turkish companies including AYESAŞ, Kale Aerospace, Alp Aviation, Havelsan and Aselsan, on next generation technology in support of production, sustainment and training on the F35.

The F35, F16, the TUHP and the SOMJ are examples from Lockheed's decades long collaboration with the Turkish government and Turkish industry. Over the years they have worked to address Turkey's security requirements with jet fighters, training systems, critical launch systems for frigates and vessel traffic management systems that control traffic through the Istanbul and Çanakkale straits. Over the past 60 years Lockheed has invested over $ 100 million in joint ventures, placing over $ 2 billion of direct work with Turkish companies, having spent nearly $1.2 billion in indirect offsets in Turkey. For example, in 1984 Lockheed and Turkish Aerospace Industries TAI created a joint venture which became TAI, over the years TAI has become the co-producer of the F16 and has progressively produced up to 80% of Turkey's 270 of Turkey's F16s, including 46 for the Egyptian Airforce. Lockheed's partnership on the F16 has continued with F16 modernization programs not only for the Turkish Airforce but also for third countries, like Jordan and Pakistan. It was noted that Lockheed's approach to Turkey has also included investment in human capital; human capital development, working with the Turkish population to create long term sustainable high technology jobs. They have engaged with Turkish universities, TUBİTAK and R&D centers across the country, funding impactful research programs with Koç

University, Sabancı Univeristy and the Middle East Technical University, for example, and they emphasized their continued focus on their work with TUBİTAK on establishing an R &D center with university partners.

Mr. Nadi Köklü, Vice President, Technical Division, Kale Aero shared insight on Kale Aero, a 50/50 joint venture with Pratt Whitney which now has several development programs which have matured, and are ready for serial production, a new phase for the industry. With a focus on research and development, 3 years ago Kale R&D research and development company was combined under one roof. It was noted that life cycle support, performance based logistics will be the key topics now as companies are concentrating on the sustainability of the sector and focusing on export initiatives as well.

The modernization of the Turkish Armed forces, completed with companies from the United States has enriched Turkish industry with skills and engineering know-how, having accumulated over 30 years. The workforce of Turkey today is young and well educated and accessible in an ecosystem developed for partnership. The strategic political and economic traits are first tiers of US Turkish partnership and the cooperation of companies will significantly impact encourage governments to cooperate.

Discussion also included the trends that have been identified in unmanned and smart systems, such as remotely piloted technology in the aviation sector. Unmanned systems for military use can have important benefits, such as enhanced performance, reduced cost and can also eliminate the risk that personnel may face during specialized missions. Kale's partner Baykar has developed a mini version and tactical version, which is operational in the Turkish Army in the South East. New strategic unmanned aerial systems programs are also underway. On the dashboard now as well are cyber security, 3d printing,


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biotechnology, alternative fuel, propulsion solutions.

Douglas Parks, CEO, DowAksa provided insight into the future of carbon fiber. DowAKSA recently closed a number of very high value projects and they have had conversations with the ministries in Turkey as they look toward expanding rapidly. With the new investment opportunities in Turkey, it has been remarked that it just makes sense to do that investment in Turkey. DowAksa is working very closely with SSM and TEI to understand what the opportunities are. Instead of just leveraging the infrastructure in Turkey, they intend to use the raw materials to create a much lower cost carbon fiber to really reach the promise of the broad adoption of carbon fiber in wind, automotive and ultimately in defense. Advancing technologies in aviation have influenced how bilateral joint development projects are executed. Moving from contract manufacturers to joint development partners involves the integration of the university chain in Turkey, and it was noted specifically for example, Purdue has a long history of working with the Middle Eastern Technical University and other universities in Turkey. Also mentioned was the subject of multi-action fabrics and the fact that DowAksa will soon announce a major pultrusion capability that they want to expose, to what they refer to as the dual-purpose environment, both defense and commercial. Understanding the cyclicality of both of these markets is a key focus.

Mr. Naki Polat, Executive Vice President, Aerostructure Group, TAI discussed their current business portfolio, which is currently a measured player in the aerospace sector and stated that they intend to strengthen their position and take further steps to become a well-known global, world brand aerospace company. Over the last 10 year results, sales increased from nearly $ 200 million to over $ 1 billion, demonstrating a pattern of continuous growth, and reflecting that TAI is an export oriented company. In parallel to increasing sales and exports, TAI has moved up in ranking both in Defense News and Flight Global lists. The main drivers of growth have been TAI's integration with the global aerospace industry and the ability to design and develop new platforms. TAI shared that it essentially wears 2 hats, as an OEM developing its own products and selling them to the Turkish Armed forces as well as to Allied countries, and TAI is also a reliable partner for the world's leading aerospace companies. Activities on both ends will support TAI in its growth endeavours. A balanced portfolio between military and civil programs is crucial for future sustainability. TAI acquired a company in Hamburg, Germany – the main purpose of this international investment was to increase their business volume with one of their major customers, Airbus. A similar approach is on the horizon for TAI with previously

established TAI-US, as a presence in the US is essential, they look toward the future with innovation and R&D, exploring how they can collaborate with international companies. It was noted that TAI looks at the future beyond their current work scope, in areas such as composite materials research, 3D printing, liquid molding processing and different textile techniques. TAI and Dow Aksa will be a charter company, with Koç university, R&D studies and also with Purdue University. It was mentioned that the technology will be demonstrated first in Indiana then would be transferred to TAI. It was disclosed that they will be concentrating mostly on composite 3D printing, using additive manufacturing technology, and that they were targeting to manufacture flying parts – aircraft or helicopter parts – with OEMs. TAI was set up as a Turkish American joint venture; their subsidiary TEI still continue a successful Turkish American venture. Building upon the strength gained from successful relationships, they invited US companies to partner with TAI for future growth. With the capabilities attained over the years with the model of cooperation, although private markets may change, they stated that they are confident that there are opportunities on both sides of cooperation.

Mr. Pete Costello, Senior Director, International Business Development, Honeywell provided a description of Honeywell's collaboration efforts in Turkey. Honeywell is currently engaged in expanding their product portfolio through collaboration in almost all of the future Turkish programs, such as the light utility helicopter, the Turkish regional jet, they shared that they look forward to collaboration in the FX program and are in discussions with TAI on unmanned vehicles as well. They shared with the audience that they are open to and look forward to collaborating with Turkish Industries on these products and others of the future, not just for the Turkish domestic market but that they look at any collaboration that they do in Turkey in reference to the global market and their global supply chain and that they would like to succeed together.

Honeywell employs over 130,000 personnel in over 100 countries, and one of the countries specifically is Turkey. Honeywell Turkey was established in 1992, not only for business within Turkey itself but also as a regional hub for the global market. They have 3 offices in Turkey with over 300 employees, and covering all of the 4 major business groups within Honeywell. Their focus is to take their corporate focus on safety, reliability and efficiency products for all customers into the global market. Honeywell has a very broad portfolio, examples discussed were the current Turkish military aircraft, environmental control systems, flight control systems, avionics, lighting, auxiliary power units and engines. T53, T55, CTS800, multiple products across the portfolio on F16s, Blackhawks, C130s, and specifically on the F35, Honeywell supplies the power and thermal management systems, inertial navigation system, tactical navigation system and the wheels and breaks. It was mentioned that they are in discussion with SSM and local Turkish companies for local sustainment of those systems for the Turkish Airforce.

In terms of avionics they supply inertial measurement machines with Roketsan, they also have a very close relationship with Aselsan providing them with inertial measurement units that go into the inertial navigation systems; collaborating with them on future avionics, not only in terms of supply and coproduction but also into co-development, a trend for all future collaboration with Turkish industry, moving from designed to print to actual collaborative design. An agreement with Alp Aviation was recently signed where they will be the component supplier for all of their wheels and breaks for both commercial and military applications globally, and it was disclosed that they are in discussions with them based upon recommendations from SSM for the joint strike fighter. Honeywell is working with both TAI and TEI to indigenize CTS800 engine.

Honeywell has a very robust activity in terms of R&D and advanced technologies programs, and in terms of pilot interface – touch voice and gesture, augmented reality, virtual reality, speech neural linkage, connected aircraft where through datalinks satellite communications aircraft, be they military or commercial, could be connected so that the systems that are onboard are continuously monitored for health and predictive maintenance can be completed. Aircraft could be connected where they warn each other of hazards such as weather, windshear or other aviation problems. The topic of cyber security was discussed as Honeywell does a large effort in this area in terms of providing security services to the United States government. They shared that they are activity working on the issues, complications and solutions

for providing cyber security for aircraft as avionics become more intensive and aircraft become more connected.

'The Ties that Bind: The Importance of the NATO Alliance and U.S.-Turkey Strategic Cooperation to Regional Stability' was discussed as part of an insightful interview with high level officials, who reflected upon the U.S.-Turkey strategic relationship, the seminal role that the NATO partnership has played in the bilateral relationship, and the global balance of power and the future direction of the relationship.

The U.S - Turkey bilateral relationship has been facing a challenging time over the recent years as both countries have worked protect national interests in dealing with the ISIL threat. Despite some differences in the respective approaches in confronting this threat, it was stated that the military leadership in both countries has tried hard to find ways to work together.

On the Syrian crisis, the importance of laying the proper groundwork before attempting to solve a problem was discussed in the panel, understanding the question is key to solving the problem, a reference to the scientific luminary Albert Einstein was made 'to spend 55 min to understand the question and 5 minutes to answer it.' The discussion surrounded the difficult task to understand the Syrian crisis, the worst crisis since WW2, the number of refugees, the number killed. Currently there are approximately 1,500 different groups in Syria, incredibly difficult to solve this complex problem as there are also actors from the outside that complicate the problem.

The discussion also recounted that over the last year, the joint staff at General Dunford's direction has undertaken an exhaustive analysis of the direction that the US Armed Forces are headed and how they fit into their strategic relationship across the world. The US relationship with Turkey is a strategic relationship, it is not a transactional relationship.

More recently Turkey has led key ISAF missions (International Security Assistance Force) in Afghanistan twice, and as the relationship with Turkey is examined, the variety of NATO embedded, the centers of excellence that are in Turkey, and the fact that Turkey hosts the DASTY2 radar, which is critical for missile defense in southern Europe, are all the actions of a strategic partner. On a strategic level, the discussion moved to the topic of Russia, stating that Russia is seeking to impose vital interests in areas immediately adjacent, the Balkans the Caucuses, some parts of South Asia, some parts of East Asia. It was candidly stated in the panel that what Russia fears the most is NATO, many of their activities today are designed to drive splits into NATO because they have rightly identified that it is one thing they do not possess, a family of nations that recognize the emerging and reawakening threat, it is prepared to act against them, as they increasingly operate outside, in places like the Ukraine, Syria. In Turkey, operations such as NATO's Active Fence air defense system are symbols of NATO solidarity with Turkey. In addition, the idea was shared that part of Russia's reason for being in Syria is to go after NATO, to develop a wedge that can be driven against them. The ability to craft a common approach to that problem was said to be fundamental in answering that challenge; with all of the friction that NATO brings, it is an overwhelming decisive strategic advantage.

The final Defense Session of the Conference was Titled 'New Defense Trends and Achieving a Paradigm Shift in the Future of U.S.-Turkey Defense Industry Collaboration'

For more than 30 years, the cooperation between companies from the U.S. and Turkish defense sectors has led to significant growth and development of the Turkish defense industrial base while creating a consistent and reliable market for U.S. companies. This panel explored how U.S. and Turkish companies can share the roles of R & D, end-product development, and production to reach new levels of innovation and open new markets for both countries and to discuss what will be the new paradigm of this relationship.

The moderator was for this panel was Mr. Aziz Sipahi, CEO, AYESAS. The panelists were Mr. John Kelly, Vice President, Business Winning & Strategic Planning, BAE Systems; Mr. Richard Sandifer, Senior Director, International Capture, Raytheon; Mr. Jeff Schloesser, Vice President, Strategic Planning, Sierra Nevada Corporation; Mr. Lütfü Özçakır, Vice President, Training and Technologies Simulation Division, Havelsan and Mr. Hayri Torun, Operations and Energetics Systems, Roketsan.

Panelists reflected upon the theme of this session, new defense trends and achieving a paradigm shift in the future of the US Turkey industrial collaboration.

Mr. Jeff Schloesser, Vice President, Strategic Planning, Sierra Nevada Corporation discussed the topics involving businesses as they seek to work with governments in a way that moves beyond build to print, build under licensing, and actually tries to move into areas such as R&D, rapid prototyping and actual production. The discussion also touched on the importance of political stability, not just in Turkey but in the United States, and as a US company SNC is seeking not only a stable political system but also one that understands how budgeting is done. It was mentioned that in Turkey, politically stability was an obvious point of importance, as they look into Turkey they hope for stability, despite all of the tough neighborhood actors that surround Turkey on all sides. Importance was given to the need for fiscal stability and a stable currency, when striving to achieve success in the global arena, as well as structural reforms. It was stated that the availability of capital is key as well. SNC shared that they will be looking for shared risk, capital investment from the government itself and business partners .

In addition, the topic arose for the need of a strong educational foundation that moves beyond STEM (science technology engineering mathematics) at this next level, the types of engineering that is done for rapid prototyping and the type of innovative R&D, requires the quest for knowledge and the quest for doing something new in a way that is different, requiring a level beyond high tech engineering graduates. It requires only the best, those that have an entrepreneurial vision toward a future that is unclear and a willingness to try to achieve, by working together as engineers and business people together. It was noted that there has to be a desire and the ability to interface between industry and government, not only because of the capital requirements in many cases but also the licensing requirements. In many cases, some of the defense sector technologies are ground breaking, and SNC stated that in most cases they could share them with their NATO allies, and this is why Turkey and the US make such great partners.

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Mr. Lütfü Özçakır, Vice President, Training and Technologies Simulation Division, Havelsan provided highlights regarding the New Era between Turkey and US Defense Relationships, noting the Havelsan HQ, training and simulation and R&D at METU, the naval combat systems center in Istanbul, test and integration facilities in Ankara. An important topic was the opening up of US Markets, getting the attention of the big companies in the US defense industry and the desire to engage in R&D with US companies. Quantum 3D Inc and Quantum 3D government systems, after 3 years successfully are in compliance with US rules and regulations; these examples were given, of 2 companies with US government approval.


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Mr. Lütfü Özçakır

Havelsan is based on 4 main areas: command and control systems, training and simulation technologies, management information systems, cyber and security solutions. In addition to manufacturing simulators, it was shared with the audience that they are also working on training services, stating that the service business is a good value addition that they can supply to US industry, to the Middle East, to Europe. The Turkish Airlines 737-800 simulator was the first full flight simulator manufactured under the Turkish Ministry of Defense security clearance. With the largest mission training center in the world, and all the simulators connected, 6 full mission simulations can be connected from 6 different cities in Turkey, and it was noted that the 7th was coming soon. It's not just about flight training, there is truly so much more to offer.

Mr. John Kelly, Vice President, Business Winning & Strategic Planning, BAE Systems shared thoughts regarding the future of US - Turkey Industrial collaboration, reflecting upon the past lessons learned as well as a discussion about their joint venture FNSS. It started small, around one product, the M113 an armored personnel carrier, and it has grown from there to be a leading a manufacturer and exporter of armored vehicles. Now compliant with all of the European and NATO standards, they have 850 personnel, mostly based within Turkey and they are currently trading around 350 million USD per year. FNSS has put their own investment in, but also matched by TUBİTAK in terms of investment incentives, investing in the products and capabilities of the Turkish business. The result is a movement from licensed products into indigenously created products, and today it is very much about indigenously created products, designed and developed and manufactured in Turkey. Not only are they selling to SSM but they are now successfully exporting to other overseas partners.

Amidst the theme of this panel, it was noted that consistent and very high quality engineering talent is coming from Turkish universities; and as result, the challenge going forward will be retaining that talent in Turkey; with the temptation to work in Europe and the US. Turkey provides strong support for indigenous R & D projects and the incentives have made a difference for FNSS. It was noted that FNSS provides excellent examples of the path to indigenization starting from simple beginnings, to quite complex systems now that they design, develop and integrate and build within Turkey. The question posed was could a market for more Turkish products be found, both within the US and in Turkey as well.

Mr. Hayri Torun, Operations and Energetics Systems, Roketsan reflected upon Roketsan's product portfolio and company evolution, noting that they evolved starting from rocket systems to missile systems and continued increasing their range in missile systems. Although it is a young company, with 2100 employees of which 54% are engineers, Roketsan has gained various critical technologies. This includes the design, development and manufacturing of rocket and missiles systems as well as the weapon systems. The major technologies are composite propellant manufacturing, warhead and fuse production, missile final integration and testing. Turkey has launched a significant number of programs for the development of indigenous defense systems in the last fifteen years. The technological maturity level of the defense industry has been significantly increased through these programs and the subsequent research and developments. The Turkish and U.S. defense companies have been cooperating in co-production for the benefit of both countries.

In the early 90's the company used to develop artillery systems and now they develop the missile systems that are in serial production and being sold to allied countries. Roketsan signed a contract with SSM to develop the Long Range Antitank (UMTAS) Missile and Medium Range Antitank (OMTAS) missiles which are in the serial production now. When they

Mr. Hayri Torun

were established they signed a contract for the European Union co-production program valued at $ 140 million. Stinger was their first program, they received the technology transfer, then started to cooperate with Raytheon for parts production, and in 2000 cooperated with Kongsberg Defense & Aerospace (KDA) for the production of Naval Strike Missile (NSM) Launcher. Roketsan manufactured and delivered launchers to KDA for Norwegian Government requirements. The final integration and testing of Rapier Mk II missiles required by TuAF were carried out by Roketsan under the MBDA UK contract. It was noted that they produce the actuators for Mk II missile as sole source in the world. The cooperation with Raytheon and Roketsan, was described as a true partnership for the production of Patriot GEM-T control section, which are being manufactured by Roketsan as the global sole source of supply. Roketsan has been awarded by Raytheon for the design and development of a warhead for one of their missile system, and it was shared that design and development activities in the program are at the final stage. This warhead will be used by US, Turkey and several other nations. It was noted that the extension of cooperation with the warhead design and development is the result of trust and the true partnership established between the parties. Another example given, to highlight the company's cooperation with US companies is with LM Missile Systems. Lockheed Martin and Roketsan have signed an agreement for the co-development of SOM-J Missile System. The missile will be used by Turkey, US and several other nations within the F35 program.

Turkey aims to be one of the 10th largest economy in the World by 2023. Although described as allies and great partners, US-Turkish trade volume is not sufficient. The total trade volume was approximately 16 billion USD in 2015. The US has become the 5th largest export market in 2015, which also needs to be enlarged and increased.

R&D activities within the Turkish defense industry have been significantly improved over the last decade. The total number of companies that have registered their R&D centers with the Ministry of Science, Industry and Technology has reached to 16. The total number of employees working in the defense industry has reached to 32,000 in 2015, with 34% of them being engineers. It was mentioned that this is true evidence for the great potential of the defense industry in design and development activities. The technology development investment in the defense industry was approximately $900 million in 2015, with $600 million coming from government incentive and support.

Turkish Defense Industry has a mature design, development and production capability to serve both Turkey, the US as well as third countries. A significant amount of investment in defense system development and production has been made in Turkey. The development of Turkish Industry would not have been possible so rapidly and with stability without the extensive support provided by SSM.

Mr. Richard Sandifer, Senior Director, International Capture, Raytheon discussed a very bright and positive future in collaborating with Turkish industry in both defense and commercial. Raytheon has 4 major business units; Integrated Defense, Missile Systems, Intelligence and Cyber, SAS (main products are space and airborne systems). The role that industry has and will continue to play in the future, to ensure that the alliance between the two countries remain strong was underscored. Allied partners and their industries must work together to develop the

mission capabilities to address the growing threat of hybrid warfare that is seen today. Today's military defense challenges and the need to be more competitive and responsive to the customers' needs point to greater opportunities and benefits when there is cooperation and collaboration across both industry and government, particularly important in cases dealing with such sensitive technologies. Collaboration with the US government in how international business is approached is of essential importance. This is a key part of Raytheon and many other company strategies in building and leveraging industrial partnerships. The most important aspects of collaborating with Turkish industry for Raytheon were detailed as: collaborating to spur innovation, to increase industrial growth and to create viable capabilities not just for the home market also for the export market as well. Due to the fact that Raytheon SAS deals with very sensitive technologies, their road ahead was described as having to be very well conceived, very well planned. It will be essential to develop a business plan that is a win-win for all stake holders, for Raytheon, Turkish Industry Partners, Turkish government and the US government. The need for the support and approval of the US government on how they intend to execute this plan, which will include significant technology transfer, is crucial. Raytheon shared that they will work closely and clearly communicate with their Turkish partners and Turkish government to completely understand what their desires and needs are as far as technology transfer, innovation and their export market future. The selected business model that they might use, a team agreement or joint venture or otherwise, will have to fit the technology in question, the number of partners that they would have involved, the shared intellectual property (a key issue that absolutely has to be addressed) the ability to export (essential for the Turkish partner and Turkish government that approval is retained from the US government) and shared revenue. With a well-planned approach, and a close relationship with their Turkish partner, ensuring that both partners derive equal benefit from that approach, having support from both governments to achieve advocacy, was highlighted as one of Raytheon's main goals, with the ultimate end result of getting into international competition with their Turkish partner and to be successful.

Havelsan Received "Defense Industry 2016 Special Award" in ATC Annual Meeting

On behalf of Havelsan, Mr. Yüksel Öztekin, Havelsan Chairman of the Board of Directors and Mr. Taner Düvenci Deputy Chairman of Havelsan received the award from DEIK Chairman Mr. Ömer Cihad Vardan for the contribution to the US-Turkish relations and the support to regional technological development.

In the ceremony, it is stated that Havelsan's numerous success and projects have made it a regional leader in the field of defence, security and IT Systems. With its network based and autonomous technological solutions, Havelsan has a made a difference through its regional security as well as US-Turkey.

The conference was closed out with a Night Gala Dinner. The Keynote Speech was given by The Honorable Tony Blinken, Deputy Secretary of State. The introduction was given by Eren Özmen, CEO, Sierra Nevada Corporation; Keynote Speakers included The Honorable John R. Bass, United States Ambassador to the Republic of Turkey and H. E. Serdar Kılıç, Republic of Turkey Ambassador to the United States.

The conference provided an enriching opportunity for attendees to connect with each other, by fostering greater personal and commercial ties, bringing the countries closer together on the path to prosperity.

ATC Membership continues to grow in number and in sector and there is much more at stake. As the ATC looks toward the future with programs such as the Chairman's Trip, Turkish companies are provided guidance in interpreting the US Business Landscape. The ATC serves its members as a critical voice, source of knowledge, trade convener, and diplomatic counsel in both Washington, DC and Ankara. The ATC helps member companies grow by providing them opportunities to leverage their brand among chief stakeholders. The ATC's advocacy efforts aim to shape policies that advance U.S.-Turkey trade relations. The organization's local market expertise provides members with essential insights and information to enhance their strategic capabilities. They develop members' networks by facilitating relationships with private sector leaders, educational institutions, policy makers, and high-level government officials. Their diverse membership includes Fortune 500s, multinationals, and U.S. and Turkey-based small and medium-sized enterprises from multiple sectors. Equipped with decades of experience, expertise, and an influential network, the ATC provides its member community with opportunities, services, and programs designed to resolve business challenges and strengthen linkages between the two countries.

35th Annual Conference on U.S.-Turkey Relations to Honor Melih Abdulhayoglu, CEO and Founder of Global Cybersecurity Innovator, Comodo

The American-Turkish Council (ATC) and the Turkish US Business Council are pleased to announce that Melih Abdulhayoglu, CEO and founder of Comodo, a global cybersecurity innovator, will be honored with the "Mustafa V. Koç Business Leadership" Award at the 35th Annual Conference on U.S.-Turkey Relations. Mr. Abdulhayoglu is being recognized for making the largest American R&D investment into Turkey.

"Comodo's ultimate goal is to create trust online. We are making safety in cyberspace achievable by providing consumers and businesses across the globe with the right solutions and strategies, backed by our unique Default Deny Platform. This entirely new approach provides an unprecedented level of security against known and unknown malware by allowing the known good files, blocking the known bad, and then isolating the unknown in automatic containment," said Mr. Abdulhayoglu. "We have always believed in the Turkish economy and the creativity of our Turkish engineers. I can proudly say that we have introduced our innovative products engineered locally into the world market and are growing our investments every day. The creation of our cutting-edge solutions for the cybersecurity market are consistently made possible by R&D investments."

He continued, "Receiving this award bearing Mustafa Koç's name is truly a monumental honor. Koç was an unbelievable asset to the Turkish economy and business world. We will always remember him for his contributions and innovative approach to enhancing the R&D culture in my homeland. He has inspired Comodo to make substantial contributions to Turkish-American relations, which we certainly plan to continue."

"The 'Mustafa V. Koç Business Leadership' award is given in honor of a beloved son of Turkey to a true inspiration and business leader, Mustafa V. Koç Mustafa Koç's same spirit lives on in Melih Abdulhayoglu's dedication to global innovation to ensure that the cyber realm is safe and can be trusted for digital transactions in Turkey, America, and the world" said Howard G. Beasey, President & CEO, American-Turkish Council.

"Among the Turkish American role models, Comodo stands out as a technology company that provides high value-add services throughout the world and tirelessly invests in R&D in line with the entrepreneurial vision of Mustafa Koç." Mr. Ekim Alptekin, Chairman of TAIK.

The U.S.-Turkey Relations conference gathers more than 500 leaders and visionaries in the private sector, government, and the non-profit space to shape the future of business, innovation, and growth from October 30 to November 1, 2016 in Washington, DC. More than 20 industries are in attendance, represented by CEOs, entrepreneurs, investors, members from the U.S. Congress and Turkish Parliament, and other ministers and cabinet secretaries.

Diverse and innovative conference sessions include such topics as: Turkey's Business Environment after the Coup, the 2016 U.S. Elections and its Impact on U.S.-Turkey Relations, Defense Procurement and Industry, Assessing the U.S. Market for Turkish Manufacturers and Investors, The Future of Turkey's Construction Industry, Turkey's Tourism Industry, NATO Alliance and U.S.-Turkey Strategic Cooperation, Turkey's Microeconomic Success, Renewable Energy and Agriculture, Financial Technology Ecosystem, Telemedicine, and many more.

Mr. Melih Abdulhayoğlu - CEO & Founder of Comodo

Turkish Entrepreneurs Heading for Silicon Valley

The winners in the acceleration program of Yeni Fikirler Yeni İşler (YFYİ), which has been organized by ODTÜ Teknokent for the 12th time this year, have been announced. During the application period which spans from March to May, more than 1,500 applicant projects were submitted to the program. In the award ceremony of the YFYİ program, the applicants presented their projects to compete for prizes in 10 categories and the winning projects were awarded with prizes ranging between 25,000 TL and 100,000 TL. Furthermore, all the award-winning teams have thus been entitled to participate in the 4-week camp to be organized in the T-Jump Acceleration Center run by ODTÜ Teknokent in the Silicon Valley - San Francisco, California.

More than 200 Ideas Commercialized

Speaking at the award ceremony of the YFYİ acceleration program, Mustafa Birşen Kök, the Rector of ODTÜ, said, "We received more than 8,000 applications for this adventure we started 12 years ago. I believe that our young entrepreneurs will own the bright future of our country. This application, which ODTÜ Teknokent has successfully implemented for 12 years, is not only supported by entrepreneurs, but also enables the development of the economy of our country, the continuation of investments and the creation of employment."

Mustafa Kızıltaş, the General Manager of ODTÜ Teknokent, who spoke after the Rector of ODTÜ Mustafa Birşan Kök, stated that ODTÜ Teknokent believed in the entrepreneurs in Turkey from the first days of its activities and realized the goal of forming the billion-dollar technology company in May. Kızıltaş said, "The 'YFYİ' concept, which we organized in 2005 with the concept of a business idea competition for students, and is now held with the idea of "how can we build a technology company that will continue to operate worldwide. Therefore, YFYİ is no longer a contest, but an acceleration program. Kızıltaş continued his words with the contributions of the Yeni Fikirler Yeni İşler to the country's economy and said, "Over this 12-year period, more than 200 projects joined the economy by the establishment of incorporations and employment of over 1,000 people. Today, we made an investment for two buildings at an amount of 80 million TL in order to improve the physical means of ODTÜ Teknokent. I believe that our country will develop by further supporting science and technology."

What does YFYİ bring to entrepreneurs?

As in previous years, YFYİ has been providing support to entrepreneurs who are both in the idea stage and the entrepreneurs who have established their incorporations but have not yet matured. Applications of undergraduate, graduate, Ph.D. or undergraduate students are received under T-IDEA and in addition to venture capital support, the students gain training and demonstration rights at the T-JUMP Acceleration Center located in San Francisco, CA, USA. Moreover, project groups that meet T-BIGG criteria of TÜBİTAK have a chance to benefit from capital support of 150,000 TL. The enterprises under 4 years of age are taken into consideration within the scope of T-START, hastening the commercialization process of the projects.

New NIMR Military Vehicles Enter Service

NIMR Automotive declared that two of its most advanced military vehicle models, designed and manufactured in the UAE, have formally entered into service with the UAE Armed Forces on 6 December.

The N35, a mine-protected multi-purpose fighting vehicle in both 4x4 and 6x6 configurations, and the AJBAN-class Special Operations Vehicle (SOV) were on display at the UAE's National Day parade.

Marking this milestone, Dr. Fahad Saif Harhara, NIMR CEO, said: "We are honored to support the UAE Armed Forces with our latest world-class military vehicles, which will protect the lives of our soldiers on the battlefield."

NIMR's N35 is a multi-purpose vehicle that provides the Armed Forces with a combination of firepower, survivability and mobility to meet modern, asymmetric operational threats. The cabin, known as the 'crew citadel', is capable of providing high levels of protection against mine, IED and ballistic threats.

The AJBAN SOV is a light, long-range reconnaissance vehicle that can be transported by helicopter for easy insertion into any environment for self-sustained missions lasting up to two weeks. The vehicle is designed to be highly mobile in all terrains, featuring a high payload capacity to transport all necessary crew equipment and features a roof-mounted gun for self-defense.

Dr. Fahad highlighted that "Local talent has been fundamental in bringing these vehicles from concept to series production. An integral element of NIMR's mission is to educate and empower the next generation of UAE nationals so that they can contribute to the country's growing industrial sector."

NIMR, a subsidiary of Emirates Defense Industries Company, designs and manufactures these vehicles at its state-of-the-art manufacturing facility in Abu Dhabi. It also provides full lifecycle management including Integrated Logistic Support, maintenance, repair, technical support and spares to manage the entire fleet and variants deployed.

Istanbul Security Conference was Held by TASAM

The Istanbul Security Conference 2016 was held by TASAM and National Defense and Security Institute in Istanbul. "Change in State Nature: Borders of Security" was the main theme.

The first Conference was organized in 2015 in Turkey, and this year's second annual Istanbul Security Conference was held at the Radisson Blu Hotel Şişli on 02-04 November 2016. National and Global security problems, global governance mechanisms and cooperation were discussed at this year's conference, which created anticipation and enthusiasm regionally and globally and was held with the participation of 400 distinguished guests.

Opening remarks were given by TASAM Chairman Mr. Süleyman Şensoy, High Consultant Committee Member of National Defense and Security Institute Governor Assoc. Prof. Hasan Canpolat, National Security Minister of Uganda Henry Tumukende, Economy Minister of Afghanistan Mr. Abdul Sattar Murad and Parliamentary Secretary of Defense of Pakistan Ch. Jaffar Iqbal.

TASAM Chairman Mr. Süleyman Şensoy continued in his speech by saying that this year's theme "Change in State Nature: Borders of Security" brings to the forefront discussions regarding institutional infrastructure insufficiency, revealing deficiencies to be addressed, in the midst of the changing the nature of the state.

The mindset of state and structural transformation requires much time, resources and work. Yet the world's rapid change does not allow us the required time. Thus we see countries, which cannot keep up with the changing world, that are scattered and face instability. The world takes shape within three parameters. These are what we mention often, main rivalry parameters between the West and the East: "micro-nationalism, "integration" and "unpredictability" form the entire world. Micro-nationalismin the process, started with Collapse of the Soviet Union, Collapse of Soviets, separation of Yugoslavia to 8 parts, separation of Sudan to two parts, and then there peaceful separations that are


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transformed into a more devastating and destructive process such as with Arab Spring. Especially Turkey, should carefully analyze the risks of micro-nationalism in the region. The issue of micro-nationalism contains various differences, and has conflict potential by characterization, just based on ethnicity. Thus it seems that the concept of micro-nationalism will form the next decade in a risk perspective that stretches from the most advanced countries to third world countries. In the next 10-20 years, we should consider, scenarios which are based on valid data, that a new international system will be formed, comprising of 400-2000 members. I want to attract attention toward countries analyzing risks of their own countries and to take infrastructural precautions.

Regional Integration Gaining Momentum

Mr. Şensoy stressed that the "EU-Model Integration" has gaining momemtum all over the world for some time, and said: "the entire world goes through regional integrations under the leadership of certain countries. The significant thing that the EU process and experience


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taught to the world is integration shouldn't be very tight. Because the present point of the EU is "failure in success". We have to predict the organizations' flexibility, then the EU will grow stronger and international system will be successful through process in the future within a period of 15 years."

Mr. Şensoy highlighted the "unpredictability" parameter and added that the parameter is stand out the 3rd main element in whole world. Mr. Şensoy said "Also there are main challenges that can't be classified neither as West nor East but affects whole world. So we can determine "change of the nature of the state" and "borders of security" correct, by considering these challenges. Because generally we make detailed debates but there may be a lack in positioning as a whole picture. As I remember, the first conclusion declaration clause of the conference last year was; the truth of unsustainability of the production-consumption formula in the world and the present formula is the most serious security threat. When we consider continually production-consumption and the world that has to develop through this formula, both countries GDP size and companies size, family income; unsustainability of the system is obvious.

The second main challenge is "liquidation of middle strata". A strong middle class created by USSR's lever in Europe especially after the 1950's are being dissolved by the Chinese lever in the last decade. It is valid for the entire world. Lots of countries have the same problem

and there is a serious recession especially in the labor market and conditions of the middle strata. This fact appears as one of the main fields of security issues when we consider the countries, they have no middle class, they are being obliged to confront chaos or authoritarian regimes. We need to consider that there is a significant dissolving of the middle class starting from the most advanced countries in the West, however it is stabilized a little by the standards of production and consumption, by China's involvment in the global market. Some services and material can be reached cheaper. Still we should consider that is under risk of sustainability in the mean of resources."

Transition to fourth dimension and Security Infrastructure

TASAM Chairman Mr. Süleyman Şensoy drew attention to the "transition to fourth dimension" and added "Frequently discussed as Industry 4.0, described as dialogue of machines with each other and a process expressing transformation in industry, but should be underlined as it appears in every field of life and transition to fourth dimension should be governed with security parameters and security infrastructure. One of the most important results of transition to fourth dimension is the liquidation of human resource in labor. The aging population in the West has triggered it. Nevertheless it seems like, by a significant extent, human resource in labor will be replaced by autonomous devices and robots in 10-20 years."

Mr. Şensoy said that countries with stability shortcomings should quickly ask themselves the following question: "How should the state infrastructure be strengthened? How should we institutionalize? And how we can adapt quickly to the world, and we need to generate an output from these discussions. How the institutional infrastructure should look is still a crucial question. He said that the concept of "hard-power, soft- power" in the world together with "smart power" has gained importance in recent years. Şensoy stated that no country with instability in the world is destabilizing due to the hard-power concept, on the contrary, it is destabilizing due to soft-power. Therefore, every country needs a soft-power program with a national


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security concept, human power and technological infrastructure. Mr. Şensoy expressed that it is necessary to transfer resources to the soft-power program, starting from America, which has been successfully implemented in practice and in practice by certain countries.

"We are passing from a period in which countries must spare at least half of their resources for security and defense spending. Hard power has to be transformed into a high technological, rapid and mobilized structure. It is obvious that bulky systems and large armies cannot respond sufficiently. The US follows a similar line with its defense and security reforms in recent years. For example; The US made an agreement with 35 countries in Africa in terms of having a maximum of 800 soldiers in each country. The US will show its existence in the region with almost 25,000 soldiers in 35 countries and reaching an agreement with countries. In this context, I think, Turkey's military base agreement with Qatar and resuming the discussions in the same direction, is a critic movement for balance in Gulf region, Turkey's interests and common benefits of ally-fellow countries in the Gulf Region.

Prof. Jaap de Wilde from University of Groningen, Major General Sanad Ali al-Nuaimi from Qatar Armed Forces participated in the Istanbul Security Conference as key lecturers. Governor Mr. Aydın Nezih Doğan, Governor Assoc. Prof. Hasan Canpolat, OECD Turkey Representative Ambassador (R) Uluç Özülker, SSM Founder Consultant Mr. Vahit Erdem, Prof. Ersin Kalaycıoğlu from Sabancı University, Rector of Nişantaşı University Prof. Esra Hatipoğlu and Prof. Hasan Köni from Istanbul Kültür University were moderators of panels. Around the main theme "Change in State Nature: Borders of Security" the Istanbul Security Conference organized panels that were held with the titles of: "Changing Security Concepts: Theoretical and Conceptual Debates", "Human Security: Food, Environment, Health, Life", "Border Security", "Urban Security", "Change in State Nature, Expectation Governance and Security", "Private Security Companies", "Regional Conflicts", "Security Governance: Strategies and Players", "New Security Technologies, Autonomous Weapons: Ethical and Juristic Approaches", "Institutes and Institutional Approaches", "Space/ Aviation, Security and Defense: Defense Governance and Practices", "Energy Security", "Information Security Governance: Cyber Security", "Hybrid Wars: Transformation of Armies".

Security and Defense Reform 2023-2053 Turkey Vision and National Mega Defense Projects Workshops

"Security and Defense Reform 2023-2053 Turkey Vision Workshops" was held on the frame of the case that Turkey's security and defense field needs reforms and revision (especially with the emergence of some concrete problems experienced) within the new power objectives at the Istanbul Security Conference 2016. It was initially developed as "2023 Vision" and later revised as "2053 Vision" works by TASAM and the workshops were completed with the titles: "Security, Defense and Defense Industry 2023-2053 Vision", "Political Communication and Public Diplomacy at Security and Defense (West-East Media and Public Opinion)". Besides the workshops "National Mega Defense Projects" was also held.

Turkish Technic and SSM to Collabrate for the Maintenance of Command Control Aircrafts

The Undersecretariat for Defense Industries and Turkish Technic have signed an agreement to provide Logistic Support Service for the Command Control Aircrafts in the inventory of Air Forces Command for 5 years.

According to the agreement signed between the Turkish Technic and Undersecretariat for Defense Industries, within the scope of the logistic support services to enable the main components of the six Command Control Aircrafts fully functional and operational, the maintenance, repair and overhaul, material supply, renewal and improvement activities will be provided by Turkish Technic. As part of the agreement, the depot level corrective maintenance actions (unplanned), maintenance and repair services of the components of the aircrafts and all systems over the aircrafts that remain aside the facilities and capabilities of the Air Forces Command will also be provided by the Turkish Technic.

Turkish Technic conducting the base maintenance of the Peace Eagle - the Airborne Warning and Control Aircraft remaining at the inventory of the Turkish Air Forces in 2015 seized the opportunity of offering its experiences in the maintenance and equipment logistic support of the Cessna and Gulfstream aircrafts to the Turkish defense industry in line with the requirements of the Turkish Air Forces upon this agreement.

"We are experiencing the pride of launching a logistic support project of a defense system in a platform level by our Undersecretariat" said the Undersecretary for the Defense Industry Prof. İsmail Demir.

"The continuous availability of our Command Control Aircrafts that bear critical significance in the execution of the conscription, administration and command tasks of our Minister of National Defense, our Chief of Defense Staff and Commanders of Forces, and that are currently at the inventory of our Air Forces Command is of great importance. Through both the establishment of an effective and rapid supply chain and the provision of the uninterrupted logistic support for the military aircrafts with the Command Control Aircrafts Logistic Support Project by Turkish Technic which is an extremely experienced and competent domestic company, our aircrafts will be available continuously and many additional acquirements will be achieved. These acquirements will be developed and further matured through similar projects as well and with the effective participation of our domestic industry, great advantages will be provided for the defense and economy of our country," added Prof. Demir.


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The General Manager of Turkish Technic Mr. Ahmet Karaman added, "It is the most importance advantage for us to know that we will be able to make use of this experience and know-how we have for fulfilling the defense requirements of our country and defense industry through this agreement. Our target is to elevate our powerful position in our region by providing innovative and continuously developing solutions to the demands of our defense industry and our Turkish Armed Forces."


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Austal's Growing High Speed Support Vessel Portfolio Offers Multi-Mission Flexibility

Building upon the on-time and on-budget delivery of 2 x 72 metre High Speed Support Vessels (HSSV's) to the Royal Navy of Oman (RNO) in 2016, Austal, the Australian shipbuilder, has announced an expanded HSSV design portfolio that includes a 113 metre variant – on display for the first time at NAVDEX 2017.

Like the US Navy's proven 103 metre Expeditionary Fast Transport (EPF) platform - designed and constructed by Austal and now operating with the US 5th Fleet in the Middle East - the HSSV's exceptional sealift capabilities support a broad range of naval logistics operations and may be customised to add even greater mission flexibility.

The all-aluminium, high speed catamarans feature a shallow draft that enables the fast, effective deployment of hundreds of personnel and equipment, wheeled and tracked vehicles and cargo, with medium-lift or heavy-lift (CH-47 Chinook, V-22 Osprey) aviation support options available; for joint force military operations and other missions, such as search and rescue, humanitarian aid and disaster relief.

The HSSV's unique open architecture and efficient design platform provides further flexibility and the opportunity to integrate multi-mission packages such as mine warfare, hydrographic survey and research and special-forces operations (subject to customer requirements).

Announcing the latest and largest model in Austal's HSSV portfolio, Chief Executive Officer David Singleton commented "The HSSV is an innovative solution that is redefining sealift capability and providing opportunities for even greater, multi-mission flexibility. This latest 113 metre variant demonstrates what is possible with a proven, effective design platform and multiple missions to achieve."

Acknowledged as the global industry leader in high speed support vessels, Austal has delivered 7 x 103 metre EPF's to the US Navy since 2008 and will deliver a further 5 x EPF's to the US Navy, through until 2021.

In addition, Austal has delivered 2 x 72 metre HSSV's to the RNO and designed, built and chartered the 101 metre WestPac Express to the US Marines Corps for the past 15 years – achieving 99% availability over the course of the service charter.

T-50 Begins Flight Operations

The Lockheed Martin T-50A is soaring over Greenville, South Carolina with flight operations now underway. The initial test flight took place Nov. 19.

The T-50A was announced as the official Lockheed Martin/ Korea Aerospace Industries (KAI) offering for the U.S. Air Force's Advanced Pilot Training (APT)/T-X competition in February, and Greenville was announced as the final assembly and checkout facility (FACO).

The T-50A is purpose-built around 5th Generation thinking, and will train the F-22 Raptor and F-35 Lightning II pilots of tomorrow, as well as pilots for frontline 4th Generation aircraft. Building on the proven heritage of the T-50, the T-50A has more than 100,000 flight hours in its repertoire, training more than 1,800 pilots.

Lockheed Martin's accompanying T-50A Ground-Based Training System features innovative technologies that deliver an immersive synchronized ground-based training platform. The T-50A team also brings extensive experience in world-class, worldwide logistics support.

Six Search and Rescue Boats from Damen Shipyards Antalya

Damen SAR 1906 boats to be built in Turkey

Damen has signed a contract with the International Organization for Migration (IOM) in Ankara, Turkey for the supply of six, state-of-the-art Search and Rescue (SAR) vessels for delivery in 2017. The boats are being financed by the European Union and will be operated by the Turkish Coastguard (TURCG), to support the refugees and migrants rescue operations.

The award-winning Damen SAR 1906 is a state-of-the-art SAR craft and is the result of a five-year R&D program initiated by Damen in partnership with the Royal Netherlands Sea Rescue Institution (KNRM), Delft University of Technology and De Vries Lentsch Naval Architects. The SAR 1906 is an all-weather, self-righting vessel with an aluminum hull and a composite wheelhouse. The hull design is based on Damen's Axe Bow technology, adapted for the specific operations of rescue boats. It has a top speed of 33+ knots.

"These boats will be built in Turkey for Turkey," says Damen's Boran Bekbulat. "They will be built at Damen's Turkish Shipyard in Antalya (DSA) where we have all the facilities necessary to fabricate both the composite superstructures and the aluminum hulls. Damen and its SAR 1906 were selected to fulfill the Turkish Coastguard's need for new SAR vessels based on its innovative design and its ability to deliver them within a short time frame. We already had vessels under construction in our production line, which allows us to deliver the first two boats in the first half of 2017. Moreover, our people in Antalya are committed to beat the challenging delivery times, realizing the importance of the SAR boats' mission. Having a good cooperation with all involved parties in the lead of IOM, we are all proud of taking a part in the EU's project for TURCG. The facts that they will be built in a Turkish shipyard – Damen Shipyards Antalya - and that Damen is very much committed to the country were also positive factors."

The vessels will be deployed by Turkish Coast Guard along Turkey's coastline, giving assistance to refugees and migrants fleeing nearby conflict zones. Although relatively compact, the 19-metre SAR 1906 can carry up to 120 survivors.

The delivery schedule calls for the first vessel to be delivered within 12 months of the contract signing, however DSA plans to beat that by delivering the first in May next year and the second the following month. All six will be commissioned by the year-end.

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MBDA Deutschland Successfully Tests New Laser Effector

From 4th to 14th October, MBDA Deutschland successfully conducted tests of a new high-energy laser effector at a military training facility on Germany's North Sea coast, marking the next step in the progression from technology to product. In this series of trials, the system was tested under real environmental conditions for the first time.

The primary purpose of this series of trials was to test the beam guidance and tracking system, with a simulated engagement of airborne targets. In this exercise, the targets were preset, scanned with the laser target illuminator, and an aim point was held on the target for an extended period. The quadcopter, serving as the airborne target, performed a variety of often highly dynamic maneuvers at a variety of ranges.

"These successful tests demonstrated that our laser effector has achieved a high degree of technological maturity. This puts us in a leading position in the development of laser effectors", said Mr. Thomas Gottschild Managing Director of MBDA Deutschland GmbH.

The tests verified the functionality of the overall system and the performance capability of the further improved tracking system. In spite of often adverse weather conditions, including heavy rain and storms, the system was able to successfully track all the targets involved in the trials. During night trials, the demonstrator proved capable of acquiring and tracking targets even under conditions of poor visibility. In other experiments, the laser team simulated a defense against a swarming attack, which required rapid switching between targets approaching from different directions.

The new system demonstrator builds on the experience gained in previous laser activities and proven technologies. It is integrated in a standard container and is equipped with a highly dynamic 360-degree beam guidance system. The MBDA Deutschland solution features high precision, scalability of effect and low logistics costs. The sophisticated mirror optics are capable of harnessing higher laser power levels than those available today. The laser effector thus has enormous future potential.

T-X Completes first Flight, Validates Design for Air Force Requirements

Boeing and partner SAAB completed the first flight of their all-new T-X aircraft, which is designed specifically for the U.S. Air Force's training requirements.

During the 55-minute flight, lead T-X Test Pilot Steven Schmidt and Chief Pilot for Air Force Programs Dan Draeger, who was in the seat behind Schmidt, validated key aspects of the single-engine jet and demonstrated the performance of the low-risk design.

"I've been a part of this team since the beginning, and it was really exciting to be the first to train and fly," Schmidt said. "The aircraft met all expectations. It's well designed and offers superior handling characteristics. The cockpit is intuitive, spacious and adjustable, so everything is within easy reach."

"It was a smooth flight and a successful test mission," Draeger added. "I had a great all-around view throughout the flight from the instructor's seat, which is critical during training."

Both pilots trained for the flight using the complete Boeing T-X system, which includes ground-based training and simulation.

With one engine, twin tails, stadium seating and an advanced cockpit with embedded training, the Boeing T-X is more affordable and flexible than older, existing aircraft.

Boeing and Saab revealed their first two T-X aircraft in September. The second is currently in ground testing and expected to fly in early 2017.

T-X will replace the Air Force's aging T-38 aircraft. Initial operating capability is planned for 2024.

Keysight Technologies Introduces Cost-Effective Reference Solution for Realistic Multi-Emitter Signal Simulation

Calibrated Hardware, Software Solution for Receiver Test

Keysight Technologies, Inc. (NYSE: KEYS) announced a cost-effective reference solution for creating multi-emitter signal environments used for electronic warfare (EW) simulation and test. The Multi-Emitter Scenario Generator Reference Solution, another in a series of Keysight Reference Solutions, is based on multiple coherentN5193A UXG agile signal generators. With the industry-leading UXGs and N7660B Signal Studio software for multi-emitter scenario generation, this reference solution enables engineers to quickly and accurately simulate realistic and dynamic radar threats at a fraction of the cost of similar systems.

Creating realistic multi-emitter signal environments or scenarios is a complex task. Multiple pulse trains must be correctly interleaved and pulse conditions must be identified, counted and prioritized. With hardware configurations that easily fit on an engineer's desk, the reference solution coherently changes frequencies and settles amplitude in 180 ns – allowing thousands of threat-emitters to be simulated with millions of pulses per second.

Angle of Arrival (AoA) and kinematics simulations within the multi-emitter signal environment add even more complexity. Kinematics provides dynamic power levels, Doppler frequencies and pulse amplitudes, phase and time offsets for AoA simulation. In order to achieve AoA simulation, the reference solution provides a tailored calibration system capable of aligning the different UXGs in time, amplitude and phase. The calibration system is comprised of calibration software, N7660B Signal Studio software and leading-edge Keysight hardware: the PNA or PNA-X vector network analyzers for amplitude and phase calibration; the Infiniium series oscilloscopes for time, amplitude and phase calibration; and the U2000 series USB power sensors for lower-cost amplitude-only calibration.

"The Multi-Emitter Scenario Generator Reference Solution delivers realistic radar threat-emitter signal generation support at multiple stages in the development cycle," said Mario Narduzzi, marketing manager of Keysight's Communications Measurement Solutions division. "Engineers working in reprogramming labs or developing new platforms will now be able to procure and implement an EW test system in two months rather than the typical two-year procurement cycle."

Engineers can now easily configure radar parameters such as frequency, amplitude, antenna scan, pulse repetition interval, pulse width and modulation-on-pulse, and then interleave multiple radar threat-emitters with Signal Studio's graphical user interface. The EW engineer can combine threat-emitters into scenarios and use dropped-pulse reports to optimize pulse density and reduce pulse collisions by changing emitter start times, priorities and pulse-repetition intervals. Additionally, AoA and kinematics parameters

like changing time offsets, power levels, signal phases and Doppler frequencies between ports can directly be controlled and configured with Signal Studio. The user can visualize all of this with the new time domain analysis feature that shows the antenna scan patterns and motion of any emitters and their associated platforms.

Multi-emitter scenarios, created in Signal Studio, may be downloaded directly to one or more UXGs as pulse descriptor word (PDW) lists. In addition, PDWs can be computed and then streamed to the UXGs via LAN for virtually unlimited-length scenarios. The high-performance UXG provides phase-coherent frequency and amplitude transitions as fast as 180 ns, timing resolution of 10 ps, and spurious-free dynamic range of -70 dBc. The UXG can also be used as a dependable local oscillator or a scalable threat simulator. Its capabilities enable aerospace/defense engineers to generate increasingly complex simulations that get closer to reality for increased confidence in ECM system performance.

About Keysight Technologies

On Sept. 19, 2013, Agilent Technologies announced plans to separate into two publicly

traded companies through a tax-free spinoff of its electronic measurement business. The new company, Keysight Technologies, began operating as a wholly owned subsidiary of Agilent on Aug. 1, 2014 with a full separation anticipated was completed in November 2014. Keysight is expected to trade on the NYSE under the symbol KEYS.

Keysight is a global electronic measurement technology and market leader helping to transform its customers' measurement experience through innovation in wireless, modular, and software solutions. Keysight provides electronic measurement instruments and systems and related software, software design tools and services used in the design, development, manufacture, installation, deployment and operation of electronic equipment. Information about Keysight is available at www.keysight.com.

About Spark Ölçüm Teknolojileri A.Ş

Building on their 12-year international experience and knowledge, Spark Group companies, which are completely Turkish capital companies, have been operating as the "Exclusive Main Distributor" of Keysight Technologies (formerly Agilent Technologies) brand test and measurement instruments and systems in Turkey, as a market leader in both sales and post-sales operations.

Spark Ölçüm Teknolojileri and Spark Measurement Technologies were established on September 15, 2001. Spark Measurement Technologies settled in the USA, serves the customers who want delivery before customs in Turkey. More info please visit our website www.sparkmeasure.com

Spark Kalibrasyon Hizmetleri, the third company of Spark Group, provides post-sales maintenance, repair and calibration support services for products with solutions offered by Spark Ölçüm Teknolojileri A.Ş.

DroneShield Launches a Drone Countermeasure Tactical Portable Product

DroneShield complements its drone detection products with the launch of the DroneGun jammer.

With Drone-related threats rapidly increasing and becoming progressively more common in areas such as terrorism deployments and prison contraband smuggling, DroneShield is pleased to announce their latest product offering, the DroneGun rifle-style portable jammer which works in conjunction with its drone detection technology to locate and neutralize potential threats by air.

DroneShield's DroneGun jammer is a "plug and play" rifle-style countermeasure that can be operated by one person against a wide range of drone models. The DroneGun jammer generally causes a drone to either perform a vertical controlled landing or return to its starting point, assisting an investigation to identify the pilot. DroneGun also causes the drone to immediately cease any video transmission to its pilot. The DroneGun jammer leaves the drone intact for forensic investigations.

"In the recent two months alone, various serious incidents have already been reported, such as the ISIS drone rigged with explosives causing fatalities and injuries in war zones. Drone-related threats are a serious issue and drones are getting into the wrong hands, putting public safety and privacy at risk as well as threatening national security," says Peter James, Chairman of DroneShield. "DroneShield's DroneGun jammer providers a sophisticated drone response technology that enables prisons, airports, defense, critical infrastructure, diplomatic, VIP, and commercial arenas to monitor their airspace and respond to any potential threats."

With drone sales expected to double in the next four years and a growing number of drone incidents occurring daily, DroneShield's launch of the DroneGun jammer is poised to respond to the unethical use of consumer drones and the resulting need for effective countermeasures to drone intrusions. DroneShield aims to help public and private sector customers take proactive measures against airborne threats to safety, security, and privacy.

Advancing Maritime Domain Awareness with ATAS, Leonardo Presents Next-Generation Systems at EuroNaval 2016 Exhibition

Meeting a broad variety of requirements for safety and security, Leonardo's new systems demonstrated with a 'virtual tour' onboard the bridge of a multi-role ship.

ATAS is the latest product of Leonardo's 150 years of experience in underwater weapons systems. The company's products have been selected, and are in operation, in over 30 countries.

Euronaval, the major naval and maritime defense exhibition in Europe, took place 17 - 21 October 2016, in Paris, France. The 25th International Naval Defense & Maritime Exhibition and Conference was organized under the joint patronage of the French Ministry of Defense and the French Navy.

At this year's Euronaval exhibition, Leonardo presented its innovative next-generation "naval cockpit", which enables the integrated management of onboard operations with a vessel's combat system. The new Combat Management System features a modular and reconfigurable open architecture that can be customized depending on the demands of a given mission. The exhibition provided visitors with a 'virtual tour' onboard the bridge of a multi-role ship. At the Leonardo exhibition stand, visitors were able to 'virtually' experience new naval capabilities including a new multi-functional, fixed-face dual-band radar, friend-or-foe detection and infrared sensors for acquiring and tracking targets, integrated communications systems and satellite radio. The latest developments included a "naval cockpit" for integrated ship management and ATAS (Active Towed Array Sonar) the smallest and most powerful active and passive underwater sonar on the market.

Developed by Leonardo as part of the Italian fleet modernization program, the company is also responsible for supplying and integrating all of the onboard systems for the new naval units, including the underwater combat systems. ATAS was designed to equip the Italian Navy's (Legge Navale) new multi-purpose off-shore patrol vessels (PPAs) and can be used in combat operations at a variety of depths to over 300m. The sensor is dramatically smaller and lighter than other active sonars with a similar range, measuring just one meter long and weighing only eight tons.

ATAS offers high performance detection that overcomes the first acoustic convergence zone, in the midst of the ocean, which in some seasons, is up to 40km in the Atlantic Ocean.

The new sensor uses low and medium sonar frequencies, providing simultaneous, panoramic surveillance in active and passive modes. This enables ATAS to acquire and record targetcharacteristics data. The sensor can also automatically extract the acoustic characteristics oftargets and, by comparing this data with its internal database, quickly identify the threat.

At the exhibition, Mr. Lorenzo Mariani, Head of Land & Naval Defense Electronics - Leonardo, at a press conference said "We decided to offer a full package, low risk and heavily based on what we had already developed for FREMM, with some additional concepts that were able to guarantee to the navy additional performance." As a key player in the sector, Leonardo can provide comprehensive solutions for naval mission management which integrates many kinds of sensors including radar, electronic systems, weapons, helicopters and manned and unmanned aircraft. They are capable of meeting requirements of the world's most advanced naval forces, as demonstrated with Leonardo's provision and integration of all onboard systems for Italy's new fleet of naval vessels and the development of combat systems.

Also on display were the large-caliber 127/64 LightWeight (LW) naval gun, the world's most advanced in its category, and the over-bridge version of the 76/62 cannon equipped with the Strales

kit, able to fire guided DART (Driven Ammunition Reduced Time of Flight) munitions as well as the latest Vulcano ammunition. On-deck, visitors were given the opportunity to see the AW101 helicopter, a multi-role military aircraft that has the ability to perform the full range of naval missions including anti-ship, anti-submarine, search and rescue, radar surveillance, utility and amphibious support.

Mr. Gianpiero Lorandi, Head of Leonardo's Defense Systems Division, at the exhibition press conference stated "We are investing in guided ammunition. We believe that we are the only ones today with a value proposition, and we will continue to stay in front of everyone in ammunition worldwide."

Through its divisions, Leonardo provides aircraft for maritime patrol (Maritime Patrol Aircraft – MPA), helicopters for surveillance and sea rescue (Search And Rescue – SAR), capabilities to combat surface threats, submarines, unmanned surface vessels and underwater robots, radar and electro-optical systems to assist with the control of coasts and borders, coastal site defense systems, maritime surveillance and scenario analysis systems, command and control systems, and more. Leonardo also provides satellite systems and services for Earth observation and geo-location, both important for marine environmental monitoring and maritime security. Leonardo also works with Fincantieri as part of the 'Orizzonte Sistemi Navali' joint venture, in particular for the FREMM program, and more in general in the naval military sector on the domestic and international market.

As the control of sea and resources is critical, and with the dynamics of local power, ships that can patrol the sea effectively are increasingly becoming a key capability. Mr. Lorandi, in the press conference question and answer session said "We can offer a full combat system but also a surveillance capability that can be integrated into a naval formation, starting from the manned rotary and fixed wing capabilities but also patrol vessels with ISTAR onboard aircrafts or helicopters with a full and complete avionics suite both for control of the aircraft, both for the mission suite but also the weapons systems, as well as the full domain awareness with radars, surface radars and land base command and control and communication which allows the full control of the operation in the naval domain, not only for military operations but more broadly for security and control of key resources in the area. This is an important area, with a variety of threats, and we can provide unique solutions."

The new IFF – currently identified as IFF CA (Conformal Array) – is the evolution of the 6 faces phased array IFF installed on board FREMM frigates. Gun Fire Control System NA-30S MK 2

NA-30S Mk 2 weapon control system is based on new generation dual band tracking radar (X/Ka band) solid state and high performance EO sensor suite (HD TV, IR and high prf LRF). The two bands X and Ka together with the EO sensors are combined in order to optimize target tracking. NA-30S MK 2 provides a superior defense against sea-skimming missiles.

The Ka band, with its very narrow beam-width, is optimally suited for measuring targets at low-elevation. The X band allows the system to perform target tracking at longer range in all weather conditions.

DSS – IRTS DSS-IRST is an automatic Search & Track full wide covered distribution system. The system uses in its configuration distributed sensors/components installed along the platform that allow an activity of full 360° coverage. DSS-IRST incorporates Leonardo's latest high performance MWIR infrared staring focal plane array sensor technology that allows an automatic detection of traces, calculating distance actively or passively through triangulation and the possibility of video tracking of the tracks revealed.

Mr. Mariani said, in terms of technology, "We want to be very consistent and vertical sometimes, where there is a strategic capability." As a result of the company's international experience, Leonardo is able to meet a broad variety of requirements for maritime domain awareness for safety and security.

In discussing the Naval Software Defined Radio, at an exhibition press conference, Mr. Lorenzo Mariani shared, "In communications, in the past years we have developed full software radio capability for the Italian Army; this was crucial in order to provide the solider the tank and the battle space with simple radios, with 10 wave forms providing all of the capabilities, and now we are transferring this capability to the naval domain, so there will be one radio with many wave points not many radios with one capability."

The SWave Common Core Radio (CCR) is a new generation, multi-band, multi-role, multifunction Transceiver extending the tactical Leonardo SDR SWave family radios for installation in surface vessels, in naval communication domain, and for fixed/infrastructural use.

Compliant with the US JTNC (former JTRS) Software Communications Architecture (SCA) and the extensions of EU ESSOR Consortium, the unit supports wideband IP data or voice services by providing interoperability with naval and fielded radios and C4ISR systems. CCR is a low-power radio working in the range 1.5-2000 MHz. The unit is housed in a light alloy 3U rack-mount drawer suitable for standard EIA 19" racks, it is wide half of 19" rack. The unit is the common component for the whole set of communication requirements in the Naval and infrastructural domains in the HF, VHF and UHF frequency ranges. The unit is remotely operated with any kind of terminal via Web interface tool or via SNMP without the need for the operators to physically access the radio itself.

Leonardo is a global company in the high technology sector, and is one of the key actors in

Aerospace, Defense and Security worldwide, with more than 4,300 employees in Italy & UK.

Divisions: Helicopters Aircraft, Aerostructures, Airborne & Space Systems, Land & Naval Defense, Electronics, Defense Systems, Security & Information Systems

SUBSIDIARIES AND JOINT VENTURES DRS Technologies (100% Leonardo) Telespazio (67% Leonardo and 33% Thales) Thales Alenia Space (67% Thales and 33% Leonardo) MBDA (37.5% BAE Systems, 37.5% Airbus Group, 25% Leonardo) ATR (50% Leonardo and 50% Airbus Group)

Chilean Air Force to Acquire Six S-70i Black Hawk Helicopters

Sikorsky has successfully concluded contract negotiations with the Chilean Air Force (Fuerza Aérea de Chile) for six S-70 Black Hawk helicopters for the service's medium-lift helicopter recapitalization program.

When delivered in 2018, the new helicopters will fulfill Chile's requirement to perform both military and humanitarian missions, such as troop transport, search and rescue, and disaster relief.

"We are very pleased that the Fuerza Aérea de Chile has chosen the multirole Black Hawk helicopter following an intensive review of competing platforms," said Adam Schierholz, Sikorsky regional executive for Latin America. "The Black Hawk platform will perform for Chile as a highly reliable and safe utility helicopter that can be quickly configured for a range of missions."

The program includes the acquisition of a logistical support package that will cover spare parts, pilots and maintenance specialists training, on-site technical assistance and ground support equipment.

Built to a robust military design, the Black Hawk family of helicopters is renowned for its reliability in harsh weather and under tough operational conditions, including at high altitudes and in hot temperatures. For rapid and distant deployment, Black Hawk helicopters can be transported in the C-130 Hercules aircraft that are also operated by the Fuerza Aérea de Chile.

The Fuerza Aérea de Chile announced its decision in August to procure the six S-70i helicopters from Sikorsky as a direct commercial sale. The service has operated one S-70A Black Hawk aircraft since 1998.

Lockheed Martin Awarded $1.2 Billion to Modernize Republic of Korea F-16s

Lockheed Martin was awarded a $1.2 billion contract to upgrade 134 F-16 aircraft for the Republic of Korea Air Force (ROKAF).

The upgrades are based on the advanced F-16V configuration. Among the enhancements are an Active Electronically Scanned Array (AESA) radar, a modern commercial off-the-shelf (COTS)-based avionics subsystem, a large-format, high-resolution center pedestal display and a high-volume and high-speed data bus.

"We truly appreciate the trust and confidence the Republic of Korea has placed in us with this contract," said Susan Ouzts, vice president of Lockheed Martin's F-16 program. "These upgrades are a critical piece of South Korea's national defense and highlight Lockheed Martin's commitment to the full lifecycle of the F-16, from production to through-life sustainment."

The contract for the ROKAF upgrade is a foreign military sales contract issued by the U.S. Air Force. As Original Equipment Manufacturer (OEM) and design authority of the F-16, Lockheed Martin is uniquely qualified to design, engineer, develop, integrate and sustain a complete F-16 weapons system solution tailored to customer requirements.

General Atomics Predator C Avenger ER Makes First Flight

General Atomics Aeronautical Systems has announced the successful first flight of its new Avenger Extended Range (ER) aircraft, an extended range version of its multi-mission jet-powered Predator C Avenger has accumulated over 13,000 flight hours to date. The flight occurred on October 27th at the company's Gray Butte Flight Operations Facility in Palmdale, California.

"The first flight of Avenger ER is a significant achievement in the evolution of Predator C's proven performance and multi-mission capability," said Linden Blue, CEO, GA-ASI. "The increased endurance and high payload capacity will deliver tremendous capability to our customers, who need persistent situational awareness and strike mission affordability."

With an increased wingspan of 76 feet and 2,200 pounds of additional fuel, Avenger ER extends the legacy Avenger's already impressive endurance from 15 hours to 20 hours.

The RPA provides an optimal balance of long loiter Intelligence, Surveillance, and Reconnaissance (ISR) and precision-strike capability, supporting a wide array of sensors and weapons payloads to perform ISR and ground support missions. Like the legacy Avenger, Avenger ER features avionics based upon the combat-proven Predator B/MQ-9 Reaper has a 44-foot long fuselage, 3,000-pound payload bay, and is capable of flying at over 400 KTAS. Avenger ER, along with its predecessor, is designed to carry payloads such as the all-weather GA-ASI Lynx Multi-mode Radar, the MS-177 Electro-optical/Infrared (EO/IR) sensor, and the 2,000-pound Joint Direct Attack Munition (JDAM).

GA-ASI developed Avenger on Internal Research and Development (IRAD) funds with the intent of making a RPA that has a quick-response, armed reconnaissance capability. First flown in April 2009, the aircraft's fuselage was extended by four feet in 2012 to accommodate larger payloads and fuel. Avenger received a FAA-issued Experimental Certificate (EC) in 2016, enabling it to operate in the U.S. National Airspace System (NAS).

Navantia and Indra to Modernize an Indonesian Navy Corvette for $18 Million

The two companies will combine their leading naval solutions to renovate the ship's combat system
The Indonesian shipbuilder PT PAL has entrusted the work to a consortium comprised of Indra and Navantia, which paves the way to fresh business opportunities going forward

The consortium made up of Indra and Navantia has been awarded a contract to update the combat system of the Indonesian navy's KRI-362 Malahayati corvette, in a contract worth 18 million dollars, or some 15.7 million euros, with the shipbuilder PT PAL.

The two companies will partner to equip the Indonesian Navy with the latest electronic technology used by the Spanish Navy.

The project comes as part of the mid-life modernization (MLM) program for this Fatahillah-class corvette, which was entrusted to the Military shipbuilder PT PAL.

Modernization of the combat system includes renovation of sensors and fire control systems, integrating these via a modern combat management system.

The contract represents fresh deployment of some of the most advanced systems offered by the companies to the naval sector, including Indra's ESM RIGEL electronic defense and DORNA fire control platforms, as well as Navantia's combat management system, thus strengthening their standing in the international market.

The partnership on this initiative with Indonesia's leading military shipbuilder will also pave the way to new prospects going forward.

As part of the project Indra and Navantia have established a business model that sees the two companies join forces in their key specialist areas.

The companies are also partnering on a number of programs to develop the Spanish Navy's future F110 frigate, as well as other opportunities in the export market.

Airbus Defense and Space Delivers first A400M to Spain

Aircraft leaves final assembly line at Seville to serve at Zaragoza base

The Spanish Air Force has received delivery of its first Airbus A400M new generation airlifter – the most advanced aircraft to have been produced in Spain - one which will transform the nation's air mobility fleet.

The contractual handover of the first of 27 aircraft that it has ordered makes Spain the sixth nation to put the A400M into service.

Representatives of the Spanish Air Force and Ministry of Defense formally accepted the aircraft, known as MSN44, from Airbus Defense and Space in a brief ceremony at the A400M final assembly line (FAL) in Seville.

Airbus Defense and Space Head of Military Aircraft, Mr.Fernando Alonso, said: "Today is truly a special day for all of us who have been involved with the A400M program over the years – but particularly for the Seville workforce that has worked so hard to make the aircraft a reality. Every delivery to every customer is of huge importance to us, but being able to hand over the first aircraft to Spain from our final assembly line in Seville is a source of particular pride. I would like to thank all our employees, as well as OCCAR and our Spanish customer for achieving this milestone."

In Spanish service, the A400M will replace the ageing C-130 aircraft type, carrying about twice the load over the same distance, or the same load twice as far. In addition it can serve as a tactical air-to-air tanker for other transport aircraft, including other A400Ms.

Uniquely, it is able both to cruise at jet-like speeds and altitudes over intercontinental ranges, due to its four extremely powerful engines and advanced aerodynamic design, as well as to operate repeatedly from short and unprepared airstrips close to the scene of military action or humanitarian crisis.

Under an agreement signed in September, 14 aircraft will be delivered at a steady pace between now and 2022, and the remaining 13 are scheduled for delivery from 2025 onwards.

The Spanish A400M fleet will be based at Zaragoza in North East Spain and will represent the heavy lift element of a transport force that includes the medium C295 and CN235, and light C212 aircraft – all produced by Airbus Defense and Space. MSN44 will fly to Zaragoza in the coming days.

Altogether more than 1600 employees from Airbus Defense and Space work in Spain for the A400M program, including 1100 working directly at the Seville FAL and the nearby Tablada Factory. To date, eight nations have ordered 174 aircraft, of which 34 have now been delivered.

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www.nurolmakina.com.tr
info@nurolmakina.com.tr
Ankara Organize Sanayi Bölgesi
Avrupa Hun Caddesi No:6
Sincan - ANKARA / TURKEY
Phone: +90 [312] 267 05 30 • Fax: +90 [312] 267 01 55

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