AN INTERVIEW WITH MR. SERDAR DEMİREL – DEPUTY UNDERSECRETARY FOR DEFENSE INDUSTRIES

DEFENCE TURKEY

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Yayın Türü
Süreli

TF-X Program Gaining Momentum

Ayşe Evers
Publisher & Editor in Chief

The final decision on selecting a partner was reached within the context of the TF-X program and the contract was signed with BAE Systems.

The project setup was built on the philosophy of developing the TF-X aircraft by utilizing BAE's existing technologies (Background IP) as well and through the collaborative activities of BAE and Turkish engineers based on the domestic joint responsibilities principle. In accordance with the project model, a design organization will be established within TAI's premises and BAE will conduct the leadership of certain design groups and TAI will be the leader of some other groups.

G2G level negotiations between Turkey and the UK played an important role. In this way, the establishment of cooperation at a strategic level through the Exchange of Letters method between both countries at the Defense Ministry level was planned in order to facilitate project activities throughout the project; priorities such as obtaining export licenses and accelerating technology sharing and the obtaining of export licenses. Thus, the risks that may arise as part of the project will be minimized with the support provided by the British governmental authorities and at the same time the infrastructure and facilities.

Engine selection is an issue for the next phase. It is stated that regarding the selection of the off-the-shelf engines and indigenous engines, Turkey requires a hybrid solution and many existing off-the-shelf products are not fully capable of ensuring the performance that Turkey desires. It is mentioned that the solution will be jointly developed by Turkish industry and the engine company then it will be submitted to the Undersecretariat for Defense Industries for approval.

Within the concept of the TF-X program a significant number of human resources will be required for the following phases. In this respect, with the launch of the project's design stage, numerous engineers from BAE Systems who are experienced in the design of fighter jets will be coming to Ankara and collaborating with the experienced engineers at TAI. Within the framework of our cooperation with BAE Systems, providing "on the job training" to Turkish engineers is planned as well. In this context, with the launch of the project, numerous TAI engineers will be simultaneously assigned at the facilities of BAE Systems (without being limited only to T-FX) for on the job training purposes and will be performing tasks and gaining experience there.

Within the scope of this project, studies are being carried out on determining which requirements would be covered by the available sub systems or off-the-shelf commercial products by projections on technologies which are to be utilized in the 2030s. The in-depth analysis will be made within this context regarding which technologies should be adopted indigenously as Turkey's main objective is to put forth an Indigenous Fighter Jet designed fully in accordance with the requirements of the Turkish Air Forces.

Enjoy this issue..

Resolute Commitment with a Common Purpose - Promoting Turkey's National Interest with Long Term and Strategic Defense Industry Plans

In this exclusive interview, Deputy Undersecretary for Defense Industries Mr. Serdar Demirel shares in depth insight into the impressive and growing list of Defense Industry products coming out of Turkey.

Defence Turkey: Mr. Serdar Demirel first of all we would like to thank you for your time. There have been some changes in the responsibilities and organizational structure of the Deputy Undersecretary for Defense Industries in the recent period. Within this context, could you please inform us on the new structure?

Due to the accelerated work pace and increased responsibilities of the Undersecretariat for Defense Industries within the previous year, making several changes became inevitable. The fifth Deputy Undersecretary was appointed last summer in order to balance the workload between the Deputy Undersecretaries. Within this context, the Land Platforms Department and Department of Helicopters, where I was assigned previously as a Deputy Undersecretary separated and Deputy Undersecretariat incorporate in the Department of Unmanned and Smart Systems and Department of Logistics. In this way, our Deputy Undersecretariat now collaborates mostly with the Air and Naval Forces and Coast Guard Commands and the Departments of Land Platforms and Helicopters which used to generally cooperate with the Land Forces and Gendarmerie General Command are now under the auspices of another Deputy Undersecretariat.

Defence Turkey: The Departments of Fixed-Wing Platforms, Naval Platforms, and Unmanned-Smart Systems and Logistics are executing critical system and platform projects under your responsibility. In this regard, could you please evaluate the latest status of the product-platform deliveries, programs in the serial production stage and the development programs conducted in 2016?

Within the scope of the Erciyes Project, in which the avionic systems of the C-130 aircrafts in the Air Forces Command's inventory were modernized, the tests on one prototype were successfully completed and its delivery was accomplished in December 2016. Upon the completion of the prototype stage, the serial modernization activities of the aircrafts were initiated. Moreover, the final deliveries of the Peace

Eagle aircrafts (the initial deliveries of which were made before 2016) were accomplished within 2016.

Within the scope of the auxiliary ships program executed by our Undersecretariat in line with the requirement of the Naval Forces Command and as part of the Submarine Rescue Mother Ship Project (MOSHIP), the test activities were completed and as you know the vessel's acceptance was made on 28 January 2017 with a commissioning under the name 'TCG Alemdar'.

In addition, within 2016, as part of the New Type Patrol Boat Project, the Final Delivery of the 16th Boat (the last boat) was completed. Within the scope of the 25–Tons Coast Guard Boat Project, the initial acceptance of the 17th Boat (last boat) was accomplished and the Final Acceptance of the 13th – 16th Boats were accomplished. Finally, within the framework of the SAR 33 Boat's Modernization Project, the Final Acceptance of all boats (five boats in total) were completed.

The Unmanned Air Vehicle systems developed as part of the Bayraktar TB2 Tactical Unmanned Air Vehicle Development Project were initially delivered to the Land Forces Command and in 2016 they were delivered to the Security General Directorate.

The acceptance tests of the unmanned air vehicle system in operative class ANKA developed within the scope of the Indigenous Turkish Unmanned Air Vehicle (MALE-Class) Development Project was also completed successfully.

The contracts regarding the Command Control Aircrafts Logistical Support Project, and Electronic Warfare, Test and Training Field (EHTES) Logistical Support Project were signed by the Department of Logistics under the auspices of our Deputy Undersecretariat. Presently the activities regarding the Long Horizon Logistical Support Project, Coast Guard Boats' Stabilized Machine Gun Platform (STAMP) Systems Logistical Support Project, Project for Acquiring Depot Level Maintenance Capability for the PT6 Series Engines, Project for Acquiring the Depot Level Maintenance Capability for the Airborne Early Warning and Control Aircraft, Kornet-E Anti-tank Weapon System Logistical Support Project, 2nd Lot Tactical UAV (MALE) Direct Procurement Program–GÖZCÜ Logistical Support Project, New Generation Basic Trainer Aircraft Hürkuş-B Logistical Support Project, Bora Logistical Support Project, Emergency Manned Reconnaissance Aircraft Logistical Support Project are being conducted.

As the expert in the areas of effective life cycle and logistics management, our Department of Logistics is providing the necessary support to the Turkish Main Battle Tank (Altay) Project, Indigenous Helicopter Development Project, KARAOK Short Range man portable Anti-Tank Missile Project, Anti-Tank Vehicle (STA) Project, AKYA Project phase-2 and Early Warning and Radar Systems Phase-1 Projects.

Defence Turkey: Which system and product deliveries are planned for 2017 by the

Departments of Fixed-Wing, Naval Platforms, Smart and Unmanned Systems operating under your responsibility? Also, in which areas will new procurements and new projects be initiated?

We plan to realize 2 deliveries in 2017 as part of the A400M program. The activities for the acceptance tests of the first delivery are about to be launched. Moreover, within the scope of the Erciyes Project the serial modernization of the aircrafts and their delivery to the Air Forces Command are planned to be initiated.

On the other hand, I am delighted to announce to Defence Turkey readers that the first armed test flights and launching test of the prototype of Hürkuş-C, which is the Hürkuş Training Aircraft's armed close air support configuration, will be initiated in April.

As you may recall from previous years, Baykar TB2 Unmanned Air Vehicle's entry into the inventory, in pursuit of its armed version was rapidly designed, integrated and put into service. Based on this, I would like to underline that the design of new weapon systems and their entry into inventory require great effort and patience. Then again, following the launch of the first product and the acquisition of the capability, the derived products can be rapidly designed and manufactured. In this context, I expect that we will see many new and improved products based on the capabilities acquired through the Altay Main Battle Tank and Indigenous Helicopter programs. In respect to MILGEM Corvette, quite some time has passed since the first delivery but with the involvement of the private shipyards in the process I am confident that soon we will be able to announce achievements in export activities. However, it is an undeniable fact that the experience gained in maritime fields are utilized to designing its own frigate.

The deliveries of 2 vessels as part of the Landing Ship Tank (LST) - Amphibious Ship Project, the first of the 2 ships as part of the Logistical Support Ship Project are expected to be delivered to the Naval Forces Command in 2017. As part of the 25-Ton Coast Guard Boat Project, the Final Acceptance of the 17th Boat (the last one) is planned to be completed in March.

Within the scope of the Rescue and Towing Vessel Project (KURYED) being carried out for the Naval Forces Command and the Seismic Research Vessel Project for fulfilling the requirements of the General Directorate of Mineral Research and Exploration, the Harbor and Sea Acceptance Tests of the vessels are ongoing. In this context, delivery of the 2 vessels as part of KURYED and Seismic Research Vessel to the Naval Forces are expected to be commissioned in the first half of 2017. Additionally, we aim to finalize the evaluations of the bidding regarding the Research Vessel and Fleet Replenishment Ship Project in 2017 and submit them to the Defense Industry Executive Committee. The deliveries in respect to the Bayraktar TB2 Tactical UAV (Pist) Development Project will proceed throughout the year as well.

Within the scope of the Mini UAV Project, which is one of our first novel unmanned air vehicle systems, previously entered into the inventory of the Land Forces Command and new deliveries are planned to be accomplished within 2017.

Within the scope of the ANKA serial production projects, based on the capabilities gained through the Indigenous Turkish Unmanned Air Vehicle (MALE) Development Project, the air vehicles equipped with various payloads and the related ground systems will be delivered within 2017.

Development activities and deliveries are progressing for diversified requirements of the Turkish Armed Forces for the smaller class of UAV programs.

Defence Turkey: You always mention that life cycle costs and management should be more effectively implemented in the defense systems programs, at the same time claiming that the Performance Based Logistics applications should become more widespread. To this end, within the preparatory stage, which type of a model is in discussion to guide, support and encourage the sector in line with the Logistics Road Map? Could you please share the current status with us; its pros and cons as well as the ideal structure?

As the Undersecretariat, our main approach regarding logistics is maintaining the support of the weapon system in the inventory through effective and optimum cost and integrating this into the design of the weapon system, thus enabling the user's focus on its primary tasks. To this end, we attach great importance to the identification of the logistical supportability criteria even from the design stage in order to provide input to the design. As commonly known, the principle of Performance Based Logistics (PDL) is to enhance the reliability of the system by committing to the user a certain level of combat readiness of the weapon system. At this very point, we are exerting efforts toward the development of the 'indigenous product support strategies' which are capable of utilizing the manufacturer's knowledge of the system, comprising of the PDL approach as well as the existing facilities and capabilities in the military factories and our shipyards. Surely, our Undersecretariat's role here mostly consists of the inclusion

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of the system's supportability to its design and the development of contract models in which the system designers / manufacturers will also be in charge of the logistical support of the system.

While developing product support strategies, we aim to build a close coordination between the industry, procurement authority and end users, and set up models that analyze feedback from application in the field, breakdown or error frequencies and any other types of data analyses within this process.

Consequently, our Undersecretariat works in close collaboration with both the industry and end users as well as the research institutions and is continuing preparations for the Life Cycle Management Conference which is planned to be held this May and which all the related shareholders will attend. The most important output of this Conference is to establish a Life Cycle Management Platform in which all shareholders will participate and execute workshops in certain areas and thus create a working environment for the activities of this platform and joint actions of the shareholders in line with the determined targets. I believe that the participation in this conference and platform will be useful in respect to reaching a better understanding of our Undersecretariat's logistical support approach and for the exchange of ideas with the shareholders directly related with the subject. The essential outcome of the Conference and the Platform is the adoption of decisions concerning the implementation and their realization by all relevant shareholders, our Undersecretariat being first and foremost.

Defence Turkey: The Performance Based Logistics issue has been on the agenda of the Undersecretariat for a long while and we know it is being implemented in certain successful pilot studies under your guidance. Taking into account worldwide best practices, with the increasing popularity of this model, which contributions will it provide to the Turkish Defense Industry together with the sub-industry, SMEs, Main Contractors and all supply chains?

Performance Based Logistics (PDL) can be defined as the use of


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'original product support strategies' and we are striving to utilize a logistical support approach designed to combine the capacities of the public and private sectors allowing all the stakeholders to focus on their own capabilities to achieve performance targets identified in line with a long term product support strategy encompassing all phases of the project life cycle.

The main objective of the Logistical Support Models, also bearing in mind today's operations, is to provide the availability of the products and systems in a cost-effective manner and in line with the performance criteria. PDL's main objective is to maintain readiness.

Undoubtedly, our companies are expected to establish effective supply chains, and while developing product support strategies, it is necessary to establish close coordination with the industry, the requirements of authorities and the end users, analyzing data such as the frequency of failures as well as other valuable feedback and information from the field. Within this process will focus on activities for developing new technology and new capabilities.

Defense companies in United States, UK and similar countries don't position themselves as merely system manufacturers, these corporations are eager to be involved in the logistical support service required by the system as well.

Amongst our primary goals within the scope of the PDL approach and other effective Logistical Support Models, either implemented or planned to be implemented, by our Undersecretariat are as follows:

- Industry's planning towards the supportability of products after the guarantee period and being active in the area of logistical support, rather than just focusing on the production and delivery,
- Regarding the development projects, transfer of the procurement authority's criteria to design in a way that includes the supportability criteria and building the optimal model by benefiting from the experiences acquired through similar projects,
- Maintaining long term relations -bearing in mind their effect on the costs- with the subcontractors within the supply chain,
- Maintaining the coordination between the manufacturer and the system after the guarantee period, making long term logistical support contracts that will enable the execution of the maintenance of the systems in an affordable manner with the desired level of performance,
- Of course, finally, our companies need to take an active role in the field of logistic support, by taking into account the achievements attained thus far, in order to further the sustainability of our defense industry.

Defence Turkey: Could you please inform us on the recent status of the ongoing Hürkuş-B serial production program, A400M program, retrofit activities of the Peace Eagle Aircrafts, Avionic Modernization of the C-130E/B (Erciyes) and Meltem-3 programs conducted by your Deputy Undersecretariat?

GÖKTÜRK-2

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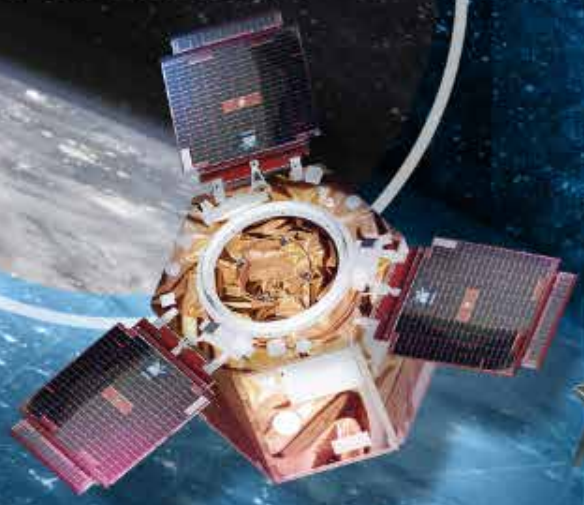

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As known, the serial production activities of the A400M Transportation Aircraft are proceeding. In respect to the Peace Eagle Project, the delivery of the Airborne Early Warning and Control Aircrafts were accomplished and currently our aircrafts are effectively performing their tasks.

Within the scope of the Erciyes Project, comprising the upgrade of the avionic systems of our C-130 aircrafts, as I mentioned previously, the prototype development phase has already been completed and modernization activities of the aircrafts are ongoing.

As part of the Meltem-3 Maritime Patrol Aircraft with Sea Surveillance Capability Project, the structural modifications of the first aircraft and ground tests were accomplished at TAI's facilities and it was dispatched to Torino/Italy in July 2016 for the certification tests. The project activities are proceeding.

Within the scope of the Hürkuş Project, initiated in 2006 by our Undersecretariat for fulfilling the requirements of the Turkish Armed Forces, the maiden flight was accomplished in August 2013 and the final phase of the project, The Type Certificate was granted to the Hürkuş-A Trainer Aircraft in July 2016 by the European Civil Aviation Authority (EASA). In respect to the New Generation Trainer Aircraft (Hürkuş-B) Project, launched in December 2013 for comprising Turkish Air Forces Command's requirements for 15 new generation trainer aircrafts, the structural integration of 5 aircrafts was accomplished and the assembly of the 6th aircraft is underway as part of mass production. According to the program schedule, the maiden flight is scheduled for December 2017. The first delivery is expected to be completed in June 2018 and the final delivery will be accomplished, a year later, in June 2019.

Defence Turkey: Mr. Demirel, the final decision on selecting a partner was reached within the context of the TF-X program and the contract was signed with the British company BAE Systems. In this respect, previously the main contractor contract for the preliminary design phase was signed with TAI in August. Could you please inform us on the details of the contract signed with BAE Systems, on the business model of TAI and BAE Systems companies and the structure to be built?

When establishing the project model, our 5th Generation Aircraft Technologic Readiness Level, qualified labor forces, projected schedule, Test and Measurement, Production and Infrastructure Requirements, etc. and the output capacity required for this type of system's cost-efficient inclusion in the inventory were evaluated. As a result of the analysis, the human resources and cost for the development of the aforementioned complex system were taken into consideration and it was concluded that the project would not be cost-effective if it considered only the requirements of Turkey.

In this context, the needed to collaborate with a Foreign Cooperation Partner (YIF) that has combatant fighter design experience and which can readily access new alternative export markets. Various companies submitted bids to the tender launched for the selection of the YIF and upon review of the evaluations, BAE Systems was selected as the preliminary YIF candidate.

Immediately afterwards, the activities known as the "Pre-Contract Study" (PCS) were conducted with BAE Systems and in addition to contract negotiations, joint activities concerning engine selection, review of the conceptual design, infrastructures, etc. were carried out with joint working groups. As a result of these studies, the main principles in relation to the cooperation to be built between TAI and BAE Systems companies were identified through the "Heads of Agreement" document that was signed on 28 January 2017. The parties agreed on conducting the following contract negotiations within the framework of the articles of this agreement. It seems that the two parties will soon agree upon the entire terms concerning the cooperation agreement. With the signing of the Cooperation Agreement, BAE Systems will be assigned as the YIF within the TF-X Project.

The project setup was built on the philosophy of developing the TF-X aircraft by utilizing the YIF's existing technologies (Background IP) as well and through the collaborative activities of the YIF and Turkish engineers based on the domestic joint responsibilities principle. In accordance with the project model, a design organization will be established within TAI's premises and the YIF will conduct the leadership of certain design groups and TAI will be the leader of some other groups. We plan for the participation of employees of both companies to all be a part of all design groups, a joint approach regarding project activities, within the framework of collaboration to accomplish a successful design process.

On the other hand, we initiated intergovernmental negotiations between the Turkish and British Government. In this way, the establishment of cooperation at a strategic level through the Exchange of Letters method between both countries at the Defense Ministry level was planned in order to facilitate project activities throughout the project; priorities such as obtaining export licenses and accelerating technology sharing and the obtaining of export licenses. Thus, the risks that may arise as part of the project

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will be minimized with the support provided by the British governmental authorities and at the same time the infrastructure and facilities owned by the British government will be available for our utilization.

Defence Turkey: Within the scope of the TF-X program, the decision was made for the twin-engine platform design. Apart from the design solution and platform performance, to what extent will the model's availability for improvement, cost components and technological gains be in contributing to the development of an indigenous engine? What are your comments?

As you also recognize, there are numerous key factors such as technical, financial and strategic ones, that have an impact on the selection of the company. We are evaluating alternative solutions by taking these aspects into consideration. To me, the most important criteria is the added value they will be contributing to the fruitful accomplishment of all these plans and the TF-X program which we expect to become the locomotive of our defense industry in respect to aviation.

Regarding the selection of the off-the-shelf engines and indigenous engines, we actually require a hybrid solution. As you may also appreciate, the design of a complex platform such as that of a fighter jet is already a very challenging task. Conducting this design for a "tailor made engine", the features and behaviors of which are not finalized, makes the process even more complicated. On the other hand, when we analyze the features of the aircraft that we plan to design, we come across a different picture; many existing off-the-shelf products are not fully capable of ensuring the performance that we desire. Without a doubt, the solution will be jointly developed by our industry and the company that we cooperate with and then it will be submitted to the Undersecretariat for Defense Industries for approval.

Then again, if we are to make an intellectual estimation, I think there may be a three-staged plan which is as follows:

- Short Term: Initiating the design activities by selecting an existing engine.
- Medium Term: Increasing the selected engine's performance to the desired level by using the development margins of the selected engine and executing serial manufacturing with this engine.
- Long Term: Designing more improved engines compatible with the interface and sizes with the serial production engines and conducting improvements with these new engines in the half-life modernization of the aircrafts.

Surely, as I emphasized previously, these are my own intellectual assumptions. The setup of the project may be different than my projection. The original solutions for this issue, which may be different from the forecast, are developed by a business model and related cost-effectiveness and analysis are presented to the Undersecretariat.

Defence Turkey: A significant number of human resources will be required for the following phases of the TF-X program. To this end, what will be the plan for creating a team composed of internationally experienced, seasoned lead engineers, administrative and technical staff with technical know-how and experience who will be able to devote themselves to the project? At this stage, what kind of a role will the Undersecretariat be playing as well as which roles will TAI and BAE Systems have as the main contractors?

As a result of the activities conducted throughout both the conceptual design of the project and the pre-contractual activities executed with the BAE Systems, a need for human resources with both quality and quantity aspects emerged. In order to fulfill this requirement, studies are being conducted regarding domestic and international human resources for this type of project, meanwhile the know-how and experience of the staff already employed at the project are being enhanced through training.

In this respect, with the launch of the project's design stage, numerous engineers of BAE Systems who are experienced in the design of fighter jets will be coming to Ankara and collaborating with our experienced engineers at TAI. On the other hand, we received unconfirmed news that TAI will be pursuing a concentrated "brain hunt" process from the domestic resources and through 'reverse brain drain.'

Within the framework of our cooperation with BAE Systems, providing "on the job training" to Turkish engineers is planned as well. In this context, with the launch of the project, numerous TAI engineers will be simultaneously assigned at the facilities of BAE Systems (without being limited only to T-FX) for on the job training purposes and will be performing tasks and gaining experience there. These staff will be returning to TAI in the following phases of the project and the experiences they gained will be utilized in the project.

Moreover, within the scope of the Exchange of Letters which will be realized between the Turkish and British Government, a benefit is anticipated from the graduate and post graduate programs at the British Universities. The technology transfer gained through this process, the convenience provided by the itinerary and the technological cooperation between the two countries within the context of this project are planned to be increased to the highest level.

In addition to the fighter jet design, this project requires the development of various advanced technology sub-systems. The readiness of similar regulations is planned to be conducted by our related companies and if necessary the Joint venture company they will be interoperable with as well as between the governments.

Defence Turkey: BAE Systems is a capable of developing and manufacturing the Eurofighter and the company has significant experience in this area. Regarding the design phase of the program, is there any solution model on the table containing the utilization of off-the-shelf subsystems formerly utilized in the Eurofighter, and the critical technologies such as AESA Radar, EW system, communication system and indigenous weapon integration, etc. that would be developed by Turkey, and hence Turkey would only focus on critical technologies?

Undoubtedly, one of the most prominent contributions to the TF-X provided by BAE Systems would be the company's know-how and competency in the development of

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fighter jets and related sub systems. Within the scope of this project, our studies are being carried out on determining which requirements would be covered by the available subsystems or off-the-shelf commercial products by projections on technologies which are to be utilized in 2030s. The in-depth analysis will be made within this context regarding which technologies should be adopted indigenously; the export restrictions that may emerge, risks, cooperation opportunities, technological readiness level and capabilities of our country's defense industry and decisions on procurement or development will be made accordingly.

The model you mentioned is not actually the model we projected. Our main objective is to put forth an Indigenous Fighter Jet designed fully in accordance with the requirements of the Turkish Air Forces, instead of manufacturing a domestic improved version of an already existing Combat Aircraft. Within this frame, the off-the-shelf systems that are considered compatible with our combat aircraft and that do not create foreign dependency regarding the required sub systems may be utilized either directly or with minor modifications. Still, in cases where indigenous design is essential, most certainly we would work on the similar development models with our defense industry companies.

Defence Turkey: Could you please inform us on the number of orders Turkey has given so far within the scope of the F-35 JSF program, the delivery schedule of these orders and on block configurations? Additionally, what kind of a schedule do we have ahead concerning the integration of the unique munitions such as the Stand-off Missile (SOM-J) and Guidance Kit (HGK) to the F-35s that will be included in the Turkish Air Forces' inventory and their certification?

At the Defense Industry Executive Committee's (SSIK) meeting held on 06 May 2014, a resolution for putting orders for the first two F-35A JSF was made and then on SSIK's meeting on 07 January 2015 an order for additional 4 JSF was decided upon. The first F-35 JSFs with Block-3F configuration are planned to be taken over in 2018.

Under the current situation, resolution on the procurement consisting of 2020, 2021 and 2022 delivery terms, which was named the "Block Buy" was made at the Defense Industry Executive Committee's meeting on 28 October 2016. With the adopted committee decisions, the number of aircrafts decided upon for procurement within the scope of the project reached up to 30 Aircrafts.

Our first two aircrafts, to be received in 2018, will be dispatched to Luke Air Base for Pilot Training. The United States will hand over the first two aircraft to Turkey within 2019.

The activities concerning the integration of the indigenous munitions, which we consider important such as the SOM-J and HGK to the F-35 platform, are continuing. If the program schedule proceeds on track, we will be enable to launch both munitions from our aircrafts in 2022.

Defence Turkey: As the partner country, Turkey has a commitment of 100 orders within the framework of the JSF program. The unit cost trend is expected to decline with the gathering of bulk orders given particularly by partner countries in the upcoming period. Most recently, in February, Lockheed Martin went through a serious overhaul with US orders, and for the first time the F-35's unit price went below $ 100 million. In this context, how will these developments impact Turkey's orders and the requested configurations in the near future?

United States and partner countries including Turkey were complaining about the unit price of the aircrafts for a long while. The reduction of unit price has a close link with the learning curves in addition to the increase in the amount of orders and ramp-up of production. Thanks to this approach, referred to as the "Block Buy" by the JSF Program Office, a considerable amount of increase in aircraft orders is expected, in addition to a reduction in costs. Currently the amount of savings achieved with the Block Buy are surveyed by the Program Office, yet the decreasing costs were, actually, the figures we projected with our partners through analysis and scheduled cost at the onset of the program. As a matter of fact, the aircraft procurement projections were made based on these assumptions as well.

Furthermore, we are pleased to see that the ambitious price reduction predictions, that we made years ago, have come to pass. We are a program management success story, an achievement by the 9 program partner countries.

Defence Turkey: Mr. Demirel, what would you like to say regarding the financial volume of the programs conducted by the Naval Platforms Department as of 2016? For a while, especially due to the slump in oil prices in the world conjuncture in the Military Vessel Construction sector, there is an economic contraction and the share is shrinking. Assessing the current status and the future of the Local Military Vessels

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programs together, how do you regard the sustainability of the sector? What would you like to say on the support and incentives made to this end?

As a developing country, we are confronting various problems such as terrorism and the conflicts in the Middle East in addition to the economic recession globally and in our country. There has been an economic recession in the Military Ship Construction Industry but we may still claim that 2016 has not been unfavorable for the military vessel industry as a whole. Then again, as a result of the negative conditions in the world, there has been a tendency towards maintenance and repair and military vessel manufacturing in the Turkish Vessel Construction Industry.

The Turkish Ship Construction Industry managed to maintain its existence even in the unfavorable conditions that we have been enduring since 2010 and continued its development. Taking a look at our own particular examples, many of our military ship construction projects' initial delivery and final delivery were accomplished in 2016 and the construction of our naval platforms such as LST, KURYED, MOSHIP, Logistical Support Ship and LHD continue in 2017. The preparations for new tenders for the Defense Industry are being conducted and with the finalization of these tenders, a significant amount of contribution and labor will be provided to the sector in the upcoming period.

Despite the decline observed in the rate of defense expenditures nowadays, the perception of threats and requirements are changing and technological development is gradually accelerating. The efficient utilization of resources and the sustainability of developed capabilities stand out in this process and we are monitoring the fusing of components such as design, production, engineering and financing based on horizontal and vertical integration; success in foreign markets is the objective instead of competition within the domestic market.

Today, I would like to express with pleasure in consequence of the strategies that we have been pursing over the last fifteen years. We have reached a level at which we cater to all surface military ship requirements either in steel, aluminum or composite structure through our local resources. At this stage, the budgetary size of our military ship construction projects is approximately $ 5.5 Billion. This budgetary size will increase with the projects we will be initiating in the years ahead. Surely, these figures encompass all prices of the propulsion, weapon and electronic systems of a given vessel as well. From this perspective, even if the figure now seems quite high, the share of the military vessel construction sector's remains below this figure. Therefore, I regard the continuity of the increasing export activities as essential for the sustainability of our sector. We will continue to provide support to our companies for export activities. However, in order to conduct export activities, a sound infrastructure, technological know-how and a qualified labor force are essential. I believe that the sector has a critical role in improving itself as well.

As a result, we have confidence in the capabilities of our private sector. We support all types of setups and activities of our private sector which gains strength. As long as our sector enhances its capabilities, and reinforces the qualifications of its staff and infrastructure, the trust of both the Naval/Coast Guard Command Forces and our trust in our sector will increase. Taking into consideration the level we have reached in the military ship construction industry and the existing and potential projects, with the effective utilization of resources and investments, the specialization of the shipyards and the philosophy of "building our own ships at our own shipyards" regarding the products with high export potential, the design and manufacturing in Turkey are our main goal, and supporting and paving the way for the sector are now amongst our main tasks. Moreover, the establishment of export potential which we support by bringing successful domestic products to the world market plays a significant role in the sustainability of the sector.

Defence Turkey: Many of our shipyards active in building naval platforms have significant capabilities in the Military Ship Construction Industry but it is constantly underlined that acting within a consortium is of essence for them to become a global brand. How will we establish a sustainable and powerful structure both in domestic programs and in foreign countries? Which do you think the correct setup is for success?

As a result of the projects conducted by our Undersecretariat in recent years, the contracts that have been signed, the accomplished deliveries and the new tenders launched, the private sector shipyards acquired the know-how and experience enabling them to conduct military ship design, construction, outfitting and integration, test trials, guarantee, integrated logistical support and risk management.

Turkey took its place amongst the countries having a say in a field as it is capable of conducting the design of the ships through its own resources and engineering acquirements. Our companies in the military ship construction sector have been developing themselves and becoming more robust with each project. Up to 2002, mostly the package projects were realized in which the design, integration and equipment support were supplied from abroad, but at the level we have reached, our sector is now capable of designing and building almost all types of surface military ships ranging from corvette-class warship to landing ships, patrol boats and other auxiliary vessels in our country.

However, it is known that the sector's sustainability could not be feasible merely through the procurement of Turkish Naval Platforms Programs. For this reason, we attach great importance toward export activities. We are bearing the export initiatives of our companies at all times. Occasionally several companies place a bid for the same client or tender within the scope of our export activities. This is the case that defies an easy explanation to the clients. In order to prevent this predicament, we lean towards and encourage consortium models in which our companies will be able to amalgamate their capabilities regarding the military ship sector in an integrated manner allowing them to feature their strengths.

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When we also analyze the cases dominating the market in respect to military ship construction, we come across the utilization of the acquired infrastructure and capacities as a whole, creating national brands and giving priority to competition in exports. These national brands contain various standardized shipyards that are specialized in different vessel types and are capable of functioning as a whole. In most parts of the export market, competition is seen among these national brands and companies about to access the market are confronting these strong rivals. From this perspective, the Turkish military ship construction industry must use its infrastructure and capabilities jointly in order to be able to compete in capacity and financial aspects. The precondition of this process, I believe, is the specialization of the shipyards which will be selected and the accomplishment of integration between the shipyards to a certain extent.

As we recently witnessed at the IDEX Defense Fair in the United Arab Emirates, our local private shipyards assigned to the military ship construction projects have already gathered voluntarily and formed a consortium. When we also take a look at the examples in the world, export is indispensable for a sustainable industry. To this end, branding and acting unitedly is quintessential, a crystal-clear fact. Therefore, they key factor of sustainability and success in exports is our country's private sector shipyards acting as a joint force both in projects at home and abroad.

Defence Turkey: Dear Mr. Demirel, in which direction are the design activities proceeding and the activities related with the following stage within the scope of the TF-2000 program, which has been on Turkey's agenda for a long time? Is the implementation of a consortium model in which military and private shipyards work together foreseen in this program just as in the I-Class Frigate program? Could you please evaluate the setup here?

The naval platforms having Anti-Air Warfare capability are amongst the primary military forces used for regional defense that plays a key role in the accomplishment of the air defense in the region that they exist. On a global scale, it is understood that similar platforms are extremely great programs on which detailed work is conducted in respect to design, manufacturing and finance. Certainly, at this point, another key factor that needs to be recalled is the achievement of a joint operation in an efficient manner with other land, naval and air military units in the inventory, ensuring interoperability in respect to regional air defense.

Rather than an individual project, the TF-2000 Anti Air Warfare Frigate is a program requiring the realization of many disciplines through long term and strategic plans in line with a common purpose. Within this scope, various indigenous projects such as the Multifunction Phased Array Radar System (CAFRAD), Surface-to-Surface Guided munition, unique torpedo, adaptation of combat management system have been initiated prior to the construction of the main platform and they are being executed in line with their schedules.

Taking into consideration the projects I previously mentioned, regarding the subsystems towards the design and construction of the TF-2000 platform and bearing in mind the feasibility study prepared earlier, we have reached the final stage of our activities for determining the most optimal project model in financial and technical aspects, as well as the schedule. We aim for maximum benefit from the engineering infrastructure in our navy and from our shipyards as well as the main system suppliers that have been assigned in many military ship construction projects up until today.

On the other hand, both concerning the issues in respect to the gathering of our private sector shipyards and the utilization of the facilities of the military shipyards, we have a favorable attitude, yet instead of being insistent in this respect, I believe that the industry's presentation of its own solutions would be healthier and more permanent.

Defence Turkey: Could you please inform us on the latest status of the MILGEM- I Class Frigate (MILGEM 5-8), New Type Submarine, Fast Intervention Boat Projects, Turkish Type Fast Patrol Boat, Landing Helicopter Dock (LHD), Off-Shore Tugboat, Amphibious Ship (LST) programs?

Regarding the procurement of the fifth, sixth, seventh and eighth ships of our MILGEM Project, we issued our Call for Proposals in the second half of 2016. Our activities for the evaluation of the proposals of the bidders are proceeding. We aim to finalize the tender process as soon as possible and submit the project to the Defense Industry Executive Committee.

Regarding the New Type Submarine Project, we initiated the construction of the first submarine in the last quarter of 2015 and the construction of the second one began in the first half of 2016. Currently the pressure hull construction of the submarines is being carried out at the Gölcük Shipyard Command and the factory acceptance tests of the sub-systems which will exist on-board are being run as well. Our efforts continue with an intensive pace toward gaining this important project into the inventory every other year starting from 2021; a project in which many of our domestic companies assumed critical tasks.

Within the scope of the Landing Helicopter Dock (LHD) Project, the construction of the hull has been

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initiated and the activities for the revision of the design in line with the requirements and contract execution are proceeding.

As part of the Amphibious Ship (LST), completion of the initial acceptance activities of the 2 ships and their delivery to the Naval Forces Command is planned to take place in 2017.

Within the scope of the Fast Patrol Boat Project, the proposal evaluation has been completed and readiness studies concerning the submittal of the project to the Defense Industry Executive Committee continue.

Concerning the Turkish Type Fast Patrol Boat, Final Report on Request for Information prepared as a result of the activities conducted by our Undersecretariat was submitted to the Turkish General Staff and the Naval Forces Command. The activities are being executed by the Naval Forces Command in line with the points presented in the Final Report. Our Undersecretariat will launch the readiness for the tender when these activities are accomplished.

In respect to the Multi-Purpose Off-Shore Tugboat Project, the tender has been launched and the proposals are expected to be received by the end of April. We plan to complete the evaluation of the proposals in 2017. Within the scope of the auxiliary vessels, we recently initiated our activities for launching a tender for the Shore/Harbor Tug Project. We aim to issue the Call for Proposals for this project in 2017.

Defence Turkey: Within the scope of the programs conducted under the auspices of your Unmanned and Smart Systems Department, could you share with us the recent status of the Tactical Class UAV procurement programs of the Security General Directorate, Gendarmerie General Command and Land Forces Command?

With the Tactical Class UAV Systems included in the inventories of Security General Directorate Gendarmerie General Command and Land Forces Command, target acquisition and directing the maneuvers and firing are being run with the payloads, additionally these systems are capable of engaging and destroying the targets with instant visualization as well as the limited ammunition capability. Various countries across the world procure these Tactical UAV Systems and assign them to diverse tasks.

Delivery of the TB2 systems, manufactured by Baykar Makine A.Ş., to various users as part of the Tactical Class UAV Projects executed by our Undersecretariat is ongoing. The delivered UAV systems are providing services with a high readiness rate. Our assessments for enabling the utilization of the aforementioned systems in commercial areas are in progress and we believe that the unmanned air vehicles technology, providing worldwide high rate of utilization opportunities, will be significantly demanded in the commercial sector as well.

Defence Turkey: What is the project schedule envisioned for the system deliveries within the scope of the Anka-S program? In addition, considering the Anka Block-B procurement activities of the National Police, when will the contract be signed with TAI? Could you inform us on the latest status of the project?

The ANKA-S system, which is an operative UAV System with a long endurance capacity at medium altitude, will be utilized by the Air Forces Command. In the current situation, inventories of the Air Forces of many countries in the world have operative class UAV systems.

The system deliveries are planned to be accomplished in 2017 and 2018 in line with the ANKA-S Project schedule. Moreover, the Operative UAV system requirement of the Security General Directorate is expected to be fulfilled with the Operative UAV System Procurement Project that is planned to be signed with TAI in the near future.

Defence Turkey: In addition to the procurement and development of Unmanned Air Vehicles, the Bomb Disposal Robot Project, development activities of which are carried out by Aselsan, is again being conducted under the responsibility of your Unmanned and Smart Systems Department. The delivery of the first systems was planned to take place in 2018. Yet, there is an immediate requirement of the Security General Directorate, so is it possible to hasten the timeline and make the first party delivery in 2017? Could you please elaborate on the recent status of the activities conducted to this end?

The deliveries of the Light Armored Vehicles within the scope of the project were made in December 2015 and January 2016, eight months prior to the project schedule since there was an emergency for the systems. Currently, the qualification tests of the manufactured prototypes are also being run earlier than the delivery period. As a result of our negotiations with Aselsan, we reached an agreement on both increasing the amount of the party deliveries of the Bomb Disposal Robot and on the accomplishment of the deliveries before the delivery period according to the project schedule in order to fulfil the emergency of the Security General Directorate.

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Defence Turkey: Mr. Demirel, the feasibility study for the Call for Proposals as part of the AKINCI UAV development project is in progress. Which type of a project model will be formed within the scope of this program? This is a big platform, very large scale. Could we speak of a consortium model in this project as well as was mentioned for the naval vehicles?

With the AKINCI Project, we aim to develop the equivalent of the UAV systems in a similar category currently possessed by few countries in the world, having a high speed UAV System with satellite control capability and payload capacity of over a ton. This project will be a domestic development project that requires the development of certain critical sub systems, components and technologies (through local resources) which have not reached the desired level of maturity under the current situation. Within such a framework, our main objective is setting up a project model that would minimize the risks by fulfilling the financial, scheduling and performance requirements. From this point of view, the alternatives including a consortium are on our agenda for launching a phased project model with the progressive capacity increase approach.

Consequently, within the context of the AKINCI Project, the offers to be received for the Call for Proposals will play a determining role. The Call for Proposals is on track to be issued in the first half of 2017.

Defence Turkey: What kind of a road map do you have in respect to the procurement programs of the Striker, Micro and NANO UAV systems and in parallel with this, the indigenous development of these systems in the prospective phases?

The suicide drone systems are being used for the acquisition and destruction of targets at close-range by military units, primarily Special Force units. These drones with an operation radius of 10km and approximately 15 minutes of endurance with "loitering" capability are able to identify and immediately neutralize targets that may threaten the troops in theater. Initially the target is identified with cameras over the Striker UAV suitable for single use and immediately after the target is acquired the UAV completes a suicide attack to the target with explosives. The Micro UAV systems suitable for the utilization of a one-man operation, team and task force become a standard capability that need to be possessed by military units performing in a close conflict atmosphere. Due to the urgency of the requirements within the scope of the Striker UAV project, the first 6 systems are supplied through direct procurement from abroad. Simultaneously the remaining requests for 18 systems will be covered from local resources.

NANO UAV systems are used by Special Forces and intelligence organizations for close range surveillance and reconnaissance. These systems with a very limited task range and endurance capability provide great advantage especially in the acquisition targets in urban conflict areas and undercover targets. With the advantages of the Micro UAV systems suitable for one-man use or at a team level, their worldwide utilization is rapidly increasing. The procurement of 10 systems was completed as part of the Nano UAV procurement contract.

Micro UAV systems are being used for close range surveillance and reconnaissance purposes by military units and law enforcement officers, primarily Special Forces and intelligence organizations. Micro UAV systems with a task range of a few kilometers and limited endurance are capable of close-range surveillance of fixed installations as well as detection of targets that may threaten operative units. Micro UAV systems are convenient for usage by one-person, team or task force have become a standard capability that needs to be included in many operating environments. We plan to deliver the Micro UAV systems that will be supplied for the needs of our agencies in 2017.

Defence Turkey: Finally, would you like to give a message to the readers of Defence Turkey Magazine?

In these times where the Defense Industry is gaining more importance day by day, as I mentioned previously, numerous projects are being accomplished under the auspices of the Undersecretariat for Defense Industries in order to develop our national defense. Informing the public on the developments in the Defense Industry is as important as these projects on a sectoral basis. In this respect, the efforts of Defence Turkey Magazine bear great importance regarding the announcement of the projects and activities related to our sector. I would like to thank Defence Turkey Magazine for their contributions in this area.

We should keep in mind that a powerful Turkey with a voice in its region can only be achieved through a Defense Industry Sector capable of designing and manufacturing its own weapons in accordance with the demands of the Turkish Armed Forces. A sound and successful "Defense Industry Sector" is only possible through our great nation's interest and support.

Mrs. Ayşe Evers, Editor in Chief of Defence Turkey Magazine met with Mr. Serdar Demirel, Deputy Undersecretary for Defense Industries in Ankara

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SSM Releases 2016 Annual Activity Report

The Undersecretariat for Defense Industries' Activity Report for the year 2016 was issued in the beginning of 2017. The activity report contais the latest statistics regarding structure, human resources, strategic objectives, main policies and priorities and 2016 activities of the Undersecretariat for Defense Industries as well as the measures and suggestions for a sustainable industry

The activities accomplished in 2016 within the scope of the programs conducted by the Undersecretariat for Defense Industries according to the Report are as follows: In 2016 the Qualification/Acceptance Tests continued as part of the Altay Main Battle Tank program, Prototype (PV1) tank and 10.000 km mobility tests were completed, firing tests of the defined scenarios were executed with the PV1- PV2 tanks and the proposal assessment report of the proposal within the context of the serial production period activities were prepared, and the System Qualification and Acceptance Tests are anticipated to be completed in the first quarter of 2017.

The report also stated that in 2016, within the scope of the "Anka" Development project, endurance of 21 hours was achieved with a payload of 238 kg; it was accomplished on 14 October 2016 and the acceptance tests of the unmanned air vehicles with Anka-B configuration were completed successfully; the technical data package acceptance activities of the Prototype No:1 and Prototype No:2 aircrafts as part of the "Hürkuş" program were finalized; for the critical design revision stage as part of the Indigenous Helicopter program an agreement was reached with the contract, an understanding based on the military and civil certification was also reached with the contractor; serial production activities as part of the "Korkut Project" which is a Self-Propelled Low Altitude Air Defense Gun System were launched; Calls for Proposals for the serial production of Fire Control Radar and Procurement of the 35 mm Airburst Ammunition (AIC and OMPMT) Procurement Projects were issued, the proposals were collected and the evaluation process was in progress. In addition, the Kiev/Ukraine office was included as part of the SSM international cooperation and coordination offices that were established for the coordination of the export and promotion activities in various regions.

LUMTAS – Atak Helicopter Integration Completed Successfully

Important information on upcoming programs soon to be launched were noted in the report as well. As part of the New Generation Basic Trainer Aircraft (Hürkuş-B) project, the activities for the development of the avionic systems such as the Central Control computer, Multi-Functional Display MFD and digital communication system were finalized and the tests and preliminary acceptance of the equipment will be initiated. Additionally, the report mentioned that the preliminary activities and certain points concerning the launch test contract for the Hürkuş-C aircraft were completed and as of November 2016 the decision was made to have the Armed Hürkuş-C project launched in a manner to support the close range air support operation concept of the Land Forces Command. Also reported, as part of the development of the landing gear of Hürkuş Aircraft; the design, development, testing and verification, qualification of the landing gear compatible with the aircraft and readiness of the documentation related to the landing gear, were targeted and that to this end the Call for Proposal was issued, the bid proposals were received and that the assessment activities were in progress.

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In the report it was mentioned that the deliveries of the Smart Micro Munition (MAM) were initiated and that the utilization of the delivered Munitions by the UAV systems had started within the scope of the Long Range Anti-Tank Missile (UMTAS) project and also the integration activities for the Laser Guided UMTAS (LUMTAS) to the "Atak" helicopter were accomplished.

Moreover, it was underlined in the report that as part of the Spacecraft Assembly, Integration and Test (USET) Project, acceptance of a major portion the test systems (Acoustic Test System, Mass Properties Measurement Test System, Mechanical Ground Support Equipment) at the USET Center was completed and that the final acceptance of the USET Center will be completed within 2017. The report also declared that the system development and production stage activities were in progress within the scope of the Multifuction Phased Array Radar (ÇAFRAD phase-1) Project as well.

In 2016 100 Ejder Yalçın and 65 Cobra-II were Delivered to the Turkish National Police

The report also disclosed that the Micro/NANO UAV procurement regarding the unmanned smart system procurement was gaining impetus. Within this context, the procurement of 40 Multicopter Micro UAVs and 10-system Nano UAV was accomplished.

According to the report, as part of Turkish Security General Directorate Armored Vehicle procurement program, the acceptance of 100 Ejder Yalçın vehicles was completed in 2016 and also the acceptance procedures of the 65 Cobra-II Armored Vehicles were finalized in 2016.

The report also included that in the Three Dimensional Search Radar project, conducted by the MEMS Department, procurement and integration activities of 8 three dimensional search radar were completed, the construction and acceptances of the İstanbul Identification Center and Ankara Operation Center within the scope of the Coast Guard Command's Coast Surveillance Radar Project, the procurement activities of which are in progress and VHF Radio Factory acceptances were accomplished, and the Radar Factory Acceptance Tests launched on 20 December 2016 were completed on 28 December 2016.

Aselpod "Advanced Targeting Pod Electro-Optical Reconnaissance, Surveillance and Targeting System"

Among the critical technologies exported abroad last year, the acceptance of the 2 prototype Aselpods as part of the "Aselpod "Advanced Targeting Pod Electro-Optical Reconnaissance, Surveillance and Targeting System development and integration program launched for fulfilling the requirements of the Turkish Armed Forces was also accomplished in 2016.

The report touched upon the activities conducted under the auspices of the Fixed-Wing Platforms Department as well. It stated that within the scope of the C130 Avionic Modernization project (ERCİYES), the acceptance of the 2nd prototype aircraft was completed and delivered to the procurement authority and thus the prototype phase had ended. The report reflected that as part of the system upgrade of the "Peace Eagle" Airborne Early Warning and Control Aircraft, the retrofit activities of 3 Peace Eagle aircrafts were completed and that regarding Maritime Patrol and Coast Guard Aircrafts' task equipment procurement and platform integration (MELTEM-3) project, three sets from the task equipment packages were delivered to the Leonardo Company.

SSM is Preparing for the Life Cycle Management Conference in 2017

The report discussed the activities conducted as part of Life Cycle Management, announcing that through the PDL approach, EHTES logistical support and Command Control Aircrafts Logistical Support agreements were signed and that project execution activities were in progress. It was stated that the activities continued concerning the Long Horizon Logistical Support Project, KT-1T Trainer Aircrafts Logistical Support Project, Coast Guard Boats Stabilized Machine Gun Platform (STAMP) Systems Logistical Support Project, KORNET-E Anti-Tank Weapon System Logistic Support Project, Airborne Early Warning and Control Aircraft (HİK) Depot Level Maintenance Capability Acquiring and 2nd Lot TIHA (MALE) Direct Procurement Project. In the Activity Report, it was also disclosed that for the implementation of the Life Cycle Management principles at early stages of the procurement projects, activities regarding the establishment of long term logistical support strategies and responsibilities within the context of the maintenance - operation period regarding the development programs namely the New Generation Basic Trainer Aircraft "Hürkuş-B", Indigenous Light-Class Helicopter Development

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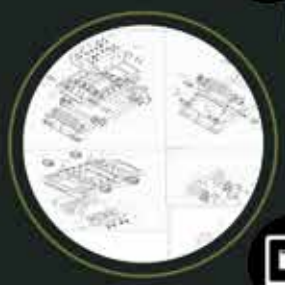

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Project, Turkish Main Battle Tank "Altay", Coast Surveillance Radar Systems (SGRS) Program, Self-PropelledLow Altitude Air Defence Gun System "Korkut" and Modern Submarine Torpedo Procurement "Akya" Project Period-2 were accomplished.

The report announced that the activities for the Life Cycle Management Strategy Document in which the principles will be identified were being conducted. It was also mentioned that within the context of the procurement of the defense systems included/to be included in the inventory of the Turkish Armed Forces the Life Cycle Management approach would be used, enabling cost-efficient maintenance and sustainability to achieve a high combat readiness level. The organization of a Life Cycle Management Conference was planned for the second half of 2017 in order to strengthen the understanding and cooperation between stakeholders reinforcing the defense industry infrastructure through maximum utilization of the national defense industry capabilities and accomplishment of the sustainability of the industry. The Report also included that comprehensive participation from the Turkish General Staff, Armed Forces, SaSaD, MKEK, Turkish Security General Directorate, TÜBİTAK and company representatives was aimed for the event.

A Total of 269 Procurement Projects Bound by Contracts is Valued at 122.5 Billion TL

The report declared that the total value of the 269 procurement projects, that have contracts signed by the Undersecretariat for Defense Industries, was approximately 122.5 billion TL (est. $ 33 billion) and demonstrated the breakdown of these programs. According to this, 47.58% were domestic development, 20.7% were R&D Projects, 8% local off-the-shelf procurement, 10.8% overseas off-the-shelf procurement, 8.55% joint production, 2.60% service procurement and 0.74% were international consortium.

The Project Model Distribution -based on the contract price- was as follows; out of the total amount bound by the contract, 42.74% local development, 37.4% joint production, 8.7% overseas off-the-shelf procurement, 6% international consortium, 2.93% local off-the-shelf procurement and 1.29% R&D.

The report announced that 35 contracts were signed in 2016 and the value of these projects was 14.9 billion TL (est. $ 4.2 Billion). Upon analysis, the breakdown of the projects signed in 2016 demonstrates that the resources allocated for local development was ascending. According to this, 83.7% of the programs with contracts signed in 2016 were local development programs, 10.5% were local off-the-shelf procurement. In 2016, the rate of off-the-shelf procurement abroad was 0.63%.

The report mentioned that as of 2016, out of 460 projects conducted by the SSM 269 were bound by contract, and 191 were in progress and that in 2016 Calls for Proposals for 27 projects were issued as well.

$ 10.3 Billion Industrial Participation / Off-Set Liability in 30-Year Period

In the concluding sections of SSM'S 2016 Activity Report, the total defense and aerospace export figures were declared as well. The total of defense and aerospace export in 2016 was $ 1.673 billion. 23% of this was through off-set and the remaining 77% was non-offset export.

The rate of exports within Defense and Aerospace revenue was 33.7%. The rate of local participation within the framework of SSM projects was 68.5% and the share of the sub-industry within the revenue was 8%.

Category-A industry participation was identified as participation with an off-set liability ratio of at least 70% of the contract price, and at least 30% of the off-set liability from sub-industry. It was stipulated that the SME business share and commitment must be at least 15%. In the Activity Report, it was reported that the industry participation / off-set liability to be realized in 30 years period was $ 10.3 billion. As of the end of 2016, a total of $ 1,756 million was allocated for industrial participation / off-set liability.

The report wrapped up with overall remarks regarding the superiorities, areas open opportunity and suggestions made for improvement. Accordingly, the requirement for increasing the number of personnel due to the increase in the number and diversity of the projects was mentioned. It was also stated in this section that communication between the stakeholders and the revenue of the Defense Industry Support Fund needed to increase.

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Otokar's World-Class Status Reinforced with 'Al Jasoor' - The Gulf Region's RABDAN 8x8 – A Colossal Deal Brimming with New Market Opportunities

The Al Jasoor (Cesur) Company, founded by Turkey's greatest defense industry company with private capital Otokar and leading investment company of the United Arab Emirates Tawazun, signed a contract with the United Arab Emirates Armed Forces for the 8x8 tactical wheeled armored vehicle; the deal is valued at an amount of $ 661 million

The contract was announced at the preeminent defense event of the Middle East, the IDEX 2017, held in Abu Dhabi. Koç Holding Vice President and Otokar Chairman of the Board Mr. Ali Y. Koç underlined that Otokar took the export of armored vehicles one step further through this contract, now exceeding 30 countries, and added, "In addition to our exports to Gulf countries, we will be initiating production in foreign countries with our company Al Jasoor (Cesur) which we established with our local partner. I regard this development as quite strategic and important with regards to the point at which our country's defense industry capabilities have arrived. If we are assigned for the production of the Altay Main Battle Tank, in my opinion, we will be turning a new page and penetrating new markets beyond merely fulfilling the request of the defense industry of Turkey".

Al Jasoor (Cesur) established through the efforts of Turkey's sole indigenous military vehicle manufacturer, Otokar and United Arab Emirates' (UAE) leading investment company Tawazun, have signed a contract with the UAE's Armed Forces on an 8x8 armored vehicle. This is contract is Turkey's greatest defense export contract to date and is worth $ 661 million (approximately 2 billion United Arab Emirates dirhams). The announcement was made at the Middle East's leading defense industry event IDEX 2017 taking place at UAE's capital Abu Dhabi. The Crown Prince of Abu Dhabi Emirate and Deputy Supreme Commander of the UAE Armed Forces Sheikh Mohammad bin Zayed El Nahyan executed the opening of the ceremony at which the first prototype of the 8x8 vehicle named 'Rabdan' was unveiled. Turkey's Ambassador to Abu Dhabi Mr. Can Dizdar, Koç Holding Vice President and Otokar's Chairman of the Board Mr. Ali Y. Koç, Koç Holding CEO Mr. Levent Çakıroğlu, Otokar's General Manager Mr. Serdar Görgüç, Tawazun CEO H.E.Saif Mohammad Al Hajeri and senior representatives from the worldwide defense industry sector and Turkey attended the ceremony.


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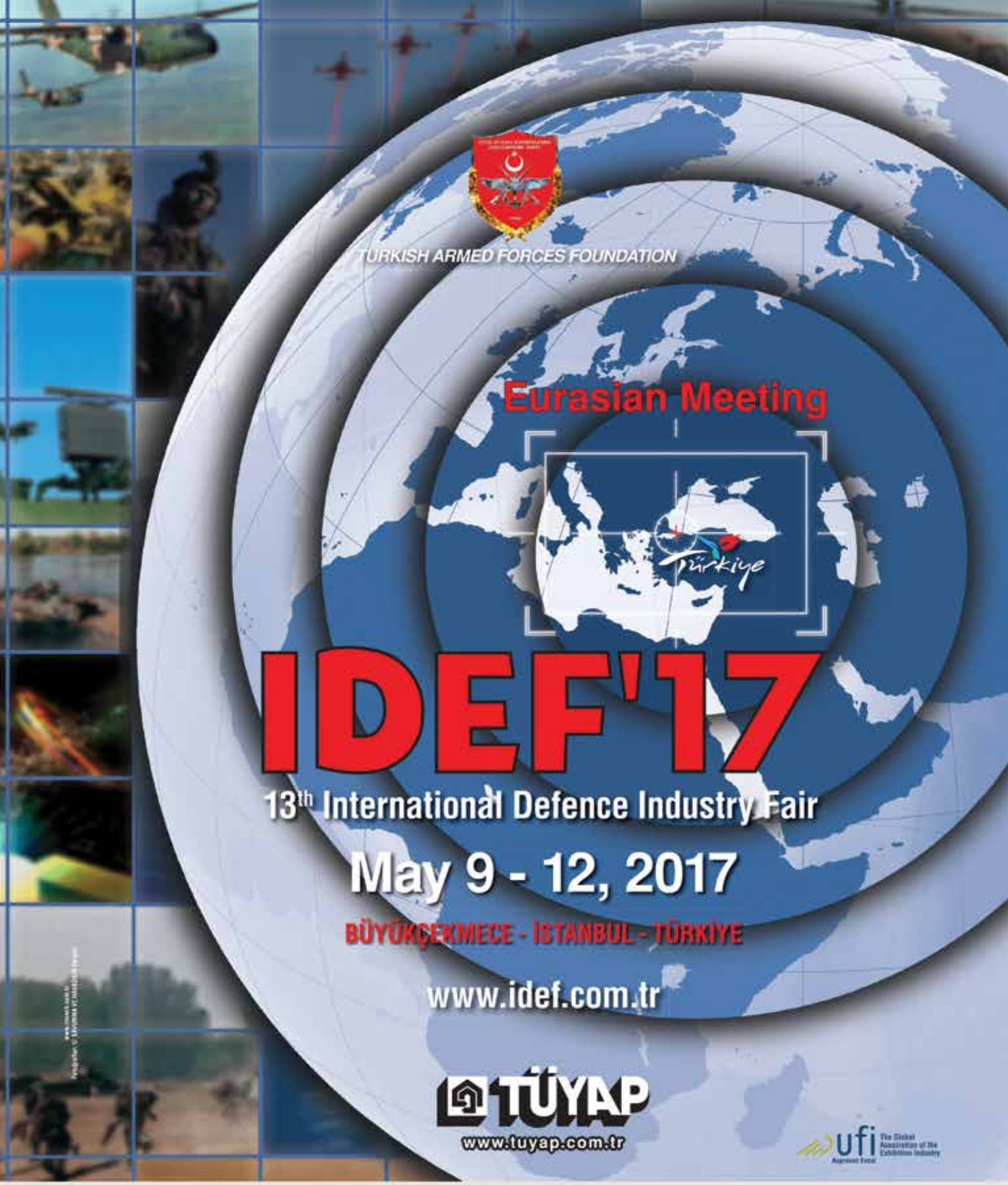
Al Jasoor - the Joint Venture of Otokar's 'Otokar Land Systems Company' established in the UAE and the UAE's leading investment company Tawazun's 'Heavy Vehicles Industry Corporation'- will be manufacturing the 8x8 Amphibious Armored Vehicles demanded by the UAE Armed Forces at the UAE's existing production facilities.

Ali Y. Koç: We are Accelerating our Defense Industry Exports

Koç Holding Vice President and Otokar's Chairman of the Board Mr. Ali Y. Koç stated that Otokar has a history spanning 30 years in the defense industry, and has been providing its services to over 30 countries in 5 continents. He remarked that with this contract, Otokar kicked off exporting technology and production abroad through this joint venture. Mr. Ali Y. Koç said, "I consider this development as quite strategic and significant in respect to the capabilities attained by the Turkish defense industry. The development of our country's innovation



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and technology capabilities is strengthening its position in the global market. With the award of this contract, Otokar not only stands out with its product but also with its know-how, engineering, R&D and technology transfer capabilities on a global scale in the defense industry. The products designed by Otokar engineers and our capabilities are achieving tremendous success in the international arena. We have been through a lengthy, detailed and challenging evaluation and we achieved the award of the greatest single export contract for the Turkish defense industry. We are proud and we aim, as Al Jasoor, to fulfil all land systems requirements of the UAE and the region."

At the IDEX event, Mr. Ali Y. Koç addressed questions on the mass production of the "Altay" MBT and said, "Altay, designed and developed under Otokar's main contractor ship, has been subjected to challenging tests for two years. The final stage has been reached as part of the Acceptance Tests conducted by the Undersecretariat for Defense Industries and the Land Forces Command. The acceptance tests are aimed to be completed by the end of February 2017. As I mentioned previously, Otokar has all competencies to successfully fulfil the serial production of the Altay MBT which bears strategic importance for Turkey. We are ready to be assigned for the mass production". Mr. Ali Y. Koç continued to elaborate on this significant topic "The interest of friendly and allied countries, in the Main Battle Tank Altay's prototype, indicate that this project will provide positive contributions to Turkey's defense industry exports in the long run as well. If we are commissioned for Altay's serial production phase, I am certain that we will also be tapping into new markets beyond just catering to the requirements of the Turkish Defense Industry."

Mr. Levent Çakıroğlu: "Otokar Reinforces its Position in the World and in the Region"

Koç Holding CEO Mr. Levent Çakıroğlu pointed out that Otokar, with its technologic superiority, engineering power, design capability and its experience of 30 years, has been strengthening its position in the worldwide defense industry sector each and every day, and he continued by saying: "The defense industry, with the strategic importance it holds for each country, recently is amongst the sectors which our Group also focuses on. Otokar has been exerting efforts, making investments and reaching achievements for a long while, in line with the efforts toward strengthening the defense industry of our country. I believe that the result of this contract will reinforce Otokar's position in the world, as well as catalyzing the development of our country's defense industry".

Mr. Serdar Görgüç: "We are shooting for the sky with the Otokar Land Systems"

In his statement, Otokar General Manager Mr. Serdar Görgüç said, "We aimed to ramp up our overseas involvement, especially with the Gulf countries, gaining access to new markets and enhancing our sales with the Otokar Land Systems Company that we established in 2016 in the United Arab Emirates. Our first solid-step to this end was the signing of this first contract for fulfilling the UAE army's requirements by the Al Jasoor Company that we established jointly with Tawazun, a contract which is one of the biggest 8x8 Armored Vehicle purchases in the world and is expected to reach up to 700 units in the upcoming period."

RABDAN' 8X8 Tactical Wheeled Armored Vehicle

RABDAN 8X8 tactical wheeled armored vehicle will provide services for the UAE Armed Forces. It was designed as a modular platform to perform various tasks required by a modern army under the most challenging land and weather conditions. In addition to its superior maneuverability, superior mine and ballistic protection features, RABDAN is available for medium and high caliber weapon system integration and the vehicle attracts the attention with its combat weight and large interior volume. Capable of carrying 11 personnel including the driver and the commander, RABDAN's maximum gross weight is 30 tons. The vehicle with its maneuverability, independent suspension, locked transfer box and run-flat wheels, is capable of operating afloat due to its amphibious operation capability. The 'Rabdan' name comes from the thoroughbred Arabian horse believed to have descended from the Prophet Mohammad; known for its power and speed in the races.

With this awarded contract, the production of 400 8x8 RABDAN Tactical Wheeled Armored Vehicles, in various configurations, with an amount valued at $ 661 million, is on track for the first stage.

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2016 TOBB Defense Industry Council Assembly Meeting Convened in Ankara

The 33rd session of the Turkish Union of Chambers and Commodity Exchanges (TOBB) Defense Industry Sector Assembly was held at TOBB facilities in Ankara under the coordination of SaSaD (Defense and Aerospace Industry Manufacturers Association). Presentations were made on the Turkish Defense Industry's Sector Report for 2015, the search for a model for the Export Credit System, secondary legislation considering the R&D Reform package and activities for a reform in manufacturing. Problems within the sector were discussed at this platform in which the representatives of 146 Defense Industry companies and executives of the Undersecretariat for Defense Industries (SSM) participated. During the opening of the Sector Assembly Meeting, President of TOBB Defense Industry Assembly Mr. Yılmaz Küçükseyhan shared the Defense Industry Sector Report for 2015 with the participants.

World's Defense Expenses Reached $ 1.773 Billion in 2015

Stating that the world's defense expenses in the year 2015 reached $ 1.773 billion, Mr. Küçükseyhan mentioned that Turkey allocated $ 14 billion to the defense industry in 2015. "Where the average allocation for defense for allies was 2.3% of GDP, Turkey allocates an average of 1.8% to the defense industry. The percentage advised by NATO to its allies is 2% however we are monitoring that, as in certain periods this rate decreases to the level of 1.3%", continued Mr. Küçükseyhan.

Mr. Küçükseyhan underlined that Turkey was at the 15th rank on the list of countries allocating the most resources to defense expenses in 2014 and added, "Taking into consideration the fluctuations in the exchange rate, Turkey does not take part in the top 15 on the chart according to 2015 data. Our budget regarding defense expenses is constantly decreasing. When we analyze the South Korean model, the country allocated $ 36.4 billion in 2015 to defense industry spending and 9.8% of its resources to the overall R&D. We observed that North America, Europe and South America cut back their defense expenditures whereas there has been an increase of 5.4% in the defense expenses of Asia and Oceania. A decrease of 5.3% is observed in the African continent while a significant increase is observed in the defense spending of the Eastern European countries."

Poland and Eastern European Countries Raising Defense Expenditure

In light of the information compiled from the data of the SIPRI 2016 report (Stockholm International Peace Research Institute (SIPRI) the particular reason behind the increase in the defense expenses was regarded as the Russia's military invention to Ukraine and Polish defense expenses in this period reached $ 10.5 billion, a 22% increase. According to the report, if Poland continues this growth, $ 40 billion is planned to be spent on the "Modernization Projects" within the next decades. It was mentioned that Romania, at NATO's Eastern European front line, increased its defense spending by 53% in 2016 and achieved NATO's target of 2% of GDP. One of the important details noted in the report was the steady increase in the defense expenditures of other countries in the same region such as Slovakia, Estonia, Latvia and Lithuania. The report disclosed that as a result, the overall defense expenses for Eastern Europe increased by 7.5%, reaching $ 66.4 billion.

The total turnover of the 100 manufacturing companies in the SIPRI 2016 report , according to the figures issued in 2014, reached $ 401 billion. The figures of the year 2015 could not be mentioned in the industry assembly as the reports for 2015 have not yet been released. Mr. Yılmaz Küçükseyhan stated that the turnover of a 100 manufacturing companies in 2014 was $ 401 billion and added, "Turkey has accomplished $ 4.9 billion of this figure which is approximately 1%. Our major companies such as Aselsan and TAI exist among these manufacturing companies."

In the breakdown of the 100 manufacturing countries in

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2014 according to regions, it is observed that North America's turnover was $ 218 billion, Western Europe's turnover was $ 104 billion, Russia's was $ 40.8 billion, other manufacturers' turnover was $ 23.2 billion and rising manufacturing countries such as South Korea, India, Turkey and Brazil had turnover of $ 14.9 billion.

Since the data of year 2015 could not be completely collected, SIPRI 2016 export figures were examined in the defense assembly meeting with the data of year 2014. The total export amount of the year 2014 was $ 94.5 billion. According to this, in light of the data which had not been declared by China, Israel and England, Turkey took 8th place on the list with its $ 1.655 billion in export sale. The US was at the top of the list with $ 20.3 billion, Russia was second with $ 15.6 billion, France was the third country with $ 5.1 billion, Italy was in the fourth place on the list with $ 4.4 billion, Spain was the fifth country with $ 4.2 billion, South Korea existed as the sixth country on the list with $ 3.5 billion and Germany placed 7th on the list with $ 2.4 billion.

C5ISR and IT Turnover Fall Short the Mark

Turkey's performance for the years 2014 - 2015 was declared at the sector assembly meeting. Where Turkey's total defense turnover was $ 4.908 billion in 2015, a decrease of $ 93 million is observed in the total turnover when compared with the figures of 2014. The sector's total sales fell by 2% compared to 2014. The Compound Annual Growth Rate (CAGR) was 5% between 2010-2014 and fell to 3.2% between 2010-2015.

The breakdown of Defense Industry Turnover of 2015 was as follows: Where land platforms and systems had the highest sales volume with $ 1.6 billion, Aviation/Aerospace took second place in the ranking of the list with $ 944 million. IT ranked third in the list with $ 900 million and it was regarded that this


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area, composing the greatest slice of the worldwide defense market, fell behind expectations. Similarly, the promising C5ISR area's share in the turnover of total sales was merely $ 28 million. In the breakdown of the technological segments; turnover of the Space industry was $ 900 million, Security Industry was $ 550 million, Civil Aviation was $ 503 million, Weapon/Ammunition was $ 318 million, Naval Platforms was $ 170 million, MRO was $ 129 million and other services were $ 756 million.

According to Turkey's export data for 2015, 30% of the total sales amounting to $ 1.655 billion were made to North America, 17% to Europe and the remaining 53% to other countries. When Turkey's services with foreign exchange earnings (foreign modernization, MRO services, etc.) are reflected to the export figures, then this figure increased to $ 1.929 billion (these figures could not be included in the export data as the customs declaration forms could not be prepared).

Turkey Penetrates Middle East and Pacific – South Asian Markets

In 2015 exports amounting to $ 556.4 million were made to North America and exports to Malaysia were $ 12.6 million, exports to Saudi Arabia $ 106.6 million, $ 103 million in exports to Germany, $ 88 million in export sales were made to France, export sales of $ 76.7 million were made to the United Arab Emirates, $ 58 million in exports were made to Azerbaijan, export sales amounting to $ 54 million were made to Spain, exports to Italy were $ 53 million, $ 37.6 million in exports to Kuwait, to England the amount of exports was $ 37.3 million, to Kazakhstan exports were $ 31.8 million, to Pakistan $ 24.6 million, to Bahrain $ 23.4 million, to Tunisia $ 19.6 million and to remaining countries $ 263 million in foreign sales were achieved.

The breakdown of export figures according to regions were as follows: In 2015, 33.6% to

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North America continent, Middle East 14.7%, 14.2% to Asia, 17% to Europe, 1.2% to Africa and 15.9% to other countries. It was seen that the exports made to America and Europe was mostly realized through off-set liabilities, and when compared with the previous year the exports achieved particularly to the Middle East increased significantly. The report also displayed a noted increase in the Pacific – South Asian countries as a result of market development activities.

According to 2015 data provided by the SaSaD, an important decline in orders received by sector players was observed compared to the previous year. The total order value, which was $ 11 billion in 2014, declined to $ 7.68 billion in 2015 and the Land Platforms and Air Platforms were the technology segments accounting for most of the orders. The orders valued at an amount of $ 3.67 billion were made for Land Platforms, $ 1.647 billion for Air Platforms, $ 1.064 billion for Naval Platforms, $ 1.107 billion for Civil Aviation, for Security $ 344 million, for MRO $ 660 million and for other orders $ 910 million.

Following the presentation providing insight to the sector's performance of 2015, the advantages and disadvantages, the latest developments on the agenda and tasks at hand were examined under the moderation of Vice President of the Defense Industry Assembly Mr. Haluk Bulucu on the Model Search for the Export Credit System in Sector Assembly. Bulucu expressed that they took certain steps for establishing the Defense Industry Export Credit Mechanism in 2015 in order to especially increase the sales to countries with budget problems and added, "A study was launched with the effort of our Foreign Affairs Ministry and Undersecretariat for Defense Industries in 2015. Within this scope, as a result of a series of meetings held at the Undersecretariat for Treasury, it was stated that the Undersecretariat for Treasury could be offering credit funding for the contracts approved by the Undersecretariat for Defense Industries. As a result, the list of countries from which the credit could be provided was submitted to the Ministry of Foreign Affairs by the Undersecretariat, but following this no progress was achieved on behalf of the Undersecretariat for Treasury. This indicates that Turkey must be more creative when it comes to the various approaches that would increase credit mechanisms. We need to increase our exports to higher level and proceed in a way suitable for Turkey."

In the sector meeting, the importance of establishing a structure which is budgeted in advance each year according to the projects rather than a "one time only" approach, especially when forming the export credit mechanisms, was underlined. It was stated that the companies could not efficiently benefit from the Eximbank Credits due to the condition of not equipping the platforms or products that are required to be exported with arms in the meeting and suggestions on the things to be done to overcome these deficiencies were conveyed.

Views on granting development support during development activities carried out in line with the demands of the foreign countries, the export applications regarding the modernization of the granted products, suggestions of the sector representatives for the export sales through exchanging methods were shared with the decision makers. Moreover, foreign policy being the pre-condition to conducting exports were amongst the issues that stood out at the meeting. A special emphasis was made on the necessity of the progress of the credit mechanisms particularly in Air Platforms through government support and credit mechanisms, as it is applied throughout the world. The representatives of Eximbank conveyed to the sector shareholders that there were no restrictions set on the financing of the products with dual usage such as border security products, coast guard boats, radio exports, etc. The institutions to which the sale of the product was made were the most important parameters in the utilization of the Eximbank Credit financing. It was stated that even textile products were not able to benefit from the credit mechanism when the procurement authority is a Military institution or the Ministry of National Defense and it was suggested that while making the preparations, the companies should take this point into consideration.

Upon the completion of the presentations, the studies regarding the R&D Reform package, secondary legislation and manufacturing were conducted under the moderation of the Vice President of the Defense Industry Assembly Mr. Yılmaz Güldoğan.

Following the aforementioned presentation, Deputy Undersecretary for Defense Industry Dr. Celal Sami Tüfekçi gave a brief remark to the sector assembly and the meeting was then concluded.

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The Next Big Thing: Havelsan's Simulators are Attracting the World's Attention

In this exclusive interview Mr. Lütfü Özçakır - Vice President, Training and Simulation Technologies Division, Havelsan - discusses the company's impressive achievements, current projects and Havelsan's appetite and readiness for new markets.

Defence Turkey: Dear Mr. Lütfü Özçakır, first of all we would like to thank you for your time. You are assuming a significant responsibility at Havelsan as the Vice President of the Training and Simulation Technologies Division. Can you give us an overview of the responsibilities of your division?

Our division performs a wide of range activities within the overall structure of Havelsan. Our areas of activity are comprised of the manufacturing of both commercial and military simulators and simulation systems and the provision of all types of integrated maintenance and logistical support following the delivery of the systems to the clients. Moreover, through an initiative that we have developed over the last two years, we have been developing virtual and actual integrated training solutions in various functional areas by utilizing our technological infrastructure and offering training services on many subjects; providing these services to both our security forces and to the friendly and allied countries as determined by agreements upon request.

Defence Turkey: Mr. Özçakır, you recently delivered to Qatar the AW 139 Full Flight Simulator which was developed and manufactured for the Qatari Armed Forces. Could you please briefly tell us about the development, manufacturing process, the delivery schedule as well as story of this program?

Within the scope of the "AW139 Helicopter Simulator Integrated Training Center" Project that we launched in May 2013, the Full Mission Simulator, Flight and Navigation Procedures Trainer, Tactical Control Center, Rear Compartment Crew Trainer and Debriefing System were designed and manufactured for the training requirements of the helicopter pilots and operators of the Qatari Air Forces Command.

As part of the project, the Full Flight Simulator, the production stage of which was completed last year, was dispatched to Qatar in parallel with the completion of the ongoing construction of the Training Center in Doha within the second half of December 2016. The commissioning is planned to take place in April 2017 upon assembly completion. Within the framework of the project, the operational services will also be provided by Havelsan for three years following the integration of the simulators in Doha. During the realization of this project and at the procurement stage of several of the software and hardware work packages, we collaborated with many local corporations in our business eco-system. Our simulator was manufactured in compliance with the standards having a Level D qualification which will be granted by International Aviation authorities.

AW 139 Full Flight Simulator

Defence Turkey: You will also be providing the operational services of these systems for three years in Qatar as part of this program. Could you please elaborate upon the content of this package?

Havelsan will be procuring the maintenance, retrofit and logistical support services of the Qatar AW139 simulator for three years, similar to the Integrated Logistical Support activities that we have been implementing for the existing simulators located at various military bases and units of the Turkish Armed Forces. In this way, the simulators will be unceasingly active and thus the training services over the simulator system will be executed without interruption. We have accomplished similar simulator operation services in South Korea, Pakistan and Saudi Arabia in previous years. Concurrently, this project generated a close relationship with the Qatari Air Forces. Our client was quite satisfied with our products and services as well as with Havelsan in general. I would also like to announce that we have already reached an agreement to extend the content and period of these operational services.

Defence Turkey: Dear Mr. Özçakır, Havelsan also untertaking the development and manufacturing of the simulators of the T-129 "Atak" helicopters as part of the ATAKSIM program. Could you please inform us about the responsibilities regarding this project and provide a synopsis of the status of the project?

Havelsan holds the ATAKSIM project in high regard, it is very significant for us. This is an SSM project - the Undersecretariat for Defense Industries. The objective of this project is to contribute to the fulfilment of the requirements of Turkish Land Forces Command in the training of pilots and technicians through the developed T129 "Atak" helicopter simulators. In general terms, the

Submarine Diving Simulator

project consists of one T-129 Full Mission Simulator (FMS), one T-129 Partial Task Simulator (PMS), one Weapons and Avionics System Trainer (WAST), Computer Based Training System, Virtual Maintenance Simulator (VMS) and three Debriefing Systems. As Havelsan, we are cooperating with approximately twenty business partners in cooperation with TAI and Aselsan for the development of these products. We have a splendid local content rate (80%) within the scope of the ATAKSIM project. In this project, we are indigenously developing all the aerodynamic and tactical peripheral software that are of critical importance for the simulation.

Our core responsibility within the scope of ATAKSIM program is to integrate the products we procured from our solution partners with the products developed by Havelsan and to render them as an end product on which the users are trained. These products will be delivered as turn-key products to the Simulator Training Flight Command premises within the Army Aviation Academy Command. Thanks to the simulator to be delivered, TAFF will be able to draft and execute tasks and flight training with security and cost-efficiency. In a real-world live environment this type of training is extremely hazardous and the financial ramifications are exorbitant. We consider that this simulator will provide great advantages in weapons, avionics systems, navigation and communication systems and air vehicles and electronic warfare system training, utilized particularly by the "Atak" helicopters.

Regarding the recent status of the project; At this time we are in the 36th month since our start-up phase that began in January 2014. We have delivered our first product, the Weapons and Avionics System Trainer to our user. Being the very first delivery within the scope of ATAKSIM, this represents a significant milestone for both our company and our user. We aim to accomplish the delivery of our second product within the coming 3-4 months and then fulfill the delivery of the remaining products in the following months, thus finalizing the acceptance of all of our products by April 2018.

In event of ATAK helicopters being exported abroad, we believe that the sale of the simulator product abroad would be an enormous contribution to Turkey's exports, while also supporting Turkey's reputation as a rising leader in the defense industry. In parallel, we evaluate that if the demand for new ATAK helicopters is increased in the coming period, then the requirement for manufacturing of additional simulators will also appear on the agenda.

Defence Turkey: The Turkish Defense Industry Executive Committee decided to upgrade the SeaHawk Helicopters in previous months. How are the HELSIM-Lot II studies proceeding within the scope of this program?

There are 17 helicopters with LOT II configuration in the inventory of the Naval Forces Command, and 7 helicopters with LOT I configuration are being upgraded to LOT II configuration within a retrofit program. We attach great importance to this as we are making a modification on a simulator manufactured by our own company for the first time. In line with the addendum and amendments on the existing HELSIM contract, we included the simulators with LOT I configuration; these simulators were delivered to the Naval Forces Command between 2008 and 2010 by Havelsan as part of the retrofit program.

As of September 2016, we took over the first simulator and applied modifications and updates on radar, sonar, Link 11, electronic warfare, weapon systems and auto pilot software and hardware (modified consoles and panels).

We took over the second simulator in November 2016 and launched our studies. We plan to finally include the motion simulator to the retrofit program. In April, 2017 our newly configured simulators are expected to be put into training service following the Level D qualification test.

Defence Turkey: Could you please provide an update on the current status of the Submarine Diving Simulator (SUDS) program that you have been conducting for the Gür and Preveze class submarines?

Following the simulator solutions for the Air and Land components, Havelsan launched its first simulator activities for maritime, with the Submarine Diving Simulator (SUDS) through the contract signed with the Undersecretariat for Defense Industries in October 2012.

SUDS is planned to be used for the training of staff assigned to the U-209 Gür and Preveze class submarine maneuver rooms within the inventory of the Naval Forces. It covers the training simulations regarding underwater and surface operations and controls during diving and surfacing tasks. With the utilization of SUDS trainees will engage in activities such as orientation to panels and equipment and underwater dynamics, execution of procedural training and implementation of reflex development training under normal and emergency situations.

This Submarine Diving Simulator, offering a cost-efficient training solution without any security risks, is composed of mathematical modelling, motion system and a diving cabin in addition to the basic simulator hardware. The motion system with two degrees of freedom is a system developed to create a feeling of real submarine movement during training of maneuver room personnel. Additionally, the mathematical modelling enables the fulfilment of the underwater and surface operations of the U-209 class submarines while simulating the dynamic movements, motion and characteristics of the submarine.

The Factory Tests were completed in December 2016, on track within the scope of the project. Completion of the Simulator building is expected within the first quarter of 2017; constructed by Havelsan, the Submarine Training Center Command at Gölcük, is expected to be rendered ready for training by the middle of 2017.

Defence Turkey: Havelsan is developing Armored Vehicle Simulators. You are also in charge of the development of the simulation for the AV-8 Armored Personnel Carrier manufactured by the FNSS for the Malaysian Army. Could you please share some details about the current status of this program?

The AV-8 Simulator is one of our prominent projects as it is the first vehicle simulator that we have developed. In this project, we are collaborating with FNSS - the manufacturer of the vehicle. This gives us the opportunity to get the support we need as we are doing this for the first time and we are also able to instantly attain all data we require. The experience we gain here is very important for us as the land operation training center concept, supported with other land components and tactical capabilities, is a requirement and

these vehicle simulators are at the very core of this business. We are working on providing the infrastructure necessary for the training of the crew in addition to driver training. AV-8 Armored Personnel Carrier simulators have contributed greatly to where we need to concentrate, the armored vehicle driver and tactical training. In a sense, it has broadened our horizons. We will benefit from the experience in land simulators requested by the Turkish Armed Forces as well. The factory tests of the project are being executed and we aim to complete the installation and end user acceptance in Malaysia within 2017.

Defence Turkey: In an effort to achieve more effective outcomes by the Turkish Armed Forces (TAF) in the fight against terrorism, the Counter Terrorism Technology Development Center was officially launched with the participation of the Minister of National Defense. What types of capabilities are expected to be acquired in this area with the launch of this center? Moreover, what will be the training process for the TAF and Security staff active in the fight against terrorism?

As you mentioned, within the scope of increasing the efficiency of the TAF and our security forces in their fight against terrorism, in addition to our solutions supporting the real operations such as SMARTOPS, Operation Planning, Image Analysis, Vehicle/Plate and Facial Recognition systems that facilitate the planning and execution of the operations, we aim to expand the awareness of the staff who will be active in counter terrorism activities in three dimensional virtual operation environments. These true to life environments are established with the help of the images obtained by drones or satellites. Trainees experience conflict training developed in line with real-life scenarios. The training scenarios are created in the developed individual and/or team conflict simulators and allow the users experience the situations they may encounter in an actual operational environment. This virtual environment allows users to develop the proper reflexes.

In addition, the 5-6 configured spaces in the real training area, created by sampling the settlement zones in the southeastern region of Turkey, are equipped with the interior/exterior positioning systems, effect generators capable of creating sound, fog, smell etc. effects; laser kits mountable over the vehicles, weapons and personnel and imaging systems and thus have been rendered smart. Additionally, as part of the solution, an opportunity for the efficient assessment of the responses and actions of trainees following the execution of the operation is enabled through software developed that specifically allows the user to return back to an intended part of the training.

The Inauguarition Ceremony of Counter Terrorism Technology Development Center

In summary, within the scope of increasing the efficiency of counter terrorism operations, Havelsan has developed and will continue to develop real and virtual training technologies which provide support in the execution of operations. It will also enable training in this area to be conducted within better conditions and in compliance with the determined targets.

Defence Turkey: You have delivered the Electronic Warfare Test and Training Range (EWTTR) within the scope of the Turkish Air Forces requirements in previous years. You have accomplished the sale of this EWTTR program to countries such as Pakistan, Saudi Arabia and South Korea. Within this framework, will there be new sales to new allied countries in the coming period? Is Havelsan in charge of the operation of other EWTTRs that are procured to the Turkish Air Forces and exported and the Performance Based Logistical Support Services as well? Could you please share details regarding what type of services and capabilities you provide in this area?

The Electronic Warfare Test and Training Range (EWTTR) is a vital capability as it enables the suppression of enemy air defenses. The verification of the developed Electronic Counter Measures, their optimization and pilots' experiencing these through the manoeuvers can be achieved with the help of this range. Countries desire to possess a deterrent air force, with an aim to incorporate into these types of ranges to their inventories. EWTTR also bears great importance as it is the first performance based maintenance and repair project we have ever accomplished. While executing EWTTR programs, I would like to emphasize that we have tested numerous EHTES fields so far and we specialized in this area

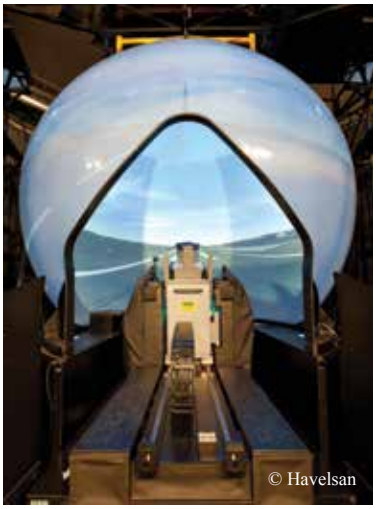
by reflecting upon the lessons we learned, passing the knowledge gained to our next solution. Therefore, we are now introducing the EWTTR with new functions and integrated capabilities, and this naturally increases the interest shown in the system. In the near future, we foresee to conduct new EWTTR programs, particularly in the gulf region.

Since EWTTR contains air defense systems procured from various sources, the performance based logistical support has to be innovative as well. The comprehensive operation and maintenance of systems, designed according to different maintenance levels and with various technologies, require a flexible structure composed of methods such as reverse engineering, I can easily say that Havelsan has already proved itself in this area.

The logistical support contract, that we have signed with the Undersecretariat for Defense Industries for the EWTTR program, is a good example in this area. Keeping the range available for training, operation of air defense systems over the course of the training, conducting the preventive maintenance for all components, supplying the consumable materials and spare parts, are in the charge of Havelsan; the client merely measures the performance. This model assists us in becoming more competitive, enabling us to apply our own solutions in this area.

Defence Turkey: Dear Mr. Özçakır, how is the operation of the F-16 simulator training and integrated logistical support services proceeding? Could you inform us on this issue?

Not merely the F-16 simulators, but also the maintenance, repair and integrated logistical support of the existing helicopters, aircrafts and various vehicle/weapon simulators and simulation systems deployed in 26 different points at the various bases and training centers of our Land, Naval and Air Forces. These activities are being conducted



F-16 HD 360° Dome Simulator System

by the technical staff appointed by Havelsan. As part of fulfilling integrated logistical services, Havelsan commits to executing the update of the systems and to constantly keep them active.

Defence Turkey: Within the context of the Integrated Training Centers package, there is a requirement for qualified human resources and training staff that are trained under the auspices of the Turkish Armed Forces, individuals that are competent in their own fields, in order to establish new training concepts. This is especially important according to the demands of other countries. To this end, what is your approach toward gaining qualified human resources, such as seasoned industry professionals and retired military personnel, to enhance your current capabilities? Could you please share your activities in this respect?

I would like to point out that we aim to develop all our solutions in diversified areas in accordance with the requirements of the TAF and Security Forces. Havelsan utilizes all manner of opportunities to determine requirements in this regard. Our aim is to plan and implement all our projects in line with the requirements of the TAF through periodic visits to the troops/headquarters at all levels, joint project meetings, workshops conducted with the participation of the security forces' personnel, workgroup meetings and survey visits. Again, we benefit from our generals/colonels that are retired from our Armed Forces in our Training Consultation Group composed of high level staff. Moreover, within our organic structure we attach special importance to the employment of retired military personnel who have served in various levels of the TAF. For instance, the current Training Services and Integrated Logistical Support Group Head is a retired Staff Colonel and our Training Services Business Development Manager is a retired Land Pilot Colonel. Additionally, there are notable retired military staff assigned to our projects as pilots and technicians.

Defence Turkey: Mr. Özçakır, within this context, can we say that you are adopting an approach of creating new markets by generating new turnkey concepts that fulfill simulator requirements, in accordance with training demands, instead of directly selling simulators to countries?

As you also mentioned, without reducement our focus on the simulators and simulation technologies, that compose our main function area, we are developing simulators such as warfare training center, healthcare training center, maintenance training center, military exercise centers, joint warfare centers in tactical and strategic levels and simulation based integrated turnkey projects in urbanized terrain by expanding our product range further through the experiences we gained here. If requested by clients, we offer these concepts by embracing the training services and integrated logistical support in line with the determined parameters. Therefore, we tap into the cumulative technological know-how that we have acquired to date and we also increase our regional market share by broadening our product range. I would also would like to underscore that we persevere in bringing foreign currency into our country by selling training services to third countries by marketing the

innovative capacity and value-add opportunity that the TAF flight simulators can provide.

Defence Turkey: Havelsan has been gaining impetus in the area of commercial simulators recently, in addition to its services for the military. Within the scope of Turkish Airlines requirements, you plan to deliver the Boeing 737-800 NG Full Flight Simulator to Turkish Airlines very soon. What would you like to say about the difficulties you have been through during the reflection of the competency in the military simulation to the commercial simulation, the advantages of the experiences and acquirements you gained in the military area?

I consider the capabilities that Havelsan has acquired in the area of the military simulator are top level. The helicopters and aircrafts for which we manufactured the simulators and training systems, particularly within the scope of military aviation projects, have additional operation oriented systems such as weapons, electronic warfare and night vision. Simulation of these complex systems and enabling these simulators to conduct their flights and duties, with interoperability, within a tactical periphery and modelling the friend or foe and other components under such circumstances require sound infrastructure, technological knowledge and capability.

Over the years, we developed our technological infrastructure with the invaluable contributions of our highly-sophisticated customer, having stringent criteria in this area - the staff of the Turkish Armed Forces - and have reached an exceptional level. We assessed our determinations concerning the problems we endured during the management of these projects and in the timely delivery of our products to target destinations, aligning them with the required criteria and added these conclusions to our lessons learned within the context of our institutional development.

We have been implementing these experiences during the manufacturing process of the Boeing 737 simulator for Turkish Airlines (THY). Manufacturing a simulator for THY, a company that is the apple of our country's eye and bearer of our flag, was of great importance to us. I consider that we are successfully conducting this project, as a result of the contributions of THY and with the benefit of the experiences gained through our military projects. The Boeing 737 simulator is also prominent as it is the first simulator in which the binary data packages are being used. Hopefully soon we will gain a simulator with the very superior standards to our THY simulator. We are delighted at the excitement of this process.

© Defence Turkey

Defence Turkey: Could you please evaluate the development and manufacturing process of the Boeing 737-800 NG Full Flight Simulator being manufactured for Turkish Airlines? Also, when will this system be delivered to Turkish Airlines?

Havelsan has achieved great capabilities with the military simulator. However, I would like to point out that the commercial flight simulator is a quite a change, having both pluses and minuses, in comparison to the military sector. The advantages are that one can reach information on the aircraft quite rapidly. While developing the most proper solution for THY, we used the most ideal solutions in respect of engineering and operational efficiency in the design of our simulator. We acquired the opportunity to set up a robust and successful supply chain eco-system for all our requirements on this subject.

However, we encountered a newly developing concept in the commercial sector; while Boeing was providing a data package containing the flight data for the simulator via manufacturing companies in the conventional method, now this data is supplied to the new simulator manufacturers through indirect methods. Through the instrument of past experiences we took up a challenge.

Havelsan is entirely in charge of the design of the commercial full flight simulator. In our design, we attached importance to the creation a large and spacious flight cabin, having an instructor Console and Observer Seat that allows the most effective monitoring of training and also bringing the maintenance and operation facilities as well as aesthetic appearance criteria into the forefront.

Throughout the manufacturing of the cockpit, we decided that the simulated and actual equipment would be used with THY in order to best fulfil our customer's expectations. In line with THY's request, we shaped our design based on the content of the Boeing aircraft.

From the simulator's

design to its development and manufacturing process, THY always guided our path and has had a great share in the realization of the best civil full flight simulator in the world. In this context, I would like to thank, once more, the THY crew for their support.

In the final stage, the hardware installation and integration activities of our simulator were completed, to a large extent, and the simulator became airworthy. The integration and flight data verification tests are being carried out and we plan to complete the tests and acceptance activities by April 2017 and dispatch the simulator to the THY Flight Training center.

Defence Turkey: Upon this agreement with THY, which is one of the most reputable airlines in the world, are you receiving new demands from the other international operators using the Boeing 737-800 NG? Also, do you have new R&D studies to expand your product portfolio for the Boeing platforms?

The Boeing 737 simulator that we manufactured for THY is a turning point for us. This project is being followed with great curiosity and interest by the airlines that have Boeing airplanes in their fleet and by other simulator manufacturers. At the training symposiums where the ICAO, FAA, EASA and worldwide leading airlines attended, we are receiving crucial and positive feedback. Our negotiations regarding this subject continue especially with the gulf and neighboring countries. We take stock of the fact that awareness is spreading and requests will further increase following the delivery of the simulator to Turkish Airlines.

According to the emergence and increase of these demands, we consider to expand our product portfolio regarding Boeing platforms. When we analyze Boeing orders, the narrow-bodied aircrafts stand out. Representatives of Boeing are also encouraging us in this direction in our negotiations as well. Our next simulator may be a Boeing 737MAX simulator.

Defence Turkey: Meanwhile, activities are being conducted for the development of a full flight simulator for the Airbus A320 platform. How are the activities proceeding? Do you also plan a similar cooperation with Turkish Airlines in the upcoming period?

The Airbus A320 aircraft is a platform also frequently used by airlines. Generally, half of the airlines' fleets are comprised of these aircrafts. By using the experience we gained during the manufacturing of the Boeing 737 simulator and in order to strengthen our relations with Airbus, which is another significant aircraft manufacturer, and toward developing our product portfolio, we launched the manufacturing of the Airbus 320 simulator through our equity capital. The cockpit of the simulator as well as the part of software and hardware are ready and we are working on the other software and hardware. We will soon initiate the integration activities at the place where we manufactured the AW-139 helicopter simulator for the Qatari Air Forces.

Moreover, we plan to integrate adaptive training software based on big data analysis capable of measuring the learning process of the trainee and providing the instructor the information on which subject should be given more attention. Thus, more time can be allocated toward implementing a tailor-made training system in this simulator with an innovative idea. In this way, instead of applying the same training methods, in the same period, to all trainees, enabling the opportunity to train in a short span of time and in an affordable manner according to different learning processes of trainees.

Our negotiations are continuing with the executives of Turkish Airlines toward becoming the manufacturer and service provider of these simulators that are also required in this platform in the upcoming period. Manufacturing the simulators that train the pilots of our leading company THY is imperative for us. Besides, we do not wish to remain merely the simulator manufacturer for THY. We are willing to develop and diversify our product portfolio as well, through co-investment with Turkish Airlines.

Defence Turkey: It is stated that by 2035 various airlines will be replace their aircrafts and approximately 40 thousand new commercial aircrafts will be put into service. Therefore, a requirement for a great number of pilots will arise. Considering this data, how do you evaluate Havelsan's future in the potential flight simulator market for commercial aircrafts in the coming years? How do you plan to position yourself in this market?

The number of airline aircrafts, which was approximately 22,500 as of 2016, is expected to reach an estimated 45,000 by 2035. A budget of $ 6 trillion is required for the actualization of this figure. Almost 70% of the aircrafts to be included in the new inventory will consist of narrow bodied single aisle aircrafts. Considering the pilots who will be retiring and the new aircrafts to be included in the inventory, the number of required pilots will be around 200,000. The survey indicates that approximately 50% of this pilot requirement will emerge in the Middle East and Asia - Pacific regions.

Simulators will play an important role regarding the cost efficiency and relatively quicker training for this number of pilots. Within the next 20 years, there is a requirement for the manufacturing of 1300 new commercial airline - aircraft simulators worth a minimum of $ 15 billion. When the ageing of the simulator fleet in the inventory is considered, these figures rise to higher levels. The yearly average of airline aircraft simulators has increased in the world, reaching from 15 to 110 simulators in 2016. These impressive growth figures in the last fifteen years are a significant indicator of this argument as well.

Inspired by experience

spanning more than 34 years, the more challenging and successful military projects that we accomplished, the Boeing 737 simulators we manufactured for Turkish Airlines, the resources allocated to us by our executives and our foundation and from the esteemed support of our governmental authorities, clients and business partners, we are eager to be involved in emerging markets. As a consequence, we are penetrating markets in the Middle East and Gulf countries as well as Asia - Pacific markets. Through the instrumental experience and background of the Quantum 3D Company that we acquired in the United States, we are concluding an agreement composed of various business models with outstanding simulator corporations. Rather than not competing, we are seizing opportunity and we are actively engaging in negotiation with these companies on cooperation models.

Catering to the training requirements of Turkish Airlines is one of our most important projects. We believe that the successful activities we will conduct with Turkish Airlines will create very significant opportunities for us in other regions as well.

Defence Turkey: Havelsan officially took over the US-based Quantum 3D Company recently. After a year-long acquisition period, the process was completed with the approval of the United States bureaucracy and Havelsan Quantum 3D became a local company in the United States. Which capabilities and advantages will this company contribute in respect to both technology acquisition and gaining access to the North and South American markets?

As you also mentioned, after in-depth market analysis and a challenging acquisition period conducted with the official authorities of the United States, we quite recently incorporated Quantum 3D to Havelsan. Quantum 3D is a well-known company in the Silicon Valley, especially with its competence in "Image Generation". As you know, attaining images with high resolution constitutes an important phase of the flight simulators' operation process. Therefore, with the inclusion of Quantum 3D to Havelsan, we believe that the crucial requirement in this area will be easily fulfilled in a cost-efficient manner.

Our expectations from Quantum 3D will not be limited to this. Particularly, by paving the way for Havelsan's access to markets which became less accessible due to geographical or political conditions, Quantum 3D will enable the marketing of not only our simulators but also our other solutions manufactured in other functional areas in a wide geographical space. In addition, it will facilitate timely transfer of knowledge, information and the latest developments that have occurred in the Silicon Valley to Havelsan.

Defence Turkey: Do you plan a change in the existing structure of the company upon the inauguration of Havelsan Quantum 3D? Could you please share your evaluations?

The necessary measures concerning the organization of Q3D and the management processes have been adopted. We are continuing to work on methods of cooperation for both companies, their mutual responsibilities, as well as the development of the product range and marketing model that would create synergy.

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

Havelsan, as one of the Turkish Armed Forces Foundation's institutions, will continue to develop the training and technology solutions that would contribute to the effective execution of the tasks of the TAF and our security forces, adding momentum to our country's progress towards the export targets by marketing these solutions abroad.

Havelsan closely follows the developments in its functional areas and efficiently conducts R&D activities by taking global technology trends into consideration.

We are aware of our country's expectations on our company and we have the capacity to fulfill these expectations. We are in a relation network that creates synergy with our Defense Industry Companies performing activities for the TAF's combat readiness and other functional areas. We are ready for the future. My final message is "Keep following us!" and I would like to thank you for this interview.

Mr. Lütfü Özçakır, Vice President, Training and Simulation Technologies Division, Havelsan met with Mr. Cem Akalın, Managing Editor of Defence Turkey Magazine

STM Cyber Fusion Center Intercepting Cyber Threats

The STM Cyber Fusion Center (CFC) is capable of proactively detecting cyber threats, taking preventive actions which protects critical technology and data assets. It orchestrates and coordinates the security functions and information flow from threat intelligence, through security and IT operations, increasing operational effectiveness, improving security readiness by preventing or neutralizing attacks through the timely delivery of tactical cyber threat intelligence with relevant indicators of compromise. The CFC opened its doors to members of the media from the defense industry sector. At the event, STM Deputy General Manager Mr. Ömer Korkut and the executives of the Fusion Center clarified questions from media as they facilitated the tour and showcased aspects of vulnerability management, cyber threat intelligence, threat defense operation, the cyber operation center and rapid reaction team capabilities

The center, which was inaugurated on 17 May 2016 as Turkey's exclusive Cyber Fusion Center, has provided services to approximately 10 public corporations and private institutions to date. The infrastructures of various technologies such as big data, security, malware analysis, monitoring imaging and communication operate in an integrated manner at the center. A variety of complicated processes are monitored by a devoted team with specific skill sets, available 24/7. The team is engaged in reacting to threats, analyzing and tracing them in the event of an emergency, reporting and evaluation of the intelligence. STM Deputy General Manager Mr. Ömer Korkut stated that as it is the sole cyber fusion center in Turkey and also that there are very few in the world, the center is a critical investment and added, "STM has been investing heavily in cyber security for almost 5 years, we have been conducting projects and reinforcing our human resources".

STM Deputy General Manager Mr. Ömer Korkut: "We aim to intercept cyber attacks in advance of the emerging threat"

The Cyber Fusion Center is comprised of three core components: the Cyber Operation Center (COC), Cyber Intelligence Center (CIC) and the Malware Analysis Laboratory.

The operation center monitors the systems on a 24/7 basis. The processes such as the monitoring of network traffic, real-time tracking, risk perception, controlling known vulnerability data bases, evaluating the fields where the vulnerabilities are exploited, controlling the existence of vulnerabilities in the systems, and taking the necessary actions in order to react to incidents are part of the daily routine of the cyber operation center. The Rapid Reaction Team plays a critical role in fulfilling the following crucial tasks; they get in contact with data processing unit during cyber-attacks to systems, block-off authorized devices in cases where remote intervention is required, and they convey the information to the proper authorities in the case of emergency.

STM Deputy General Manager Mr. Ömer Korkut

The corner stone of the center, the Cyber Intelligence Center, plays a critical role in the identification of cyber threats against the institution to which the service is provided. In this unit, the data existing either in open source or hidden in the deep web or dark web where standard users cannot typically access, the data are gathered through software developed by the STM engineers and evaluated, interpreted and then transformed into intelligence.

STM Deputy General Manager Mr. Ömer Korkut stated that they are able to prevent the incidents from occurring in cyberspace at that point when they turn the data into intelligence and continued, "Concerning cyber security, if we fuse the intelligence at the right time with the right resources, we are able to block the cyber-attacks just like the prevention of conventional attacks through intelligence. This is our starting point in this cyber fusion center".

Cyber Intelligence Center Tracks Hacker Groups

The STM Cyber Security and Big Data R&D Group Manager Dr. Umut Demirezen stated that they gather concepts such as big data and artificial intelligence and deep learning together with the technology they indigenously developed and added, "We are capable of closely monitoring hacker groups, within the big data platform that we enhanced. Hacker groups have to gather their team while in the readiness stage in advance of the attack, and their communication with each other certainly leaves a trace. These traces are pursued and grouped, all the communication with a similar approach and tendency are classified and tracked. In this way, we are able to figure out their methods and this enables the advance notification of the intelligence to clients as well our servers. We have achieved the development of unique systems through software, analysis and methods at this center".

Emphasizing that DDOS attacks have become a trend recently, Dr. Demirezen commented that they warded off attacks against clients in the past. They detected in advance malware that is procurable on the black market. Such malware may leak into systems and could be used similarly in cyber-attacks through the instrument of this unit and as such they have successfully generated an antidote for this at the malware analysis laboratory.

Upon the question of whether any attacks were made to the institutions that they were providing services since the launch of the center, STM Deputy General Manager Mr. Ömer Korkut remarked, "There are institutions in the Defense Sector to which we provide services. The institutions with critical infrastructure become the target of cyber-attacks. Our institutions such as the Ministry of Energy, Ministry of Transportation and Ministry of Health, with massive investments and storing of personal information, are exposed to cyber-attacks. On the other hand, the finance sector is hanging by a thread. As you may recall, during cyber-attack to Estonia in 2007 the financial infrastructure collapsed. In regard to these sectors, we detected critical points in the past and we shared these deficiencies with the clients so that they could take measures accordingly.

When the cyber intelligence turns into a threat, becomes a cyber-attack and an incident, the Cyber Operation Center steps in at the center. The data is monitored in real time at the cyber operation center by the analysts.

Cyber Security and Big Data Manager Dr. Türker Yılmaz stated that harmful traffic as well as traffic flow and volume are instantly monitored by the analysts at the cyber operation center and that they have significant capabilities and added, "For instance, if a user in Ankara is logged in at the same time at another location in the world then this may mean that his account has been hacked. We are capable of detecting such abnormalities as well. We have graphic screens through which we monitor the flow of harmful traffic; from which country it flows, into which IP address it penetrates, to which port and which IP of the customers to which it arrives. We direct the abnormalities that we detect in this unit by the way the second level analysts and identify the abnormality. The details are probed by our analysts at the second level. If any malware is in question then we dispatch it to the malware analysis laboratory for work through ".

Throughout the screening, activities are completed such as: the identification of vulnerabilities of client systems and their periodical reporting, evaluation of the identified vulnerabilities and transfer of the measures required to be adopted against the leaks and penetration test services are under the responsibility of the vulnerability management. One of the most important units completing this cycle is the Malware Analysis Laboratory in which the Malware is analyzed. A biopsy of the detected malware is conducted here. When the malware is identified, removed from the system and brought to the laboratory, its behaviors are detected in an isolated environment or in an environment with restricted internet access. In this laboratory, the static and dynamic malware analysis of the different operating systems and mobile platforms are performed on virtual or physical platforms. The team assigned at the center can conduct specific analysis, over only the code for weeks, determining the intended purpose of the malware, where it was generated and what kind of damage it could cause the system. If the detected software contains a zero-day risk or has not been seen before, then the relevant signature generation is again conducted at this laboratory. The signature generated is then imported to the protection systems of the institution and this system's recognition of the malware attack and thus enabling an automatic block of all traffic.

A team of 6 expert analysts are dedicated to the Malware Analysis Laboratory of the STM Cyber Fusion Center. For the time being, the number of employees is 37, consisting of cyber security experts, threat analysis experts, legal advisor for legal transactions, specialists for industrial intelligence and administrators. The number of staff is expected to increase in relation to the needs clients at home and abroad in the upcoming period.

Turkish Defense Powerhouses FNSS and SSM Team up for Local Design and Production to ZAHA Program

Within the scope of the Armored Amphibious Assault Vehicles (ZAHA) Project, carried out by the Undersecretariat for Defense Industries (SSM) for the requirements of the Naval Forces Command, the contract comprised of local design and production, was signed between SSM and FNSS Defense Systems Inc.

A total of 27 Vehicles will be produced from the ZAHA project. These vehicles are deployed from the Landing Helicopter Dock (LHD) to ensure secured movement of troops while completing landing operations in turbulent sea conditions.

During the landing phase of an operation, these vehicles are launched from Landing Helicopter Dock (LHD) approaching the coast, and rapidly cover the several kilometers' distance in between, allowing units to land with minimum delay. Once on land, they can continue taking part in operations side by side with other armored vehicles. As vehicles that have a dual nature due to their mission requirements, armored amphibious assault vehicles need to exhibit superior performance both at sea and on land. Only a few countries around the world have such vehicles in their inventories. Among NATO countries and allies, there is only a single company other than FNSS producing vehicles of this class.

The ZAHA project is composed of 23 Armored Personnel Carrier, 2 Command Vehicles and 2 Recovery Vehicles. The vehicles will be entirely designed and manufactured in accordance with the "Local Development" project model.

The vehicle can be utilized as an Armored Personnel Carrier, Command Vehicle and Recovery Vehicle. The following specifications are included in the design: Unmanned turret 12.7 mm MG & 40 mm AGL, Gunners compartment, Power pack – Diesel engine and automatic transmission, Integrated smoke generator, Cathodic protection, Ballistic and mine protection – Aluminum hull, Drivers hatch, Commanders hatch, Personnel and cargo hatch, Hydraulic rear ramp, Propulsion system – 2 ea water jet, Amphibious capability – Fully sealed hydrodynamic hull design, Gross vehicle weight – maximum 30 tons, Length 8.3 meters, Width 3.3 meters, Sea state 4, Self-righting capability, Water speed – maximum 7 knots, Side slope 40%, Gradient 60%, vertical obstacle 90 cm and trench crossing 2 meters.

The technical specifications for the ZAHA project were determined by considering the operational concept and mission requirements as specified by the Naval Forces Command. When the primary design solutions and requirements are considered, the platform is intended to be superior to its rivals in respect to the number of personnel carried in the vessel, ballistic and mine protection levels, and the performance criteria achieved on land and maritime.

Mr. K. Nail Kurt, General Manager and CEO of FNSS, commented on the signed contract as follows: "Following the Anti-Tank Vehicles Project, the ZAHA contract is the second contract we have signed with SSM over the past year. Then there is also the "Korkut" contract we have signed with Aselsan. Thus, in addition to successfully maintaining our status as the largest and most important local supplier of the Turkish Land Forces Command in terms of the variety of vehicles and the duration of service, we now deservedly take pride in having become a vehicle supplier for the Turkish Naval Forces Command as well.

The FNSS vehicles currently in the inventory of the Turkish Armed Forces, which include the Armored Combat Vehicles (ACVs), the "Samur" Armored Amphibious Assault Bridge and the "Kunduz" Amphibious Armored Combat Earthmover, are performing their duties.

Meteksan Defense Surfacing on the Global Stage with its Damage Control Simulator – Securing a Sale to the Republic of Korea Navy

Offering the most state of the art and modern solution in its field, the Damage Control Simulator developed to cater to naval forces worldwide, Meteksan Defense has now added the Republic of Korea to its growing list of clients for its simulator. The tender that the Republic of Korea Navy had initiated to meet its requirements for a Damage Control Simulator was won by Inno Simulation and Meteksan Defense partnership, which managed to outpace its competitors. The project contract was signed on February 24, 2017.

The simulator system to be established for the Korean Navy will be a reference for Meteksan Defense. The company will be teaming up with Inno Simulation in the Republic of Korea to ensure the highest level of domestic contribution. As such, under the support of Meteksan Defense, the Damage Control Simulator and its subsystems will be manufactured in the Republic of Korea with local resources.

After developing the Damage Control Simulator and performing its first delivery for the Turkish Naval Forces Command, The Royal Navy of Oman has awarded a contract by Meteksan Defense in 2012 and they have successfully delivered the system to this country in 2014 as well. With the contract signed on February 24, 2017, the Republic of Korea Navy is set to become the third user of the Meteksan Defense's Damage Control Simulator. The simulator is expected to be delivered in 2018.

The simulator enables training in a realistic platform in accordance with international and naval standards, such that the crew can intervene against damages on board ships involved in accidents or hit by hostile fire, and carry out water evacuation and isolation activities promptly and effectively.

With its modern technological design, suitable for personnel of all levels from basic to advanced, the system offers adjustable difficulty and automation-controlled training options, while its adaptable system reports enable training assessment, comparison and reporting.

High Tech Mast Systems Set for Mass Production in 2017

FİGES Engineering - fulfilling Turkey's national defense industry requirements preps for new markets meeting international specifications

Since 1990, FİGES has been developing electromechanical systems, sub systems and test systems for the major companies of the Turkish Defense Industry and after the 2000s the company began manufacturing the prototypes of these systems and sub systems which it developed as well. With its 27 years of experience and know-how, FİGES has been providing advanced engineering services to a wide variety of Turkish industry companies, focusing importance on R&D and supporting companies in developing and enhancing their products.

In 2015, FİGES management adopted a strategic decision of executing the development and mass production of its own products. As a result of the research conducted to this end, the company noticed the great opportunity offered by the Ministry of Science and Industry in respect to the support provided for R&D centers and technological investments. The company initially applied for an R&D center and eventually transformed into the structure of an R&D center in 2015. Throughout this process, FİGES examined the specifications set for defense industry projects in which the company is involved and conducted preliminary research on critical systems and sub systems that are not designed and developed in Turkey at the time, thus making Turkey dependent on foreign trade. In early 2016, the R&D Board of FİGES adopted the development of electromechanical masts as a strategically critical product.

During this period, the activities conducted for Aselsan's REHIS and SST sector directorates were considered successful at the presentations and the sales contracts were signed with both sector directorates. For 26 years, FİGES has continuously provided advanced engineering and R&D services to its customers. The company announced that they will be stepping into the industry through conducting mass production at the company's factory at Başkent Organized Industrial Zone in Ankara in its 27th anniversary with the support of the Ministry of Science, Industry and Technology.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Currently, over seventy experts specialized in their own fields and trained in a variety of different disciplines of physics are employed at the facilities of FİGES. Ten percent of these experts have doctoral degrees. FİGES is a leading and pioneering company in Turkey in the fields of mathematical modelling and advanced engineering analysis.

The breadth and depth of engineering offered by FİGES cannot be matched with any other mast company in the world. The main reason behind the success of FİGES is the company's dedication to focus on R&D services. This characteristic enables FİGES to work on a 'Virtual Prototype' basis in its design and development activities, thus allowing the company to keep its prototype costs to a minimum.


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The high technology carbon composite electromechanical mast systems of FİGES have high durability and high stiffness (low displacement), they are light and conforms the military standards, and were designed in order to perform under challenging environmental conditions. Moreover, new superior features are being developed and added as the part of the ongoing improvement process. The products emerged as a result of the indigenous design activities of FİGES engineers are being registered through patent applications as well.

Initially, the aim was the fulfillment of Turkey's national defense industry requirements and have expanded to meeting international requirements. A mass production line is being established for the manufacturing of 90 mast systems in 2017 and 450 in 2018.

FİGES High Technology Mast Systems utilization areas are as follows:

- Search and surveillance
- Electronic communication and warfare
- Target acquisition devices
- Weapon turrets
- Sensor and radar systems
- Fire extinguishing applications

FİGES High Technology Mast Systems' General Features are as follows:

- Securely lifting heavy loads
- Light carbon composite material with high stiffness
- Automatic lock system with high safety
- Low maintenance requirement
- Ability to perform under challenging environmental conditions, including high wind speeds
- Compatibility with the military standards (MIL-STD-810G, MIL-STD-1275, MIL-STD-461F)

Austal -The Australian Shipbuilder with a Proud History of Success in Turkey, Positioned for Future Opportunities

Austal is the Australian Shipbuilder, defence prime contractor and maritime technology partner of choice; designing, constructing and supporting innovative defence and commercial vessels for the world's leading operators.

Commencing operations in Henderson, Western Australia in 1988, Austal's vision was to build high quality aluminium vessels for the commercial market. As more innovative vessels were delivered to clients around the world, Austal expanded into both the defence and offshore vessel markets and has now delivered over 255 vessels to 100 operators in 44 countries.

Following strategic technology transfer and international investments, including the establishment of a new shipyard in Mobile, Alabama, USA in 1999 and a commercial shipbuilding facility in the Philippines in 2011, Austal has grown to become the world's largest aluminium shipbuilder, with the 4th argest shipyard in the United States currently delivering the Littoral Combat Ship (LCS) and Expeditionary Fast Transport (EPF) programs for the US Navy.

Austal deliveries to Turkey Austal has delivered ten commercial high speed catamaran ferries to Turkey since 1995 and is keen to build upon that success and develop new relationships with operators throughout the region, including the Turkish Navy. With effective, local representation and a strong understanding of the Turkish defence industry, Austal is well positioned to pursue new naval vessel program opportunities - and has indicated a specific interest in identifying local, existing shipbuilders that may partner with Austal under a technology transfer arrangement. Austal's success in the USA, Philippines and most recently in China, demonstrates the company's expertise and experience in developing successful in-country partnerships to deliver defence and commercial vessel programs.

Current and Recent Programs Austal's current and recently delivered programs illustrate the diversity and strength of Austal's shipbuilding capability around the globe;

Australia: o Two 72m High Speed Support Vessels for the Royal Navy of Oman – delivered 2016 o Nineteen steel hulled Pacific Patrol Boats for export – commencing construction April 2017 o 70m Large Crew Transfer Vessel delivered to Azerbaijan in 2016 (DP2 fitted) o 106m catamaran in design phase for European client o Two 58m Patrol Boats for delivery in 2017

USA: o Austal USA, the first Non-US company to design and build warships for the US Navy, continues to deliver thirteen Independence class Littoral Combat Ship (LCS) and twelve Expeditionary Fast Transport (EPF) vessels under contracts worth approximately US$ 6 billion o Following the completion of the current LCS and EPF contracts, Austal USA will have delivered over 15% of the US Navy's entire surface fleet

Philippines: o High speed aluminium passenger ferries for operators in the South Pacific, Philippines, South Korea and Germany now under construction o Recent hybrid build of a 70m large crew transfer vessel for Caspian Marine Services of Azerbaijan, which saw components and whole modules constructed in the Philippines and transported for assembly and completion in Australia o Recent completion of a 57m Large Crew Transfer Vessel for Swire Pacific Offshore

Austal's commitment to innovative vessel design, efficient modular manufacturing and value-adding, 'through-life capability management' has secured its place as a preferred global shipbuilder and defence prime contractor - delivering customised solutions based on proven platforms 'on time' and 'on budget'.

Unrivalled innovation in Defence vessel design and construction In the area of defence, Austal has developed some of the most innovative surface warships ever produced, including the iconic 127 metre frigate-sized Littoral Combat Ship (LCS), 103 metre Expeditionary Fast Transport (EPF) and 72 metre High Speed Support Vessel (HSSV)

The LCS was designed with a unique trimaran hull form, enabling it to deliver superior performance, sea keeping, fuel efficiency and survivability with the capacity to carry large, modular, multi-mission packages at high speed.

The EPF is a fast, flexible military catamaran that has redefined naval capability, around the world. Operated by the US Navy, the growing EPF fleet is delivering fast, flexible sealift and logistics support to military and civilian operations from Western Africa to the Middle East, Asia and South America.

Austal's HSSV is a new capability that offers class-leading sealift, logistics and theatre support, with inherent multi-mission flexibility. The latest evolution in effective military catamaran design and technology, the HSSV platform carries troops, vehicles, equipment and cargo at high speed between ports or other (austere) locations, with a fast turnaround (loading and unloading), at comparatively low cost. Existing examples of the


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HSSV platform include; the 103 metre Expeditionary Fast Transport or EPF developed for the US Navy and the 72 metre multi-mission theatre support vessel, delivered to the Royal Navy of Oman in 2016.

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

- Mine warfare
- Hydrographic survey and research
- Special forces (swimmer delivery vehicles, raiding craft, forward deployed HQ)
- Humanitarian Aid and Disaster Relief Austal's mission proven HSSV offers prospective operators, such as the Turkish Navy, a cost effective alternative to traditional vessels - with the ability to deliver multiple missions from the one platform. As Australia's pre-eminent patrol boat builder, Austal has delivered 72 patrol boats over the past 18 years, including the Commonwealth of Australia's entire border patrol capability – comprising 30 vessels for the Royal Australian Navy and Australian Border Force. Systems and Support Complementing Austal's innovative vessel design and construction are operating systems that enable vessel control, passenger comfort and information management for operators.
- Marine Link is the Austal mechanism to network onboard and remote information monitoring system that centralises the control and management of engineering operating systems throughout the vessel.
- Ride Control uses computer controlled motion reduction to create a smoother, more stable and comfortable ride for crew, passengers and cargo. Employing Ride Control in military ships ensures troops have a comfortable journey and arrive for fit for duty.

Austal's commitment to customer satisfaction includes the availability of ongoing support for commercial and defence vessels, crew and operators through a global network of shipyards and service centres. Training, through life maintenance, contracted support, logistics, upgrades and other services are all available and can be delivered locally in Turkey. Austal has built a well-earned global reputation as an innovative shipbuilder, delivering high quality ships, systems and support - and is well placed to renew a successful past relationship with Turkey through potential new technology transfer opportunities, or the delivery of design and consultancy services with a proven, trusted local shipbuilder.

Austal has built a well-earned global reputation as an innovative shipbuilder, delivering high quality ships, systems and support and is well placed to successfully renew an effective, trusted relationship with Turkey to develop new capabilities for the regions' naval operators.

Submarine Rescue Ship MOSHIP TCG "Alemdar" Delivered to Turkish Navy

The Submarine Rescue Mother Ship (MOSHIP) TCG Alemdar A-582 was delivered to the Turkish Naval Forces Command on 28th January. MOSHIP will perform critical missions such as recovery of personnel from submarines, rescue, replacement of damaged or broken vessels and deep-water refitting and debris removal

The Submarine Rescue Mother Ship TCG Alemdar (A-582) MOSHIP was delivered to the Naval Forces Command by Istanbul Shipyard on January 28th, 2017 at Istanbul Shipyard Tuzla with a ceremony. The attendees included the National Defense Minister Mr. Fikri Işık, Naval Forces Command Admiral Bülent Bostanoğlu, Fleet Commander Admiral Veysel Kösele, 1st Army Commander Musa Avsever, Undersecretary for Defense Industries Prof. İsmail Demir, Istanbul Shipyard Chairman Mr. Ertan Şener, Istanbul Shipyard Vice Chairman of the Board Mr. Atilla Çiftçigüzeli as well as many other guests.

The National Defense Minister Mr. Fikri Işık made a speech at the ceremony and said: "The Republic of Turkey is a country that learns lessons from history. We are making great efforts in order to not re-experience the same suffering by taking lessons from our history. In fact, this ceremony today, is a precaution that we took to avoid the submarine accidents like 'Atılay' and 'Dumlupınar' as well as preventing the same adversity. If we had the Alemdar ship in those days, the caliber of ship that we delivered today, with the technology we currently have achieved, many of the seafarers could have survived. Unfortunately, we cannot regain our losses but we still have a chance to make the related precautions to prevent similar shipwrecks in the future. We are proud of this development."

Expressing that many projects have been realized in maritime so far, Mr. Işık emphasized the aim of localization and development of critical technologies as well as the fulfillment of the Turkish Armed Forces' requirements through domestic and national opportunities.

Mr. Fikri Işık - Minister of Defense

National Defense Minister Mr. Fikri Işık: "Private Sector is the dynamism of our country"

The National Defense Minister Mr. Fikri Işık stated that great efforts are being made in order to make the Turkish defense industry become one of Turkey's vital export items and said: "Our goal, together with our private sector, is to become one of the countries that have a voice in the world's defense industry. In order to accomplish this goal, our private sector shipyards will be our crucial dynamic. We are aware that it is not possible to achieve lasting success if we rule out our private sector. We are restructuring our Ministry accordingly. We have established our General Directorate of Shipyards and will maintain to develop and expand our know-how by improving and strengthening it as well as involving the dynamism of our private sector. Our Turkish Defense Industry will continue to exert all efforts to provide the requirements of the Turkish Armed Forces through maximizing domestic and national opportunities."

Turkish Navy Commander Admiral Bülent Bostanoğlu

Admiral Bostanoğlu: "We are Launching I-Class Frigate Construction soon"

The Commander of Naval Forces Admiral Bülent Bostanoğlu stated that they witnessed the launch and delivery of many vessels in military and commercial shipyards within 2016 and continued: "In today's conditions it is an inevitable necessity to have the most modern equipment; equipment in underwater rescue, underwater search and rescue and offshore towing. Through the rescue systems of TCG Alemdar, in the event of wreckage and breakdowns that may occur in submarines, the vessel will be able to be rescued within a maximum of 72 hours. Towing and underwater search and rescue operations will be performed, for aircraft wreckage through its

diver, remotely operated unmanned vehicle and atmospheric diving suit capacities.

In addition, the vessel will be compatible with the NATO submarine recovery system and the United States submarine recovery system. With these features, TCG Alemdar will also be able to serve as a joint submarine rescue ship in international operations. In the past, there were some of the search and rescue operations in maritime territory that we could not salvage from deep-sea and we requested support from allies since such operations were beyond our rescue limits. In order to eliminate this deficiency, with the remote controlled unmanned sea vehicle "ROV" system, to be supplied, our existing deep-water survey and rescue capability will be upgraded to three thousand meters, currently it is one thousand meters."

Emphasizing that the Turkish Naval Forces are making utmost efforts to improve the military shipbuilding capabilities of private shipyards, Admiral Bostanoğlu said: "Currently, only the corvette, frigate and submarine building activities are being carried out at our military shipyards. With the experience gained from the Ada Class Corvette, we will initiate the construction of "Istanbul" which is the first vessel of "I-Class Frigate Project" at the Istanbul Shipyard Command. It is planned that the 2nd, 3rd and 4th frigates within the scope of this project will be built by the private sector shipyards, thus the frigate-type combat vessel will be realized for the first time in our defense industry at private sector shipyards."

Following the opening speeches, Minister Mr. Fikri Işık, Commander of the Naval Forces Admiral Bülent Bostanoğlu, Chairman of the Istanbul Shipyard Mr. Ertan Şener, Vice Chairman of the Board Mr. Atilla Çiftçigüzeli and the accompanied guests examined the vessel.

MOSHIP Capable of Critical Duty with Cutting-Edge Equipment

The initial delivery of TCG-Alemdar, the contract of which was awarded in 2011, was made to the Naval Forces Command following the completion of design, construction, outfit and test activities.

The Submarine Rescue Mother Ship will complete critical missions for personnel rescue and salvage activities in cases of accidents and injuries, and for underwater repair and debris removal activities through its diver, remotely operated vehicle and atmospheric diving suit capabilities.

MOSHIP has the capabilities to complete critical missions, locating wrecked submarines. It will provide medical assistance and ventilation support to the submarine personnel, treat the distressed submarine personnel in constant compression chambers for decompression, treat the injured-sick submarine personnel through the onboard treatment room and transport patients through the helicopter platform on its flight deck. With the latest technology MOSHIP TCG-Alemdar will be able to simultaneously implement various recovery scenarios requiring precise planning, coordination and technological equipment.

MOSHIP is able to perform deep-water operations up to a depth of 1000 meters. It also has the capabilities of Active Sonar, Acoustic Monitoring Capture System, Underwater Telephony System, Remotely Operated Vehicle (ROV) and Side Scan Sonar System.

MOSHIP, holding the necessary equipment to execute recovery operations at 5 Level Sea State and towing at 6 Level Sea State, will be able to execute limited recovery operation at 6 Level Sea State. The fully equipped 12-ton General Utility Helicopter, which can be deployed on the flight deck of the vessel, can perform landing and take-off activities 4 Level Sea State.

The vessel is also able to anchor at 652 meters with an anchoring system from four-points. With this feature, it has been documented as a vessel that can anchor at four-points at this depth.

A total of 125 personnel, 95 of which are vessel personnel and 30 of which are rescue personnel, will perform tasks on the vessel. The personnel capacity of this vessel can be increased to 137 with an addition of 12 personnel.

The majority of the shipbuilding materials and services as well as the systems integrated on the vessel were provided by local contribution. Within the scope of the project, the Turkish Defense Industry participation level achieved is 65%.

Turboshaft Engine Development Project Contract Signed Between TEI and SSM

A Contract has been signed between TEI and SSM for the Turboshaft Engine Development Project (TEDP), carried out by the Undersecretariat for Defense Industries, in order to domestically cater to the engine requirement of the helicopter that is being developed within the scope of the Indigenous Light Weight Utility Helicopter Program.

Within the scope of the project, 2 certified 1400 shp powered turboshaft engines will be developed and the turboshaft engine will be integrated on the indigenous helicopter and certified. In addition, the test infrastructure for the turbo shaft engines with up to 2000 shp and their modules will be established as well as the design and test software will be developed following the establishment of the Material Database for the engines.

The project will be executed within 5 main phases. According to the project schedule, the first engine run-up is expected in the 2nd year and the engine certification is expected to be completed in the 8th year. It is stated that following the award of the contract, TEI had initiated the design studies of the indigenous engine and the first design cycle was successfully completed. As of the official effective date of the project, the manufacturing and test structure is aimed to be completed rapidly and moved to the prototype phase.

It is envisaged that the gas turbine engine design and development infrastructures, to be developed within the scope of the indigenous Turboshaft Engine Development Project, will also be utilized for the Indigenous Aircraft engine with technological add-ons.

BAE Systems Signs Heads of Agreement for a Future Contract with TAI for TF-X Program

In the presence of The Prime Ministers of Turkey - Mr. Binali Yıldırım and the United Kingdom Ms. Theresa May, BAE Systems and TAI signed a Heads of Agreement to collaborate on the first development phase of an indigenous fifth-generation fighter jet for the Turkish Air Force – TF-X on 28 January.

q Signing this agreement in Ankara ahead of a planned contract with a value in excess of £100 Million, BAE Systems Chief Executive, Ian King, said: "BAE Systems is a leader in designing, manufacturing and supporting fighter aircraft and is in an excellent position to contribute technical and engineering expertise and experience of managing complex projects to this key Turkish program. The announcement signals an exciting next step in relations between both Turkey and the UK with the co-operation between BAE Systems and TAI paving the way for a deeper defense partnership. The agreement confirms ongoing collaborative work on the design and development of the aircraft."

At its peak hundreds of Turkish and UK engineers will collaborate on the TF-X program helping to support collaboration on the skills, technology and technical expertise required to deliver the program.

Nurol Makina's First Export to North Africa – Successful Ejder Yalçın Vehicle Gains Attention in New Markets

The first export agreement of the Ejder Yalçın 4x4 Tactical Wheeled Armored Vehicle was signed between the Ministry of Defense of an undeclared North African country and Nurol Makina. This vehicle has a platform with the highest protection level of its class and with its unique design is able to be effectively operate on any type of terrain.

The award decision was made following the successful completion of the challenging desert tests campaign on the Ejder Yalçın 4x4 during the last few months, with the participation of rivals. The Ejder Yalçın 4x4 Tactical Wheeled Armored Vehicles, within the scope of the order, will be put into the service of the aforementioned country together with a comprehensive integrated logistic support package. The deliveries are scheduled to begin shortly.

Regarding this notable success, Nurol Makina ve Sanayi A.Ş. General Manager Mr. Engin Aykol said: "As a result of our long lasting efforts, we have achieved awarding the first export agreement for the Ejder Yalçın Vehicle. The Ejder Yalçın has proven itself within Turkey and will now assume critical tasks abroad. As Nurol Makina, we take justified pride of this fact. As expected, the crucial point for us now is to maintain this achievement and to export our vehicles to other markets as well. We will continue to offer unrivaled solutions to the service of security forces and armies at home and abroad through our engineering capabilities and R&D facilities."

The Ejder Yalçın 4x4 stands out as it provides a high level of protection. The Ejder Yalçın 4x4, indigenously designed and manufactured by Nurol Makina engineers, has proven its superior protection during the explosion and endurance tests executed firstly in Turkey by an internationally accredited and independent institution. Thanks to its payload capacity, the Ejder Yalçın 4x4 can be mounted with a vital outfit and be manufactured in diversified configurations such as Armored Combat, Command Control, Ambulance, CBRN Reconnaissance, Armored Personnel Carrier, Border Surveillance and Security, Air Defense and Mine/IED Detection and Destruction vehicles.

Splendid Match worth Millions - TAI and Sikorsky Aircraft

A cooperation agreement, that will span decades, was signed between TAI and the world's leading helicopter manufacturer Sikorsky Aircraft Company at the TAI facilities on 28 February 2017.

The signature ceremony of the agreement, involving the production of structural components for various helicopter platforms, was held with the participation of TAI President & CEO Assoc. Prof. Temel Kotil and Sikorsky Aircraft Company President Mr. Dan Schultz.

First Phase of the Project valued at $ 270 Million in Production Value

While the product delivery is valued at an amount of $ 270 million during the 10-year first phase, the overall cooperation between TAI and Sikorsky is expected to continue until 2044, including the optional period, and the project volume is expected to reach at least $ 500 million.

Within the scope of the contracts made between the Undersecretariat for Defense Industries (SSM) and the main contractor TAI, the main subcontractor Sikorsky Aircraft and other domestic subcontractors, a new dimension has been attained through this agreement, accelerating cooperation following the approval of US export licenses for the "Turkish Utility Helicopter Program" effective on 7 June 2016.

Inauguration of Shooting Range and Test Center

The first 500 lot MPT-76s was delivered to the Turkish Armed Forces (TAF) as part of the Mass Production program within the scope of the Turkish Armed Forces' Modern Infantry Rifle requirements. The Mechanical and Chemical Industry Corporation's (MKEK) new Shooting Range and Test Center was inaugurated by the Minister of National Defense Mr. Fikri Işık and Commander of the Land Forces General Salih Zeki Çolak.

The ceremony for the delivery of the MPT-76 Modern Infantry Rifles to the Land Forces Command and the opening of the new Shooting Range was held at MKEK's Weapon Factory in Kırıkkale with the participation of Minister of National Defense Mr. Fikri Işık. The Minister of National Defense Mr. Fikri Işık, Commander of the Land Forces General Salih Zeki Çolak, Deputy Undersecretary of the Ministry of Defense Mr. Ali Fidan, Undersecretary for Defense Industries Prof. İsmail Demir and many military and defense officials attended the ceremony.

In memory of the delivery of the first 500 lot manufactured and the qualification and acceptance tests of which were accomplished within the scope of the mass production program, the Undersecretary for Defense Industries Prof. İsmail Demir symbolically presented an MPT-76 infantry rifle to the Land Forces Commander General Salih Zeki Çolak.

Stating that the first completed lot of the MPT-76, developed through domestic and national facilities, for utilization under all types of ground and weather conditions, was delivered to the Turkish Armed Forces, Mr. Fikri Işık continued: "We have been burning the midnight oil for 14 years, delivering weapons to the TAF developed through our domestic and national facilities and thus minimizing our external dependency. The attitude of our allies during the Cyprus Peace Operation revealed that we should always keep the maximum level of domestic participation rate in equipping TAF. The embargo threat of certain countries on

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Turkey, especially during the struggle against terrorism in the 1990s and the recent regional incidents verifies that we are on the right track". Underlining that the Modern Infantry Rifle is a weapon which will be safely used by the security forces, Minister Mr. Işık mentioned that Turkey's foreign dependency was around 80 percent regarding the defense industry 14-15 years ago and added that today this figure fell to the level of 40%. Minister Mr. Işık stressed that they aim to reduce foreign dependency to 20% in the forthcoming period.

Commander of the Land Forces General Salih Zeki Çolak said, "With the entry of MPT-76 to the inventory of the Land Forces Command, and as a force multiplier weapon, we assess that we will be using the rifle in our operational activities and planned tasks". Following the remarks, Minister of National Defense and the accompanying delegation executed the opening of the MKEK new Range Practice and Test Center.


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The Longest Indoor Shooting Range in Europe and the Middle East

This new shooting range consists of an indoor area of 2400 m2; 1700 m^2 of which is at the ground floor and 700 m^2 on the first floor. All environmental tests of the light weapons can be executed according to global standards at this center, which contains the longest firing channel in the Middle East and Europe.

The facility with two 100 m, one 300 m and one 550 m firing channels, can conduct Functional firings, Null firings, Point Blank test, Kadenz tests, Distribution tests and Precession tests as part of the acceptance tests, design verification and product qualification and production line qualification tests of weapons.

Following the opening of the facility, Minister Işık and the accompanying delegation examined the new steel plant which is under construction. MKEK General Manager Mr. Ahmet Taşkın made a briefing to the delegation regarding the new facility.

New Steel Plant to become Operational in August 2017

With this new facility, that will be capable of producing 120 thousand tons of liquid steel annually, it will produce "qualified steel" that is required by the defense industry, aerospace and machinery production sectors and it bears strategic importance for weapon and heavy weapon systems production. Upon the launch of the facility, almost one-third of Turkey's demand will be covered by MKEK Heavy Arms and Steel Factory. Besides, with the help of the MKEK forging facilities which are still a monopoly in Turkey in respect of open die forging, the forged steel demanded by the market will be covered mostly by domestic resources, thus reducing foreign dependency and therefore a significant contribution will be made to the Turkish industry and economy.

The New steel plant Construction Project is planned to be completed in August 2017.

The Countdown for Hürkuş-C to Begin Combatant Tasks

The first demo of prototype production of the Next Generation Light Attack/ Armed Reconnaissance Aircraft was unveiled at TAI Facilities and its photos were shared with the media.

Hürkuş was designed to support various mission and operational requirements within the scope of the Basic and Primary Trainer Aircraft by TAI.

Hürkuş-C, in addition to pilot training missions, was developed to provide an affordable and high accuracy solution for light attack and armed reconnaissance missions.

The authorities are working on the Project Identification Document for the "Armed Hürkuş-C Aircraft Development and Mass Production Project" launched pursuant to the "Ministerial Approval no. 180 and dated 28 November 2016" and the Undersecretariat for Defense Industries continues to prepare the request for proposal. The negotiations between the Undersecretariat for Defense Industries and TAI concerning the technical specifications and job definitions are on-going.

Hürkuş-C, which has the characteristics of an armored structure, self-protection systems, night vision compatible full, digital cockpit, advanced avionic system and armed with the domestic munitions, will have 7 Hard Points and a 1500 kg External Load Capacity.

The launching test of Armed Hürkuş-C is expected to be executed prior to the IDEF fair, after the integration of camera and weapon system.

IDEX 2017 – Dominant Middle East Defense Fair

More than 1,200 companies from 57 countries participated in the IDEX 2017 fair held in the United Arab Emirates on 17-21 February. 82 contracts at a total amount 18.83 billion AED were signed during the fair where technological new products were displayed. While land systems and technologies were at the forefront in the IDEX area of the fair, the military shipyards took the opportunity to exhibit their products and capabilities in the NAVDEX area.

Turkey has not nationally participated in the fair since 2013, however the Turkish companies individually participated in the fair this year. Chief of General Staff Hulusi Akar's visit to Turkish Defence Industry companies for the first time abroad was one of the important developments motivating the Turkish companies.

The most important news of the 4-day fair was the award of the 8x8 Tactical Wheeled Armored Vehicle contract valued at $ 661 million between the United Arab Emirates Armed Forces and Al Jasoor (Cesur), which was founded with the initiatives of Otokar and Tawazun, the leading investment company of the United Arab Emirates. On the other hand, Havelsan and Taqnia Aeronautics companies signed the Maritime Patrol and Surveillance Aircraft Project. Furthermore, for the first time in a fair held abroad, the Turkish Military Shipyards - Sedef, ADIK, Istanbul Shipyard, Sefine and Selah - exhibited their product portfolio under a single roof namely TAIS Shipyard.

A total of 12 Turkish Defense Industry companies including Aselsan, Otokar, FNSS, Roketsan, MKEK, Nurol Makina, Yakupoglu, Transvaro, T-Kalıp, Electroland and Makel Technology took their place in the Turkish stand area with their products and capabilities to meet the requirements of the countries within the region. Ares Shipyard and Yonca-Onuk companies together with TAIS Shipyard took place in the NAVDEX. In addition, the Nicomatic Turkey company exhibited its products and capabilities at the French pavilion. International SUR Military company also took its place amongst the participants.

Aselsan displayed its Missile Launching System, Precision Guidance Kit and Laser Guidance Kit (developed together with TÜBİTAK-SAGE), Acar Ground Surveillance Radar, Helicopter EW Suit, Thermal Camera, Night Vision, Gergedan Jammer System during the fair, Roketsan exhibited TEBER-81 and TEBER-82 (Laser Guidance Kit), SOM-J Configuration the integration and modification studies of which are still contiuning on F-35 JSF aircrafts and SOM (Stand-off-Missile) 2,75" Laser Guidance "Cirit" Missile and other missiles and launcher systems at various classes.

Nurol Makina for the first time exhibited the desert camouflage configuration of the Ejder 4x4 Armored Vehicle which was exported to a North African country recently. The New Generation Tracked Combat Vehicle of FNSS was also at the forefront of this fair.

BMC introduced its 5-ton tactical wheeled vehicle, Multi-Purpose 4x4 Amazon and Vuran armored vehicles, Kirpi 4x4 Ambulance Configuration, 6x6 Kirpi MRAP vehicle to the region countries during IDEX fair.

Within MKEK standards contain the 105 Boran Air Transportable Light Towed Howitzer system mock-up together with the MK-82 (Aircraft Bomb), Penetrator Bomb (NEB) MPT-76 Modern Infantry Rifle, and the Bora Sniper.

Otokar is now Closer to its Users in the Gulf Region

Otokar exhibited four vehicles at IDEX 2017, the biggest defense industry exhibition in the Middle East. The vehicles included Cobra-II, Kaya-II, Arma 6x6, as well as the new generation tracked armored vehicle Tulpar-S Personnel Carrier version, which was presented for the first time in the region, on February 19 – 23, 2017 in Abu Dhabi.

Mr. Serdar Görgüç, Otokar General Manager, stated that Otokar had established "Otokar Land Systems Limited" in the United Arab Emirates in 2016 to strengthen export activities of Otokar, which has achieved 30 years in the defense industry, and added: "Today we have developed 30 thousand military vehicles for different needs are being used on five continents in over 30 countries. Otokar Land Systems will be our driving force in our regional expansion, especially in the Gulf countries."

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Mr. Serdar Görgüç: "We will be more Influential in The Region with Our New Company, Otokar Land Systems"

Mr. Serdar Görgüç, Otokar General Manager, expressed that the IDEX Exhibition is an important organization in terms of increasing cooperation in the region, "The IDEX Exhibition, which we are participating for the eighth time, is especially significant for us. In 2016, we established a new company named Otokar Land Systems Limited in Masdar City Free Zone in the United Arab Emirates to strengthen our position as one of the world's leading players in the defense industry. Having accomplished 30 years in the defense industry, Otokar has nearly 30 thousand military vehicles that are being used on five continents in more than 30 countries. With Otokar Land Systems, we will be closer to our users in regions where we operate. By following the export activities more closely, we intend to strengthen our cooperation abroad, especially in the Gulf region, open to new markets and increase our sales."

Mr. Serdar Görgüç: "Armoured Vehicle Deliveries Continue"

Mr. Serdar Görgüç informed that Otokar, as the biggest supplier of the Turkish Armed Forces, continued to increase its armored vehicle deliveries in 2016 in line with user expectations and against current threats, and added:

"The success of Otokar's armored vehicles was also a reference for new orders. In 2016, we completed the deliveries of armoured vehicles ordered in 2015 by different countries. Last year, a Gulf country client with Ural armored vehicles already in its inventory placed a new order for Ural because of the vehicle's successful performance. We will complete these Ural deliveries within this year. On the other hand, we signed the first export contract for Cobra-II with a South Asian country. The vehicles are expected to take part in United Nations Peacekeeping operations. As the deliveries continued, user tests of Otokar vehicles in different geographies were conducted throughout the year in our target markets, North Africa and Gulf countries. The testing activities that involved mobility in challenging desert conditions and live firing tests have proved the suitability of our vehicles for the hot climate and geographical conditions."

Mr. Serdar Görgüç: "Technology Investments Continue To Grow"

Explaining that Otokar continued to invest in new technologies with increasing demand for armoured vehicles, Mr. Serdar Görgüç also noted that a total of 269 patent applications, utility models and industrial design applications, including 37 industrial designs, have been filed for the products and subsystems in the last decade. Görgüç said that Otokar continues with its investments to provide fast and quality response to the demands of the defense industry, "The Otokar R&D center, one of Europe's leading facilities, is equipped with simulators, testing equipment and the latest information systems to create and evaluate information for the purpose of testing the manufactured vehicles faster and with higher technology. Otokar's test center featuring a climate controlled test chamber with dynamometer, and electromagnetic compatibility (EMC / EMI) testing qualification, also serves as an independent accreditation center for the defense industry's R&D activities."

Sarsılmaz Ramp Up MPT-76 Modern Infantry Rifle

The MPT-76 Serial-Production Contract, which is being executed by the Undersecretariat for Defense Industries (SSM) with an aim to fulfill the Modern Infantry Rifle requirements of the Turkish Armed Forces, was signed between Sarsılmaz Silah Sanayi A.Ş. and SSM with the participation of the Undersecretary for Defense Prof. İsmail Demir and the Chairman of Sarsılmaz Mr. Latif Aral Aliş.

Within the scope of this Contract, Sarsılmaz will be conducting the manufacturing of 10.000 MPT-76 Modern Infantry Rifles to be delivered to the troops of the Land Forces Command, Naval Forces Command and Gendarmerie General Command.

All design, development and qualification activities of the MPT-76 were accomplished through national resources and with this latest Contract signed during the mass production period, the number of MPT-76 orders reached 45 thousand. During the previous period, two other contracts were signed with the Mechanical and Chemical Industry Corporation for the mass production of 20.000 MPT-76 Modern Infantry Rifles, and with Kale Kalıp for the production of 15,000 rifles.

Aselsan and STM - Contract Inked for an Electronic Warfare System

Leading Turkish Defense Industry Company, Aselsan, recently announced an electronic warfare system agreement valued at € 115,972,014. Within the context of the agreement signed between Aselsan and STM, deliveries will be completed in 2020.

Two More Successful Deliveries to Qatar Mol

As of 18 January 2017, ARES successfully delivered two more fast patrol craft (1-off 24 m and 1-off 34 m) to Qatar Coast Guard, within the scope of 17-vessel contract with Qatar Mol, increasing the total number of in service boats to 5 almost 1 year ahead of the contract schedule.

Sikorsky Transfers S-70i Helicopter to Aselsan for Turkish Utility Helicopter Program Development

The S-70i aircraft will become the engineering test bed for an avionics suite in co-development by Aselsan and Sikorsky for the Turkish-built T70 utility helicopter

Sikorsky, a Lockheed Martin company, has transferred to Aselsan an S-70i Black Hawk helicopter for use as the prototype aircraft for the Turkish Utility Helicopter Program (TUHP). The aircraft will enable Sikorsky to integrate an Aselsan-developed avionics suite into the Republic of Turkey's new T70 utility helicopter, and later into Turkish-built Sikorsky S-70i Black Hawk aircraft to be sold internationally.

The new avionics suite, the Integrated Modular Avionics System (IMAS), is a collaborative design by Aselsan, Sikorsky, Turkish Aerospace Industries (TAI) and pilots serving the Turkish Armed Forces to meet the requirements of Turkish T70 operators and other potential customers.

TAI leads a team of Turkish aerospace companies that will build at least 109 helicopters with the T70 designation for the Turkish Utility Helicopter Program. The IMAS suite is expected in time for initial deliveries of T70 aircraft to Turkish end users in 2021.

"Delivery of this S-70i prototype fulfills a major milestone for the Turkish Utility Helicopter Program, and signals our continued close collaboration with Aselsan and the other aerospace companies led by TAI," said Sikorsky President Mr. Dan Schultz. "The employees of Sikorsky are honored that the largest international industrialization project in our 93-year history will help all the end-users fulfill their requirements for a modern utility helicopter based on the Black Hawk aircraft, while adding Turkish-developed avionics technology to further distinguish this proven platform."

The Sikorsky-owned S-70i aircraft arrived at the Aselsan facility in Ankara on February 25 after nine hours of flight from Sikorsky's PZL Mielec aircraft factory in southern Poland. During the 930nm journey, the aircraft crossed Slovakia, Hungary, Romania, and Bulgaria with two fuel stops along the way.

Sikorsky TUHP Program Director, Mr. Jason Lambert, presented the aircraft's keys to Aselsan President and CEO Dr. Faik Eken during a March 1 arrival ceremony. Also attending were officials from the Turkish Government's Undersecretariat for Defense Industries (SSM), the Turkish defense industry, Sikorsky, and an international diplomatic delegation with missions in Ankara.

Aselsan and Sikorsky are co-developing the IMAS suite to provide Turkish pilots with powerful smart displays, point-and-click functionality to speed input of pilot commands, and ergonomic enhancements to the Pilot Vehicle Interface that will reduce pilot workload. Navigational improvements tailored to Turkish requirements will include an integrated Terrain Avoidance Warning System, an integrated advanced digital map, and coupled flight control functions for guided approaches to landing zones.

The TUHP program is valued at approximately $ 3.5 billion for 109 T70 aircraft, inclusive of the work to be performed by Sikorsky, TAI and other suppliers.

Significant Progress Achieved in the Emergency Physical Security System Project at the Turkey – Syria Border

The construction of the 383-km long portion of the modular cement wall has been completed, which is part of the Emergency Physical Border Security System Project, initiated in order to set up a physical block against smuggling activities through illegal terrorist crossing

The Emergency Physical Security Project was initiated to set up a physical barrier and to prevent border crossing violations. Terrorist-illegal crossing and smuggling activities at the border between Turkey and Syria still progress. The 383-km long portion of the 825-kilometer-long modular concrete block wall constructed along the Syrian border, within the scope of the project, has been completed. Moreover, during the mine and grenade clearance conducted as part of the project in the region, an area of 41 thousand 197 square meters has been checked and 415 mines and grenades have been detected.

The activities for the "Border Security System" are continuing as well; composed of the cutting-edge electronic detectors which will be operating integrated with the Border Physical Security System Project, will enable 7/24 surveillance of the borderline.

The Boundary Security System will be established along the borderline of 122 km within the responsibility area of the 1st and 2nd Border Battalion Command in lieu with the 1st Border Regiment Command of the Syrian Border. The border will be uninterruptedly monitored night and day and minimal motions and changes at the border will be detected through this system. The initial delivery of the system to be manufactured through domestic facilities is scheduled to be completed by the end of this year.

Airship Aerial Surveillance System at the Border

Meanwhile, Turkish Armed Forces (TAF) plans to utilize a 'Blimp' in order to provide border security.

The unmanned balloon surveillance system developed by Aselsan is aimed to be used for maintaining the border and patrol security. The system enables close range security surveillance and early warning capacities to the facilities such as small troops and stationary units. TAF is testing the 16 m long unmanned balloon surveillance system that is capable of reaching an altitude of thousand meters. Through this system, developed through domestic facilities, the capacity of surveillance through an aerial balloon will accomplish that gathering of intelligence, providing early warning and border security.


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The system with two different models namely the "Water Drop" and "Global" is capable of transmitting real time images. The night and day vision cameras of the system are able to display a 360 degree angle the region.

The unmanned airship surveillance system, launched with the help of the ground support equipment and an anchorage station, is capable of reaching an altitude of a thousand meters. The control of the system, transmitting the images it records instantly to the ground control station, is also achieved through this point. The system capable of resisting high winds is also not affected by assault from small firearms.

The balloons of the system being developed, namely the "Water Drops", are able to rise to an altitude of a thousand meters. The 16-meter-long balloon has a volume of 180 cubic meters. The "Global" balloon, with a volume of 35 cubic meters, is able to rise to an altitude of 500 meters.

The troop tests of the "Water Drop" have been launched by the Turkish Armed Forces. The system is still going through the development process and has performed a total of 400 hours, especially at the border region and the efforts for its completion are ongoing.

Full Steam Ahead – “Korkut” Serial Production Commences

The serial production phase has commenced for the Self-Propelled Low Altitude Air Defense Gun System (Korkut) following the successful completion of the design and pre-production phase. The project is being conducted by the Undersecretariat for Defense Industries (SSM) together with Aselsan as the prime contractor and FNSS as the subcontractor, to meet the need of Turkish Land Forces. Work on the Serial Production Phase of the Korkut Project started after the serial production agreement was signed between SSM and Aselsan, and subsequently a sub-contract agreement was signed between Aselsan and FNSS on December 2, 2016 for the delivery of the tracked platforms.

The “Korkut” System is comprised of a Command and Control Vehicle and Weapon System Vehicle to complete air defense operations. The Command and Control Vehicle detects and tracks targets with its 3D search radar and while developing a local air picture, evaluates threats and assigns targets to the Weapon System Vehicles. Meanwhile, the Weapon System Vehicles trace the target with a fire control radar and generates firepower with two 35 mm guns using fragmentation ammunition.

Both the Weapon System Vehicles and the Command and Control Vehicles were built on the ACV-30 chassis, the tracked carrying platform specially developed by FNSS to carry the command and control, large scale mobile radar, gunfire support, self-propelled artillery and missile systems. The ACV-30 is also used in the Low Altitude Air Defense Missile System (HİSAR-A) project. The most remarkable feature of the ACV-30 is its amphibious capability while maintaining high payload capacity, superior mobility performance and a large internal volume. This amphibious feature distinguishes “Korkut” from all other existing medium caliber self-propelled air defense systems in the market today. The “Korkut” system is able to carry out missions with heavy armored platforms such as the main battle tank and armored combat vehicles, including the ability to fire on the move, and maneuver natural obstacles such as river crossings, offering a significant tactical advantage.

In the context of the development phase of the “Korkut” Project, the contract for the development of the tracked carrying platform was signed between Aselsan and FNSS on June 25, 2011. One Command and Control Vehicle and two Weapon System Vehicles were developed and tests were successfully completed, with final acceptance occurring October 31, 2016.

Production line qualification and serial production activities will be carried out in accordance with the Serial Production Phase of the “Korkut” Project that started on May 19, 2016 with the signing of the related agreement between SSM and Aselsan. The systems will be delivered in groups consisting of one Command and Control Vehicle and three Weapon System Vehicles. The first group of ACV-30 vehicles to be manufactured by FNSS are scheduled to be delivered to Aselsan in May 2018.

Following the Pedestal Mounted Stinger system, the Korkut Project will be the second air defense system indigenously developed by the Turkish defense industry to be delivered to the Turkish Armed Forces. The fact that both air defense systems and the vehicle to carry these systems were developed by the Turkish defense industry attracts attention, as it demonstrates industry progress.

Power Pack Development Contract Terminated

The tender process of the Power Pack Development Program was launched initially by the Undersecretariat for Defense Industries (SSM) in 2011, to be utilized in the Altay Modern Battle Tank and then in many naval and land platforms in various classes and the tender was won by TÜMOSAN in August 2014 upon the resolution of the Defense Industry Executive Committee (SSIK). However, due to the failure in covering the demands regarding the Selection of the Technical Support Provider, the Power Pack Contract signed between the SSM and TÜMOSAN was mutually terminated

Leaving the HEMA and BMC companies behind upon the resolution of the SSIK in 2014, TÜMOSAN won the Power Pack Development Tender and with the finalization of the contract negotiations with the Undersecretariat for Defense Industries, the contract was signed between the parties on 17 March 2015.

Within the scope of the Power Pack Development Program contract, the indigenous design, development, prototype production, test and qualification of the power pack which was planned to be used primarily in Altay MBT, through the maximum utilization of local facilities and capabilities, with foreign support in required areas by TÜMOSAN, was planned.

Within this context, in line with the details of the contract signed between SSM and TÜMOSAN, the Technical Support Provider (TSP) from a foreign country had to be included in the program. As a result of the negotiations with the candidate countries, TÜMOSAN announced that they signed the Technical Support Provider contract with the Austrian company AVL List GmbH on 7 October 2015. However, especially due to the restrictions on the export license and as the commitments failed to be fulfilled, the contract between the aforementioned parties could not enter into effect. After the intervening 15-month period, a critical declaration was made by TÜMOSAN via the Public Disclosure Platform (PDP).

The declaration made by TÜMOSAN to the PDP on 16 January 2017 is as follows: "Within the scope of the Altay Main Battle Tank Power Pack Development Project and as per the contract signed between SSM and TÜMOSAN, the Technical Support Provider Contract was signed with the AVL List GmbH company as a result the negotiations conducted with the Technical Support Provider (TSP) candidate companies on 7 October 2015. According to the contract, the AVL Company had to deliver the governmental approval after 90 days yet it consecutively demanded extensions and then insisted on an export license containing conditions enabling the Austrian governments' interference with the internal affairs of our country. The aforementioned export license was not accepted by the Undersecretariat for Defense Industries, thus the commitments were not fulfilled and the TSP Contract was terminated and company's bond was recorded as revenue. Our company evaluated the potential problems both throughout the preparation stage of the project and after the selection of the Technical Support Provider and conducted activities with the alternative companies and is still executing these negotiations. Recently, due to the sanctions applied to our country by the EU countries in particular, it is understood that critical obstacles would be encountered during the transfer of the technologies regarding both the project and the sub- components within the scope of the project. Within this frame, TÜMOSAN has been continuing its efforts for the accomplishment of the project through the utilization of the most possible domestic resources and shared its suggestions with the SSM. In order for the evaluation of the proposals made by TÜMOSAN and fulfilment of the advance payment obligation, the Undersecretariat for Defense Industries has granted an extension of a month starting from 16 January 2017."

Then on February 24th, another statement was made to the Public Disclosure Platform by TÜMOSAN and the mutual termination of the contract was announced. In this statement by the company, the process and reasons for termination were summarized as the following: "The Power Pack Development Program Design and Development (Period-1) Contract was signed between TÜMOSAN and SSM on 17 March 2015 and the compulsory Technical Support Provider (TSP) contract was signed on 07 October 2015 between TÜMOSAN and AVL company. From the beginning of the Project, it was agreed as a principle that the Contractor would be able to receive technical support in areas required from abroad and that there would be a single Technical Support Provider in charge of the development of the complete Power Pack. The TSP Companies which were previously identified by TÜMOSAN and other contractor candidates were negotiated with the participation of the SSM representatives and all the companies were regarded sufficiently competent for developing the Power Pack, yet merely the AVL Company committed to present an Export License certificate which did not set any restrictions on the utilization and the sale of the Power Pack to be manufactured in Turkey and thus selected. The period for the accomplishment of the project with a single TSP was projected as 54 months."

In the ongoing process, the AVL

company, which was obligated to present the Export License by 6 January 2016, insisted on an Export License composed of conditions interfering with Turkey's sovereignty rights and interior affairs that could not be accepted by the SSM and then declared that it could not deliver the Export License demanded. Upon these developments, the TSP contract was terminated and company's bond at an amount of 500,000 € was recorded as revenue. During the aforementioned licensing process, all facilities were used through diplomatic channels via Turkey's Embassy to Austria, yet it was understood that as the technologies related with the main battle tank power pack, the 'National Power Component' was perceived as very important factors in the international arena and therefore there was a negative attitude of the countries owning these technologies and controlling the market in Turkey's acquisition of this technology.

Both during the preparation stage of the project and after the selection of the TSP, TÜMOSAN conducted bilateral negotiations repeatedly with the companies from Germany, England, South Korea, Spain, USA, Ukraine, Russia, Japan and Canada in order to set an alternative, and upon these negotiations it was understood that receiving the technical support from western companies was essential due to technical reasons, that a cooperation model based on a single TSP throughout the project period was not possible because of political reasons and that the content and term of the support was going to be limited.

Moreover, regarding the critical sub systems that were envisioned to be procured Commercial off-the-shelf (COTS) during the TSP interview process and at the award of the contract, the companies commercially manufacturing the similar products did not respond to the calls due to the negative attitude of the EU member countries towards our country, certain sub system manufacturers could not provide export licenses to the TSPs and avoided cooperation with our country because of the incidents occurring in our country and in the Middle East, also avoided making offers. It was learned that certain companies made requests to their governments regarding the export license for the serial production and they would be identifying the principles of cooperation in accordance with the response they would be receiving. During this process, it appeared that all critical sub systems evaluated within COTS would be subject to their country's export license and that they could not be procured and therefore the Intellectual Property Rights that are the guarantee of the commercial and military independence had to proceed in a way to be owned by the Undersecretariat for Defense Industries in the future.

In this respect, excluding the Fuel Injection System which could not be procured as part of COTS, the manufacturing and utilization of the critical sub systems such as Hydrostatic Steering Unit, Torque Converter, Retarder, Transmission Hull Casting Technology, Turbo Charger, CGI Casting Technology, Cooling Package, ECU, TCU, Hydrostatic Couplings, Transmission Pumps, Alternator, Starter Motor, Vibration Damper, Brake Lining and Wet Clutches in the prototypes in parallel with the development of the power pack was considered essential.

Upon the European Parliament's negative attitude adopted towards our country and after the Austrian Assembly's resolution of 25 November 2016 for preventing their export of military equipment to Turkey indicated that it would be impossible to receive continuous technical support and critical military equipment from the western companies in the future and even if it is based on a contract this support would quite possibly be interrupted.

Since the execution of the contract signed between TÜMOSAN and SSM rendered it impossible especially due to the restrictions set by the western states to receive support from a single TSP until the completion of the project and to procure the Power Pack Sub Systems within the scope of COTS, TÜMOSAN submitted its requests to the Undersecretariat for Defense Industries on 28 November 2016 for the accomplishment of the project through national resources and requested for the inclusion of the critical sub systems to the project and receiving of specialist support only in required areas.

TÜMOSAN's requests for amendments to the contract due to force majeure events were examined and negotiated by the SSM until 24 February 2017, however SSM notified that it would not be legally possible to step out of the contract conditions, and thus the Power Pack Development Project Design and Development Period (Period - 1) Contract signed between 24 March 2015 was terminated mutually. There was no penalty upon the mutual termination of the contract and all bonds of TÜMOSAN were returned.

Being Turkey's single domestic diesel engine and transmission design and manufacturing company, TÜMOSAN has been exerting great efforts for the accomplishment of the Power Pack Development Project since 2012, created an R&D Center complex based on this Project's objectives and invested in human resources. All these efforts and investments are the indicators of TÜMOSAN's decisiveness on this subject. TÜMOSAN will be continuing to efficiently utilize and develop its human resources that gained essential experiences in the activities so far and its know-how by taking its investors' interests into consideration.

With the experiences gained as part of the Altay Tank Power Pack Project, TÜMOSAN will be the most powerful candidate in case there is a new tender for the project."

With the termination of the Power Pack Development Contract, it is understood that the domestic transmission and the naturalization of the power pack primarily for Altay Main Battle Tank and other Naval and Land platforms initially in line with the serial production process would not be possible in the short and medium term. The attitude and position displayed by the Ministry of National Defense and the procuring authority the Undersecretariat for Defense Industries, after this important amount of lost time, will be shedding light on Turkey's path in this process in which the urgent requirements of the country grows considerably.

STM Published Cyber Threat Report

In 2017, cyber-attacks zero in on the Turkish banking sector

STM, one of the leading companies of Turkey in the fields of Cyber Security and Big Data, published the new Cyber Threat Report. According to the report, an increase in cyber-attacks was observed in 47% of the enterprises during the last 5 years. It was pointed out in the report that cyber-attacks towards the Turkish economy are thriving and that the banking sector in particular is the initial objective.

According to STM's Cyber Threat Report, which comprises the October-December time period, 2016 general assessment and the projections for 2017, Turkey ranks first amongst the countries that are exposed to ransomware and online banking attacks within the European Region in 2016. The harmful software used to seize usernames, passwords, credit card numbers, PIN codes, or phishing attacks mostly by the use of links attached to e-mails are the most common types of attacks that were encountered in relation to online banking. The new version of "Tordow", the first harmful mobile software targeting the banking sector, is expected to affect the world's online banking systems this year. In 2017, particularlly corporate e-mail fraud and SWIFT attacks are expected to increase. With these methods, cyber hijackers can follow especially the institutions' financial correspondence and transfer goods or money to themselves.

Energy Distribution Systems on the Target of Hackers!

In the report, cyber threats towards energy distribution systems, especially in the recent period, was highlighted and the Ministry of Energy and Natural Resources' statement referenced foreign-based cyber-attacks made to electricity transmission lines in the last days of 2016. The use of Internet of Things becoming popular in the industry causes more exposure to attacks with harmful software. In 2017, an increase is expected in attacks against Industrial Control Systems, and particularly against Energy Distribution Systems which largely involve such systems. At this point, the studies should be accelerated in order to enhance critical infrastructure security.

Threats Becoming Smarter

In STM's report, the cyber threats expected to be encountered in 2017 include DDoS attacks where IoT platforms are used, ransomware, attacks towards mobile devices, industrial control systems and especially towards energy distribution systems, information stealing through accessing internal correspondences and attacks aiming at stealing data from closed systems. Another noteworthy detail in the report is that "anthropomorphic" harmful software is expected to emerge this year. This software will create a threat by using success-based learning ability i.e. artificial intelligence applications in order to increase the impact of the attacks. The experts will also have to use a combination of different security solutions to cope with this threat.

Cyber Propaganda Threat!

The recent increase in Internet access also increases the threat of cyber propaganda. In the report, it was mentioned that malicious acts and terrorist organizations will attempt to direct political and social events by abusing social media.

By commissioning the Cyber Fusion Center, a product of the new generation cyber security approach, and by organizing the "Capture the Flag" events attention is drawn to cyber security. STM is carrying out important studies to reinforce Turkey's cyber security infrastructure and preventing the cyber threats from becoming more complicated and hazardous.

Turkish Land Forces Inventory Fortified with Cobra-II

Performing tasks for the interior security forces, Cobra-II entered into the inventory of the Land Forces Command for the first time. Otokar started the deliveries of Cobra-II orders received at the end of the last year in line with the Land Forces Command's requirements for reconnaissance and surveillance vehicles

The Cobra-II Reconnaissance and Surveillance Vehicle, developed for use by the Land Forces Command for Border Security, comprises the integration of the superior technical and tactical features of Cobra-II vehicle as a platform with high-performance electronic subsystems designed for reconnaissance and surveillance. The on-board Land Surveillance Radar and the long-range Electro-Optic Sensor System provide cross-border and long-range reconnaissance and surveillance capabilities thanks to effective software functioning in a wide variety of territorial and climate conditions.

Otokar announced in the Bulletin published in 2017 that it started to deliver Cobra-II vehicles, the contract of which was signed with the Undersecretariat for Defense Industries in June 2016, for use in interior security operations of the Turkish Security General Directorate. With its superior operation capability as well as high level of protection provided to the personnel and firepower prowess, the number of Cobra-II vehicles will increase in the interior security operations.

The order of 82 vehicles, the deliveries of which were initiated in December 2016, is planned to be completed in the first quarter of 2017. As part of the €106.1 million order, the Cobra - II 4x4 tactical wheeled armored vehicles will be offered with maintenance and support services.

According to a report from Otokar, it was announced that Otokar received new orders due to the successful performance of the Ural Armored Vehicle, which was previously sold to a Gulf country. The delivery of such vehicles is expected to be completed within 2017.

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Defense Industry Teknokent Companies Coalesce at the TSSK 4th Project Market

Accelerating Growth Rate of Turkish Defense Industry Encourages Strategic Partner Cooperation – Higher Expectations with Stringent Criteria

ODTU Teknokent Defense Industry Cluster's (TSSK) 4th Project Market took place under the auspices of the Undersecretariat for Defense Industries and by the Middle East Technical University (METU), ODTU Teknokent, Ankara Chamber of Industry (ASO) and the Defense Industry Manufacturers' Association (SaSaD) at the beginning of 2017 at the ODTU Congress Hall.

The products developed by the companies operating under the roof of TSSK were showcased at the 4th Project Market. At the event in which large and small scale defense companies gathered, new business opportunities were discussed in detail through bilateral negotiations.

Taking the floor at the opening ceremony of the event, TSSK Chairman of the Board Mr. Fatih Ünal stated that presently, with over a hundred companies focused on innovation, ODTU Teknokent Defense Industry Cluster (TSSK) which started-up its activities in 2010, is now a prominent dynamic of the sector due to its technological solutions that contribute toward decreasing Turkey's foreign dependency. He elaborated that TSSK formed fruitful cooperation models by attending many organizations and events on a national and international scale. Mr. Ünal continued, "We are participating in many fairs and events abroad within the year. Among these events, the most important one for us is, without a doubt, is the Project Market. For us this event is a small scale IDEF where capabilities are displayed. Over the years, the turnout has increased with each event. We are striving to expand cooperation from the top to the bottom by gathering the smaller, up and coming players along with the established great players in the industry."

Mr. Ünal pointed out their collaboration on various cooperation models with the other defense industry clusters in the sector as well, said, "Today, here at this event, we will sign a cooperation protocol with the Defense, Aviation/Aerospace and Space Cluster SAHA İstanbul that pursues its activities in İstanbul, Ankara Aerospace Industrial (HAB) and Aviation - Space Cluster and Aerospace Cluster Association (HUKD) and we will carry this cooperation beyond expectations."

President of the Ankara Chamber of Industry (ASO) Mr. Nurettin Özdebir expressed their sheer delight in having established such an organization under the auspices of the Undersecretariat and continued, "As a result of our position, in a challenging geographic location, we need to possess critical technologies. To this end, we regard that these types of events, gathering together the sector companies and researchers, are an essential catalyzing element in the transferring of technologies into production."

ASO President Mr. Nurettin Özdemir: "Ankara's Share in Defense Industry Exports is 20%"

Stating that the Turkish Defense Industry has an accelerating growth rate, Mr. Özdebir said, "Turkey achieved exports of approximately $ 142 billion in 2016. The overall export figures of the year 2016 decreased 1.18% compared to the previous year, however, there was an increase in the exporting of Defense-Aviation/Aerospace and Space products by 1.4%. When we examine the export data according to regions and cities, Ankara has a very important place in the ranking. Since Ankara is the base for the defense industry, it alone encompasses

ASO President - Mr. Nurettin Özdebir

20% of the high-tech products manufactured in Turkey. Ankara's technological competence is far ahead of our other cities, but it is still not enough. It must raise its targets to bring forth its true potential, reaching greater heights and stretching beyond what has already been done to achieve even higher export levels. When we analyze Turkey's export figures, we observe that Ankara has taken a step back in the overall ranking compared to 2015. This last year 2016, Gaziantep overtook Ankara in exports for the first time."

Deputy Undersecretary for Defense Industries Dr. Tüfekçi: "We have to increase the quality of human resources in order to achieve success in unique projects"

Deputy Undersecretary for Defense Industries Dr. Celal Sami Tüfekçi expressed their pleasure in attending the 4th project market this year and said, "In the last era, Turkey adopted the technology developing-producing country approach instead of the technology using country approach. It focused its goals over a sustainable industry and technological competency. We have completed our strategic plans for 2017-2021 within this context and our strategic goals entered into effect as of 2017. The 4 main strategic areas are defined in our strategic plan for the new period that focus on the main themes of technological depth and global efficiency. Speed, quality and cost-efficiency will be our priorities in modernization projects. We will be focusing on the productivity method for capability acquisition as the second area. Toward achieving speed, quality and cost-efficiency, productivity has to be supervised and monitored well. Within the scope of the third area that stands out is that we are aiming to combine the technological novelties with scientific know-how and experience. As the Undersecretariat we need to be in full harmony and synergy with the industrialists and academia. Human resources strategy and strong institutional management will be our fourth area. We have many great projects that we try to realize, and it is not possible to see them come to fruition just by imagining them on the paper. We are striving with great effort in the area of training and developing high caliber human resources. I would like to especially underline that if we fail to enhance the quality of our human resources, nothing we mentioned could pass beyond a dream."

Dr. Celal Sami Tüfekçi - Deputy Undersecretary for Defense Industry

SSM, Aselsan, Roketsan and TÜBİTAK are Preparing for the Establishment of a Semi–Conductor Company in Microelectronics

Noting the crucial importance of the development of domestic industry facilities and capabilities in projects within the scope of the activities for the development of SMEs and sub-industry, Dr. Tüfekçi conveyed a striking message to the sector in this context: "We attach great importance to industry participation activities directed toward having domestic system components. We demand the transfer of a minimum of 30% of the industrial participation off-set liabilities of our Main Contractor companies to the sub-industry and SMEs as business share and at least 15% to SMEs as business share. We aspire that the participation of our small companies in programs to not merely be that of supplying the labor but also to be involved in technology generation. We are constantly consulting the SaSaD and other defense industry clusters on how to expand on this and reach new levels. We have an initiative with Aselsan, Roketsan, TÜBİTAK and the Undersecretariat for Defense Industries for the unique design and domestic production of microelectronics. This is key as microelectronics are one of the critical components of the systems that we procure; the domestic development of the detectors over the cameras which are amongst the most important implementation areas of these microelectronics. With the establishment of such a company, we aim to conduct serial production of the microelectronics that we have supported through years of R&D, thus gaining leverage as we achieve yet another level of technological independence.He noted a current challenge that must be addressed "In subsystems, especially when we add intelligence to systems, unfortunately, we cannot integrate them into our systems and mass-produce them. We have to change this and we have to create production-oriented output."

Dr. Tüfekçi underlined the necessity of supporting the design and production process of

systems with the high added value provided by required testing and infrastructure. “To this end, we decided on the establishment of the TrTest or Türktest Corporation which will, in particular, establish and operate the system platform level identification and assessment infrastructures.” said Dr. Tüfekçi.

Dr. Tüfekçi: “We excluded the requirement of needing to be a staff member of a company in order to benefit from the SAYP Program”

Noting that they made severe changes in the Defense Industry Researcher Training (SAYP) program in 2016, Dr. Celal Sami Tüfekçi said, “The personnel, who would be conducting the research as part of the initial implementations of the SAYP program, were obliged to be both the staff of a defense industry company and registered in the graduate or post- graduate programs of the university. In 2016, we made the process more dynamic by abolishing the obligation of being a staff member of a company in order to benefit from SAYP.

“We implemented incentives and support for the sector which will provide support and relief to companies as they endeavor to increase industrial participation in projects. We used to grant credits to our companies within the scope of supporting qualified products and infrastructure through our Defense Industry Support fund. We decreased the interest rate of this credit on a USD basis from 2.1% to 1%.” said Dr. Tüfekçi.

Supportive financial investment models were established to promote the realization of new projects in critical technology areas, fostering a more fertile environment that would create a sustainable and competitive technology base in the defense industry. Dr. Tüfekçi said, “We established our Defense Industry Technologies Inc. Company. With this company, we will be launching the model of becoming partners with our existing technology manufacturing companies We are striving to build companies focusing on know-how and designs that will generate organic growth, and as the Undersecretariat, form a structure supporting these companies. I would like to state that we are open to the partnership models with our main contractor defense industry companies and other SME companies.”

SSM Deputy Undersecretary: “120 companies made applications for the Ankara Aerospace Industrial Zone”

Dr. Tüfekçi underlined the importance of the cooperation protocol to be signed with the ODTU Teknokent and Istanbul SAHA clusters and added that the union of the prominent features of the eco-system is of great significance. When compared to the examples in the world, typically a cluster’s ability to reach the desired level requires 10 years. However, the clusters in Turkey achieved fruitful results with their limited budgets in less than 10 years. In order to raise these achievements to higher levels, we are working on the establishment of the Ankara Aerospace Industrial Zone with an area of over 730 hectares located next to the TAI facilities. We intend to establish a zone that would create synergy between the universities, R&D centers and clusters by gathering the domestic and foreign companies in the area and enable integration. We are conducting joint activities with our Ministry of Science, Industry and Technology for the establishment of a techno-polis within this zone. 120 companies have applied for the zone so far. The preliminary appropriation was made nearly to 70 of these companies. We project that approximately a hundred companies within the zone will be constructed during the first stage.”

ODTU President Prof. Mustafa Verşan Kök touched upon the important contributions of the TSSK companies that are conducting actives at the ODTU campus within the eco-system and added, “We initiated the

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ODTU President Prof. Mustafa Verşan Kök

SAYP program in 2011 with the Undersecretariat for Defense Industries and ODTU and with our major industry companies such as Aselsan, Roketsan, TAI, FNSS, MilSOFT and Havelsan. The number of projects conducted within the scope of these programs reached 25 in 2016 and its economic growth exceeded 7 million TL (approx. $ 2 million).” Mentioning that ODTU constantly invests in informatics and innovation, Kök added, “In 2017, we aim to complete the informatics and innovation center, in which we invested 80 million TL (approx. $ 23 million)”

Following the speeches, an agreement was signed between STM and TSSK for STM academy to provide training for ODTU Teknokent companies. A cooperation protocol was signed between TSSK and the Aerospace Cluster Association, Ankara Space and the Aviation Specialized Organized Industrial Zone and SAHA Istanbul.

Following the opening speeches, a discussion panel was held regarding the procurement selection, procurement procedures and expectations from the suppliers, moderated by the Department Head of the Industrialization Department of the Undersecretariat for Defense Industries, Mr. Bilal Aktaş. As the initial speaker of the panel, Aselsan Procurement Manager Mr. Ali Rıza Kılıç stated that Aselsan achieved cooperation with 37

universities reaching $ 137.5 million, based on 2015 figures and added that, in 2016 considering the production and R&D budget, the number of companies that Aselsan procured from was 707, of which 597 of them were SMEs. Mr. Kılıç also mentioned that as of 2016, Aselsan had an open order of 3.3 billion TL (est. $ 900 million) to these companies and that they made a payment of 900 million TL (est. $ 250 million) to domestic companies again in 2016. Mr. Kılıç remarked that where the orders made to teknopark companies remained at the level of $ 5-6 million in 2015, as of 2016 this figure increased to $ 24 million and added that this increase will be continuing in 2017 and 2018 as well. Mr. Kılıç specifically highlighted that the design activities to be outsourced will become an increasing trend as of 2018.

On behalf of FNSS, Quality and Business Excellence Manager Mr. İhsan Kahraman made a presentation on the systems, production and their expectations from subcontractors and stated that they plan to focus novel products in 2017. Mr. Kahraman mentioned the difficulties that they were facing in acquiring the required level of quality due to the rare nature of products of the subcontractors and technical systems in the sector. "We are having difficulties due to the scarcity of the subcontractors capable of creating solutions to bring novelty and innovation to products, reverse engineering and design simultaneously. During special processes in the course of certification we confront a problem", said Mr. Kahraman.

Also sharing their expectations from the subcontractors in his presentation, Mr. Kahraman underlined that they will surely be coinciding with the companies that are particularly investing in electronic systems, protection systems, improved power train and C4ISR areas.

Havelsan R&D and Technology Director Mr. Cenk Özen stated that they evaluated many criteria when selecting their suppliers and


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added, "We analyze important parameters such as the quality system, management system, product costs and financial structure of the companies wishing to incorporate into our eco-system. During the first stage, we made a scoring system with a preliminary assessment form. A company achieving 30 points over 100 is able to pass to the next stage. In the following stage, we conduct a visit and an evaluation of activity. We have consultancy companies working for us here and a technical staff executing the technical assessment. We evaluate the companies regarding administrative, quality and technical aspects. Companies scoring 90-100 are defined as priority companies in procurement and as a competent business partner. Our suppliers having 70-89 are defined in the category of a sufficient business partner. In 2016, 251 companies applied to be included in our eco-system. 72 of these companies passed several stages and as of today, they are included in the category I just mentioned."

Otokar Procurement Director Mr. Metin Karadaş made a presentation on Otokar's procurement revenue distribution and supplier selection process. Mr. Karadaş stated that their export figure of $ 40 million in 2010 increased to $ 150 million in 2015 and 2016, noting the importance of cooperation to be created with the suppliers. Mr. Karadaş stressed that they can collaborate with suppliers active in micromachining, electronic boxes, radars, turrets, camera systems and insulation materials in the defense industry.

Roketsan Procurement Director Mr. Ali Şarlak stated that they achieved procurement of 1 billion 533 thousand TL (est. $ 430 million) between 2011 - 2016 from suppliers and added, "Our Procurement Directorate analyzes the machinery proficiency, apparatus-set, labor, production reference list, financial structure, reliability aspects of the companies in supplier selection. We select suppliers through audits that are supervised by independent institutions that we outsource. We collaborate with the companies that scored over 75 as a result of the audits."

Procurement and Industrialization Director Mr. İlhami Tanyolu shared that TAI works for over 100 programs with 97 companies in 11 cities. Noting that TAI's strategic subcontract concept is of great importance to them, he said that they do not pursue tenders in their projects with their strategic partners, they make contracts over a unit price instead. Mr. Tanyolu added that they expect the subcontractors to have an engineering infrastructure, production infrastructure, quality, facility security and to be capable of performing risk management; companies of this caliber meeting the designated criteria are able collaborate with TAI as strategic partners.

Turkish Industry Determined to Stay Competitive OSSA 4th Ordinary General Assembly Convened

SSM's steadfast commitment supporting Defense Industry provides confidence. Suggestions abound: bring SMEs into Projects earlier to maximize opportunity, competent companies should be designing instead of contract manufacturing, set determined aggressive goals

The 4th Ordinary General Assembly of OSTİM Defense and Aviation cluster OSSA brought together important actors of the sector. The Deputy Minister of National Defense Mr. Şuay Alpay, SSM Undersecretary Prof. İsmail Demir and many OSSA members attended the meeting together with senior representatives of foundations and public companies.

The 4th Ordinary General Assembly Meeting of OSSA was held with the participation of the Deputy Minister of National Defense Mr. Şuay Alpay, AKP Ankara Parliament Member Mr. Emrullah İşler, Undersecretary of Defense Industries Mr. İsmail Demir, Ankara Chamber of Industry (ASO) President Mr. Nurettin Özdebir, Chairman of OSTİM Mr. Orhan Aydın, General Director of Military Factories Murat Akkaya, General Manager of Machinery and Chemistry Industry Institution Mr. Ahmet Taşkın, TAI General Manager Dr. Temel Kotil, Aselsan Chairman Mr. Mustafa Murat Şeker, Roketsan General Manager Mr. Selçuk Yaşar and OSSA members.

Mr. Nurettin Özdebir- ASO President

In the General Assembly, the activities covering the period between 1 January 2015 and 31 December 2016 were summarized by OSSA Coordinator Ms. Hilal Ünal (she left her position on 20 January).

Ms .Ünal outlined the following issues by saying: "Firstly, we introduced ourselves both within the country and abroad. We are giving low-cost training to our companies. We are delighted to have the support of our Ministry of Economy. We are trying to provide training to each and every SME in defense and aviation/ aerospace and are carrying out consulting activities. We are establishing ERP systems. These are in fact over-cost items for the SMEs, but we are providing them with the support of the Ministry of Economy. As OSSA, we participated in important defense and aviation/aerospace activities abroad with our cluster members between 2015 and 2016. We are maintaining our lobbying activities. We are getting in contact with the primary industries. We have a very close relationship with SSM. We always feel their support. The 'Defense and Aviation/Aerospace Industry Days' (ICDDA 2016) event, held under the auspices of the Undersecretariat for Defense Industries and organized by OSSA, was completed with 5400 registered bilateral negotiations with the participation of 2000 representatives from 200 companies and 33 countries. We expect that the support and incentives we receive from the government will continue to increase in order to accelerate localization efforts. SMEs are willing to localize the subsystems."

OSSA Chairman Mr. Mithat Ertuğ: "We are strong with the industrialists devoted to manufacturing"

OSSA Chairman Mr. Mithat Ertuğ stated that Turkey, which had been importing almost everything for the defense industry until just a while ago, entered a maturity period and said that the volume of the sector exceeded $ 3.5 billion and the employment it created went beyond $ 50 thousand. "The sector offers significant opportunities to the SMEs. 30% of the total defense

industry sector revenue comes from the SMEs consisting of sub-industry. This clearly indicates the importance of SMEs within the sector", said Mr. Ertuğ.

"In the inception period when the cluster was established, the business was perceived as 'acquire the job and distribute it'. It was not so easy to break down the prejudices. First, there was a need to understand what the cluster was and to create a team spirit. The basis of OSSA's motto -We are Stronger Together- was set in those days. We have industrialists standing behind us that are dedicated to this, and we are strong with them", said Mr. Ertuğ.

Emphasizing the warm relationship with the Undersecretariat for Defense Industries (SSM), the support of the Ministry of Economy, SaSaD and many public institutions, Mr. Mithat Ertuğ said: "I would like to thank our industrialists for their participation and for not giving up the love for manufacturing, regardless of whatever happens."

OSTIM Chairman Mr. Orhan Aydın: "We have to establish the structure similar to the Undersecretariat for Defense Industries in other sectors."

OSTİM Chairman Mr. Orhan Aydin stated that the Undersecretariat for Defense Industries is a valuable opportunity for OSSA and the sector and mentioned that the establishment of the Undersecretariat is very influential in Turkey's defense industry up to the point it has reached today. We are not fortunate to find a structure similar to the Undersecretariat for Defense Industries in commercial areas where we spend more money than the defense sector such as energy, transportation and health. For example, Turkey spends more on transportation projects than defense projects, but there is not a structure where you can go and discuss details about your projects and our productions. For this reason, I would like to say that the Undersecretariat for Defense Industries is extremely important

in terms of the defense sector's protection and sustainability."

Noting that the Undersecretariat for Defense Industries has a trained workforce that qualifies the industrialization concept in Turkey, Mr. Orhan Aydın added: "We have to establish an equivalent institution similar to the Undersecretariat for Defense Industries in other sectors and this institution should be in charge of the industrialization of Turkey."

The OSTİM Chairman stated that they do not find it adequate that the small producers only perform activities as subcontractors and added: "We have to transform the SMEs and the subindustry companies into a structure that is capable of designing, producing, and making systems. When we analyze the practices in the world, the following slogan is used in America: 'Think of the little guy, small business first!' Here, there is an approach other than trade. In Turkey, on the contrary, the 'Think big, think of the one having minimal risk, go straight to bigger' model is adopted at first. In European Union legislation regarding the protection of small businesses, 'First, think of the small one! As a second priority, prefer the one having know-how!' idea is imposed."

Mr. Orhan Aydın- OSTIM Chairman of the Board

Mr. Orhan Aydın: "OSTİM Technology University will be established in order to meet the needs of the industrialists."

The OSTİM Chairman gave an explanation on the question asked regarding OSTİM Technology University: "We, as OSTİM, have been exerting efforts for 2 years. The studies for the establishment of the University were brought from YOK to the Council of Ministers. OSTİM Technology University will be established in order to meet the needs of the industrialists."

Following the presentation of the Board's Annual Report and operating income-expense account, and the evaluation of the 2017-2018 activities, the members of the Board of Directors, Supervisory Board, the Full and the Reserve members were elected.

After the voting, the deficiencies in the legislation, the incentives and support

to be made, and the foresights were discussed by the sector representatives. The public and private sector representatives attended the General Assembly as guests evaluated the issues regarding the OSSA and their fields. The necessity of domestic and national production was emphasized and the contributions of collaboration with SMEs to the sector were mentioned.

At the General Assembly, it was underlined that the physical infrastructure of the SMEs is still inadequate, and the related support was asked from the officials in order to reduce the physical infrastructure costs to reasonable levels. On the other hand, the critical importance of the presence of the authorities from the decision maker in the foreign lobbying activities was mentioned. It was underlined that the SMEs should be used more actively in the localization sub-systems activities and that the SMEs should be involved in the projects from the very beginning to increase the localization rate in new projects.

Mr. Haluk Bulucu participated in the General Assembly on behalf of FNSS and underlined that the manufacturers in Turkey should be transformed into competent companies that are capable of designing instead of contract manufacturing. He also added that the industrialists in Ankara are in need of an evolution within this frame. Mr. Bulucu stated that many international companies in many European countries adopted the vision of

Dr. Temel Kotil – General Manager of TAI

Industry 4.0 and are launching to transfer their investments here, especially in Germany having an aged population. Mr. Bulucu emphasized that the industrialists, SMEs and sub-industry companies in Turkey should pursue these technologies in order not to miss the train.

Following the presentation of opinions, suggestions and evaluations, speeches were made by the officials of the Foundation and Public Companies as well Deputy Minister of National Defense and Public Companies officials, Deputy Minister of the Ministry of Defense Mr. Şuay Alpay and Undersecretary for Defense Industries Prof. İsmail Demir.

TAI General Manager Dr.Temel Kotil: "The goal we set for ourselves in order to become a global player is $ 10 Billion."

TAI General Manager Dr. Temel Kotil touched upon the importance of creating companies that will replace TAI. "If we are able to make 10 companies like TAI after this meeting, we will grow 10 times more as TAI. The Americans have this expression: 'Hey, thanks if you do the work I'm doing, because I'll do something else.' We determined our consolidated financial statement for 2017 as $ 1.9 billion. According to the 2017 forecast, the revenue of our sector will reach $ 6 billion. As TAI, we are eager to realize 1/3 of this", said Dr. Kotil. Mentioning that TAI is the number one company that awards the most subcontracts within the sector as exports, Dr. Kotil said, "We are carrying out export activities at an amount of $ 500 million with our partners here. If we had unique products and if we were working on these novel products at our factories, we could sell them ten times more. That's why we intend for each company here to become like TAI. "If we can achieve our determined goal of $ 10 million, we can certainly become a player on a global scale."

The General Director of Military Factories General Murat Akkaya said: "We can define OSTİM as a big factory. I believe that we will deliver more successful services with you in my new position. I also believe we will especially achieve the indigenous engine project together."

The Undersecretary for Defense Industries Prof. İsmail Demir said that the OSSA cluster should be an example to other sectors and clusters and that their support will continue as the Undersecretariat.

The Deputy Minister of National Defense Mr. Şuay Alpay mentioned that they are aware of the importance of the work performed by the industry and industrialists and conveyed his thanks to everybody who carries this heavy burden.

Following the speeches, the election results were announced. The Board of Directors and Supervisory Board are comprised of the following companies:

Board of Directors (Full): EMGE, Küçükpazarlı, Alkan Makine, Dora Makine, Mikron Mühendislik, Skymark

Supervisory Board (Full): Tolga Plastik, Akalın Isıl İşlem ve Çetek Makina.

Havelsan Develops Unique Products in Cyber Security

The Ministry of National Defense signed a cooperation protocol in the field of information and communication technologies. As a part of the signed main protocol, Havelsan signed a sub-protocol with the Directorate General of Communications, Ministry of Transport, Maritime Affairs and Communications in the field of cyber security.

The Ministry of Transport, Maritime Affairs and Communications and the Ministry of National Defense have taken actions in order to enhance collaboration in the field of information and communication technologies. At the ceremony held at the Ministry of Transport, the two ministries crown their intention to cooperate with a protocol. According to this, both Ministries will take joint action in the fields of Cyber Security, E-State Services, Cloud Computing, Electronic Communication Infrastructure and Superstructure, Public Safety and Emergency Communications.

Simultaneously, a sub-protocol, as a part of the protocol signed by the abovementioned ministries, was signed between Havelsan and the Directorate General of Communications, Ministry of Transport, Maritime Affairs and Communications concerning R&D and domestic product development in the field of cyber security. Mr. Ahmet Hamdi Atalay, General Manager signed the protocol on behalf of Havelsan and Mr. Ensar Kılıç, General Director signed the protocol on behalf of the Directorate General of Communications.

Mr. Fikri Işık - Minister of Defense and Mr. Ahmet Arslan - The Ministry of Transport, Maritime Affairs and Communications

Minister Mr. Arslan: "Institutions will Reinforce the work areas"

"We know that ensuring the security of information and communication infrastructures especially at the present time affects both our national security and competition at a significant level". Minister Mr. Arslan said that the institutions could find opportunity to reinforce the cooperation fields and continued as follows "It will be ensured through the protocol signed between Havelsan and the Directorate General of Communications that the security software, which will be required in the field of cyber security, will be developed further and these implementations will be supported within the scope of the R&D studies of our ministry and also through this protocol, a cooperation will be made benefiting from the services at the Cyber Security Operation Center, established within the structure of Havelsan." The Minister of Transport, Mr. Ahmet Arslan said.

Minister Mr. Işık: "Havelsan is one of our institutions which is performing crucial effort in cyber security"

The Minister of National Defense, Mr. Fikri Işık said the following, concerning the signed protocol; "Havelsan is one of our institutions which is performing crucial effort in cyber security. We have established the Cyber Defense Technologies Center within the structure of Havelsan. The domestic products such as National Fire Wall, Data Loss Prevention Product, Cyber and Cyber Exercise System continue to be developed. At the same time, Havelsan continues its work concerning our domestic operating system, PARDUS. I gave the necessary instructions for dissemination of PARDUS, our national operating system."

Havelsan Cyber Defense Technology Center (SISATEM)

Change Itself is an Opportunity to Bring new Actors together – An Interview with ATC's President Howard Beasey

Upcoming 36th Annual Conference on U.S.-Turkey Relations, Mr. Trump and Mr. Erdoğan Invited to Attend

Ayşe Akalın Evers of Defence Turkey magazine caught up with ATC's President Howard Beasey for an exclusive interview on 17th February, 2017. Mr. Beasey shared insights from the 35th Annual Conference on U.S.-Turkey Relations, thoughts on recent developments and details about upcoming events.

Expanding Business Footprints into the U.S.

The 35th Annual Conference on U.S.-Turkey Relations was held in Washington, DC, on Oct 30 - Nov 1, 2016. This was the second conference that Mr. Beasey had the opportunity to run, and he shared that "We felt that it went really well. We had good participation." A post conference report was created in order to capture and continue the themes from the conference. He shared that attendance good, sponsorship was tremendous which shows there is still very strong interest in the relationship, the economic relationship particularly. He said "Of course we did have to touch on the political environment, particularly the July 15th coup attempt, which was on the minds of many of those in attendance. I think we hit the right tone with this event. I'm hoping this year's event will be even more focused on economic issues. There is a lot of interest in Turkish companies investing in the US, including defense. As we saw for the first time ever, last year, the example of the Turkish company Havelsan acquiring Quantum3D, a company in San Jose. It's a good starting point. We are seeing expanding business footprints into the US."

Change is an Opportunity to Bring new Actors together – Building Strategic Relationships

The defense topics on the radar for this year's event will include the important U.S.-Turkey strategic relationship. Mr. Beasey reflected upon the whirlwind of recent administrative change "There is so much change going on in Washington now with the new administration and President Mr. Trump. Within 30 days he ordered a counter ISIL counter terrorism strategy review, particularly as it relates to Syria. We should see something come out on this shortly. There have been some visits to Turkey recently. The CIA director Mike Pompeo was here in Turkey, last week." The visit by the newly appointed CIA director Thursday, February 9th, was less than 48 hours after a phone call between Mr. Donald Trump and Turkish President Mr. Recep Tayyip Erdoğan. Marine Corps Gen. Joseph Dunford, the nation's highest military officer as chairman of the Joint Chiefs of Staff is likely to be here this weekend. These meetings are all talking about where are we going in this relationship as it relates to Syria.

Mr. Beasey touched on the tremendous amount of turn-over in Washington saying "Changes have been made and are being made at all levels of the department of defense, at all levels of the state department. There's a whole new set of key players in Washington.

The upcoming conference will perhaps be the first time for some individuals to be able to meet their Turkish counterparts."

The industry topics to be discussed this year are not necessarily new topics, but there are new and interesting ideas of cooperation and joint ventures on the horizon. Mr. Beasey shared "We've seen joint venture partnerships in Turkey, and to do it in the U.S. would be a whole new ball game and would show some maturity in the industry relationship between the two countries. From selling, design, R&D, coproduction, we will try to capitalize on some of those areas."

We're Going Big – Mr. Trump and Mr. Erdoğan

General James L. Jones, Chairmain of the ATC, has good relationships in the current

administration, and according to Mr. Beasey a high-profile list of attendees is expected at this year's prestigious event.

High level participation is anticipated for this year's conference. Mr. Beasey mentioned that President Mr. Erdoğan and President Mr. Trump have not yet met in person and this year's ATC conference is a prime opportunity. He said "We're going big. We always go big. It could be an opportunity for the presidents to meet. We are going to certainly invite the 2 presidents, Mr. Trump and Mr. Erdoğan. Because of the timing of the conference in May, we think it might be one of the first opportunities for them to physically meet." In addition, Secretary Mr. Tillerson is another guest that the ATC would like to see in attendance this year. Mr Beasey commented that they "Are excited to hear Mr. Tillerson's perspectives. He's a business executive coming to this position, so we hope that he will bring a different perspective on trade laws such as ITAR."

Mr. Beasey commented on the fact that high level NATO meetings had recently occurred "The Turkish Minister of Defense Mr. Fikri Işık and Defense Secretary Mr. James Mattis had an opportunity to meet this week with NATO." On February 15, at the NATO Defense Ministerial in Brussels, Belgium, the secretary recognized that contributions that Turkey has made to the NATO alliance. The Department of Defense reported that Secretary Mr. Mattis assured Minister Mr. Işık of the support of the United States as a strategic partner in the counter-ISIS campaign, welcoming transparent dialogue. The secretary and minister agreed to continue their full range of bilateral defense activities and consultations, and to look for ways to further strengthen defense cooperation in the future.

Mr. Beasey shared that the ATC has received very good feedback from Turkey, noting "The Turkish General staff reached out to us and shared with us who they would like us to invite. Turkish Undersecretary for Defense Industries, SSM, and Prof. İsmail Demir have made good commitments that they would like to attend. We always look to set the stage for a tangible result to come out of the conferences, some sort of industry cooperation or the resolution of a specific issue." In addition, Mr. Beasey noted that Gen. Hulusi Akar of the Turkish Army and General Dunford know each other very well. General Dunford was the first international leader to visit Turkey after the coup attempt.

"The name of the game certainly under Trump is going to be Bilateral"

Mr. Beasy discussed his thoughts regarding how the new administration may impact the ATC. He said "Trump and his administration is marked by tremendous change. A change in mindset, a change in people. Some have indicated concern about the America first, America-centric approach. As far as trade, the name of the game certainly under Trump is going to be Bilateral. We can achieve some movement with bilateral trade. From my perspective, we are the bookends of NATO, (ATC) Turkey on the East, the U.S. on the west, the 2 largest armies of NATO, two solid anchors on either side. Secretary Mr. Mattison recently underscored that NATO has always been the bedrock and the best deal that the United States as ever struck as far as collective defense. This recent talk in NATO about the 2% GDP spending threshold is nothing new. It's been discussed for years. I still think that the relationship between the United States and Turkey is anchored on our strategic common interests and we need to get back to that. We converge more than we diverge. It's ok not to have 100% agreement between allies. Those areas where we can connect, where we can converge, we really need to get back to them to make this relationship really be what it should be. That will allow more economic engagement, investment in each other's economies, building a stronger relationship as well."

Creating a Platform for Dialogue

ATCs role is that of a platform setter, with a number of events that create the opportunity for dialogue.

Chairman's Trip

"We will have our Chairman's trip this year. We're looking at leading a Transportation Technology delegation from March 26-31, 2017. It is a commerce certified delegation to Turkey from the US, which is a good vote of confidence in the Turkish economy." The Transportation Technologies Trade Mission to Turkey will help facilitate further U.S. company participation in this market, the U.S. Department of Commerce is planning an executive-led trade mission in the transportation technologies sector. The trade mission will stop in Istanbul, Ankara and Izmir and will feature U.S. firms that provide hi-tech equipment, systems and technology solutions from the four major modes of transportation (air, rail, land and marine).

Turkey has long served as the crossroads between Europe and Asia. Utilizing this strategic geographic location, the Government of Turkey has planned to make significant infrastructure investments, funneling over $ 250 billion into upgrades in roads, airports, and other infrastructure by 2023, the hundredth-year anniversary of the founding of the Turkish Republic.

It is thus an opportune time for U.S. companies to seize these opportunities and pursue business development in the Turkish transportation market. Some U.S. firms have already participated in some large infrastructure projects in the past few years, including the following:

- The new Istanbul airport, which when completed, will be the largest in the world with an anticipated 150 million passengers per year
- The recently completed Bosphorus

and Gebze bridges in Istanbul
- A two story Bosphorus car tunnel in Istanbul that is currently under construction
- Large scale expansion of the high-speed rail network
- Planned liberalization of the freight rail network

To help facilitate further U.S. company participation in this market, the U.S. Department of Commerce is planning an executive-led trade mission in the transportation technologies sector from March 26-31, 2017. The trade mission will stop in Istanbul, Ankara and Izmir and will feature U.S. firms that provide hi-tech equipment, systems and technology solutions from the four major modes of transportation (air, rail, land and marine). This mission will provide an excellent opportunity for companies to meet with Turkish business partners, industry representatives, Turkish municipal officials, and government officials. It will also include unique one-on-one meetings, networking events, and site visits, in addition to interactions with private industry representatives and U.S. Embassy specialists. Participants will not be limited to the Turkish market; participating companies will also have the chance to meet with U.S. officials from the "partnership posts" of Turkey, namely Uzbekistan, Azerbaijan, Georgia and Turkmenistan.

Vice Chariman's Trip

"For the first time we are doing a Vice Chairman's trip. At the 35th Annual Conference on U.S.-Turkey Relations, the American-Turkish Council's Board of Directors elected Mr. Tamer Saka, CEO of Kibar Holding, as the new Vice Chairman. Mr. Tamer Saka will lead a delegation to the Midwest. We are planning on a tri-state tour of Indiana, Michigan and Illinois, traditionally the heart of manufacturing in the US. We will be looking at manufacturing opportunities. The states in this area have done a lot to incentivize investments. We've already seen that some Turkish companies made investments there. One of the keys to investment in the U.S. is understanding the states. The states control land policy and tax policy. We'll culminate the Vice Chairman's trip in Chicago in September with our summit series."

Summit Series

"Last year our topics were innovation and investment partnerships. This year will be retail and manufacturing in Chicago. The way we decide on the summit topics is by looking at the stats, surveys, participation feedback, from our conference. We can only scratch the surface at the conference on a broad array of topics. We build the summit series around those topics that we think the relationship wants to know more about." Mr. Beasey noted that the ATC wants to expand the footprint in the U.S. as well, with an intentional effort to go West, outside of Washington. They were in Boston last year, Chicago this year.

Mr. Beasey discussed that for the ATC to continue to grow and to be vibrant, they need get out and explain the opportunities that exist in Turkey. He noted that this is a subject that comes up every time, the challenges of perception. He said "There are perception problems about what the environment is in Turkey, political, security investment. We are trying to do what we can to present the right perception. Certainly, there are challenges. Elections, referendums, questions around political stability, security. The message needs to get out that it is safe for business and travel in Turkey. Many companies in the U.S. use the U.S. the state department for their benchmark of their security posture and travel decisions. The state department decisions are made entirely on a different risk profile. This different risk profile is for U.S. residents in Turkey 24/7 in Turkey. Often times businesses use the state department as their baseline. Business travelers have a different risk profile, with much less exposure. They are here for a short while, from airport to hotel and back to the airport. Perhaps there should be a business traveler index that would give a better assessment for the business traveler risk profile. In order for individual companies and their security teams make their assessments, they need valid information. The business environment is strong in Turkey. The message needs to get out to business travelers, they need to know that it is safe to come, and to tour and see all that Turkey has to offer. It's an amazing country for many reasons and people need to know that."

IDEF – Networking Reception

ATC is organizing a reception this year at IDEF. On May 11, ATC is hosting a reception that will bring the leadership from the 2 sides of the industry together in a more casual setting. Mr. Beasey shared that he reception is "Not in the hussle and bussle of the IDEF event itself. It's more of an intimate setting to perhaps discuss potential business opportunities." He continued "AUSA decided they could not attend IDEF this year. We are not here to replace them. AUSA is a big organization and they bring a lot of value, we cannot bring the same resources that they can, and that is not who we are. We are just focused on keeping things going, to help facilitate the relationships. We'll be at IDEF certainly."

The upcoming 36th Annual Conference on U.S.-Turkey Relations

May 21 2017, 4:00 PM - Tue, May 23 2017. This year's conference venue is new, it will be at the Trump International Hotel Washington, D.C. It is a beautifully transformed century-old post office building. With its recent Grand Opening on October, 26, 2016, it is one of Washington's most talked about hotels.

Harp ArGe Electromagnetic Anti-Drone System Exported to Azerbaijan

Established in early 2016, the Turkish company Harp Arge developed and produced an Electromagnetic Drone Killer as a result of its research and development studies that had started a year prior, in order to prevent the increasing number of suicide drone threats both in the theatre and cross border.

The Drone Killer was initially intended for active used by the Turkish Security General Directorate and Turkish Armed Forces. The Drone Killer system the most effective weapon used to deter drones that can be utilized for attack. The Drone Killer electromagnetic jamming weapon is solely provided to government agencies due to regulations.

The Drone Killer, developed by Harp Arge's own resources, successfully completed the challenging tests of the Azerbaijani Army and started to perform tasks in the Azerbaijani Presidency.

© Harp ArGe

Stating that they achieved a significant export activity, Harp Arge General Coordinator Mr. Aytekin Güçlü said that the drone market is growing rapidly in the world and that an important anti-drone market will emerge in parallel with this rise in drone production in the future. "Even now, many countries are trying to limit the use of drones through legal regulations. Each day our troops are harassed by illegal drones. Even in the Euphrates Shield Operation, ISIS injured our 3 troops by dropping bombs with drones. All these events demonstrate how important the Drone Killer technology is," added Mr. Güçlü.

© Harp ArGe

Developed and produced by Harp Arge, the Drone Killer is able to capture and neutralize the threatening drone up to 1 km at a certain angle in the air through the jammer frequency spreading by the directional antenna in front of it. According to the target class, the drone systems can react differently. In some classes, the system may interrupt the connection of the drone with the controller and hang it in the air until the battery runs out, or it may take down the drone by interrupting the connection with the controller.

© Harp ArGe

Apart from the Drone Killer, which is exported to both domestic and foreign markets by Harp Arge, it is anticipated that the Anti-Drone market will expand further in Turkey. In this context, at the recent 3rd High Tech Port exhibition in November, Aselsan launched a prototype of the portable IHASAVAR (Man-Portable Drone Jammer) system with the IHTAR anti-drone system, which is able to detect and deter micro and mini UAV systems.

© Harp ArGe

New Chairman on Aselsan Board of Directors

Aselsan publicly announced that Prof. İbrahim Özkol - Vice Chancellor of Istanbul Technical University and Faculty Member of Aeronautical Engineering Department of Aeronautics and Astronautics Faculty, was appointed as the Aselsan Chairman of the Board of Directors at the board meeting held on 15 March 2017.

The Deputy Undersecretary for Defense Industries Mr. Mustafa Murat Şeker, who has been the Aselsan Chairman of the Board for two years, was appointed as the Deputy Chairman. It was also announced that Mr. Mustafa Murat Şeker and Mr. Murat Üçüncü were appointed as the Executive Directors.

Gebze Technical University Vice Chancellor Prof. Haluk Görgün, Ankara Mayor Mr. Ercan Topaca, Naval Forces Technical President Ret. Emin Sami Örgüç and Mr. Bayram Gençcan were appointed as Board members.

Biography of Prof. İbrahim Özkol

Prof. İbrahim Özkol was born in Izmir in 1962. Özkol started his undergraduate education in the Aeronautical Engineering Department of Aeronautics and Astronautics Engineering Faculty of Istanbul Technical University and also completed his postgraduate degree at the same department. He made a pause in his academic career and worked for the CASA-3000" and "CN-235" projects in Spain 15 months between 1992 and 1993, since he was appointed by the Undersecretariat for Defense Industries (SSM). Özkol returned to his academic career in 1996 and assumed the title of "Professor" in 2005. Prof. İbrahim Özkol has been serving as the

Prof. İbrahim Özkol

Vice Chancellor of ITU and faculty member in the Aeronautical Engineering Department of the Faculty of Aeronautics and Astronautics. Performing as an executive and researcher in many SSM and TÜBİTAK supported projects, Prof. Özkol is one of the promoters of the ITU Air Transport Management Master Program, which was the first in Turkish universities in 2013. Özkol is married and father of two children.

Havelsan Ordinary General Meeting Concluded

The 2017 Havelsan Ordinary General Meeting has taken place and according to the results of the General Assembly Meeting, Prof. Abdullah Çavuşoğlu was elected the new Chairman of the Board.

Havelsan's new board consists of the following individuals: Prof. Abdullah Çavuşoğlu - Chairman of the Board of Directors, Taner Düvenci - Vice Chairman of the Board, Assoc. Prof. İrfan Neziroğlu - Member of the Board, Mr. Ahmet Akyol - Member of the Board, Mr. Gökhan Gökay - Member of the Board.

Resume of Prof. Abdullah Çavuşoğlu - Havelsan's new Chairman of the Board

Prof. Çavuşoğlu graduated from Gazi University, Technical Education Faculty, Department of Electronic Education in 1985. He completed his Ph. D. in Computer Engineering at the University of Sussex in 1993. Having received the title of Professor in 2011, Çavuşoğlu performed duties in academic and administrative positions at various universities and public institutions.

Having completed fieldwork at home and abroad, Çavuşoğlu served as a Research Assistant, Assistant Professor, Associate Professor and Professor at Gazi University between the years 1986-2008. He was a member of ÖSYM (Assessment Selection and Placement Center) Executive Board for 3 years since 2008 and at the same time served as the Advisor of the President at the Higher Education Council for nearly 6 years. In 2009, he was the Founding Dean of the Engineering Faculty of Karabük University, later served as the Vice Rector at Yıldırım Beyazıt University and as the Founding Dean in the Faculty of Engineering and Natural Sciences.

In May 2013, he commenced to work as a member of TÜBİTAK Science Board and then served as the Vice President of TÜBİTAK until 2014. Prof. Çavuşoğlu was appointed as a member of the Higher Education Council on 25 July 2014.

A New Chairman of the TAI Board of Directors and New Members Appointed

The new Board of Directors was elected at the General Assembly held at the TAI premises on 17 March 2017. A total of 6 new members were appointed to the Board of Directors where Prof. Oğuz Borat was appointed as the Chairman. Only the Deputy Undersecretary for Defense Industries, Dr.Celal Sami Tüfekçi, remained unchanged in the membership of the Board of Directors. TAI General Manager Dr. Temel Kotil, who was a member in the previous Board of Directors, also left his position.

The TAI Board of Directors is comprised of the following individuals: Chairman Prof. Oğuz Borat, Vice Chairman Ahmet Bertan Nogaylaroğlu, Board Member Dr. Celal Sami Tüfekçi, Board Member Mr. Nedim Güngör Kurubaş, Board Member Mr. Burhanettin Aktı, Board Member Mr. İsmail Altınbaş, Board Member Ms. Belda Şenel Parlak

Changing of Hands - Selex ES Turkey Changes Management

Selex ES Turkey, which has been involved in the Defense Industry as a subsidiary of Marconi in 1985, announced that Mr. A. Ünal Solay, due to health concerns, handed over his position to Mr. Sinan Şenol as of 1 February 2017. Mr. Sinan Şenol has been performing duties in various positions since 1995 in Turkey and has been serving as the General Manager since 2013 as well as serving as the General Manager and Chairman Board since 2015.

Mr. Sinan Şenol, appointed as the General Manager of Selex ES Turkey, had been working at Aselsan in a variety of positions between 1985-2013 and served at TAI as the Deputy General Manager between 2013-2016.

New Appointment to AYESAŞ and Vestel Defense Companies

In accordance with the statement made by AYESAŞ, joint venture of Zorlu Group and L-3 Communications, and Vestel Defense of Vestel Group, it was announced that Mr. Aziz Sipahi, who has been the General Manager of Vestel Defense and AYESAŞ companies for 12 years, resigned his position effective March 1st 2017.

In the statement, it was announced that Mr. Levent Tanrıdağ, who had been the Deputy General Manager of AYESAŞ and carrying out various senior management positions for over 25 years, has been appointed as the acting General Manager of Vestel Defense - the leading UAV manufacturer in the defense and aerospace sector and of AYESAŞ - the leading systems solution provider in Turkey, a company which also provides services to many companies internationally.

CTech Introducing its Products and Technologies at Winter Drill 2017

The joint live firing military exercise was conducted within the scope of the Winter Drill 2017 at the Akbaba Exercise Field in Kars between 14-16 February 2017 by the 14th Mechanized Infantry Brigade Command with the participation of the Air and Land Forces Commands.

With its satellite and wireless communication solutions CTech Company was involved in the 2017 Winter Drill. The Frequency Hopping X Band Satellite Terminal as part of the products developed within the scope of the Satellite and Communication Systems and the BLOS and LOS Satellite Terminal developed for the Unmanned Aerial Vehicles, Modeo and MOBIoT products taking part in the mobile image and data transfer product group were closely examined by the military staff during the drill.

© CTech

In addition to Commander of the Land Forces General Salih Zeki Çolak, Turkish Armed Forces' Commander of Training and Doctrine (EDOK) Lieutenant General Tahir Bekiroğlu, 9th Army Corps and Garrison Commander General Mehmet Özoğlu, Director of the Air Forces Staff Brigadier General Kutlay Demir, 25th Border Brigadier Commander Hasan Kaymaz, Military Attachés from 40 counties and many domestic and foreign delegations visited the CTech stand on the distinguished observer day and gathered information on the products of the company.

TAI Awarded Invention Award at the Istanbul International Invention Fair

TAI participated in the 2017 Istanbul International Invention Fair (ISIF'17) hosted by the Turkish Patent and Trademark Office between 2-4 March. TAI was granted an Invention Award under the "ISIF 2017 Gold Medals" category.

This event shined the light on more than 500 inventions and patents that were exhibited. More than 300 entrepreneurs and inventors from 32 different countries. Fair attendance by individuals as well as by institutions was organized under the auspices of the Ministry of Science, Industry and Technology and the International Federation of Intersectional Associations (IFIA).

The inventions of TAI staff members, Mr. Aydin Birol Akdemir and Mr. Kadircan Kopşa, entitled "A Real Time Operation Method" and the invention of TAI staff member Mr. Özgür Dokuyucu, which is called the "Payload Release Mechanism" were displayed at the fair. The inventions were evaluated by an international jury composed of experts in their fields. The invention "A Real-Time Operation Method" was granted an award under the s"ISIF'17 Gold Medal" category. The award was given to the TAI representatives by the Minister of Science, Technology and Industry Dr. Faruk Özlü.

© TAI

Teknopark Istanbul - The 3rd Golden Cube Award Ceremony

The best of the Teknopark Istanbul ecosystem was determined at the 3rd Teknopark Istanbul Golden Cube Award Ceremony.

The awards were given in 13 categories: Executive of the Year, Team of the Year, Company of the Year, Defense Industry Company of the Year, Company of the Year that Benefitted the Most from Incentives, Startup Company of the Year, Incubator Company of the Year, Product of the Year, Project of the Year, Company of the Year that Generated the most Projects, Company with the Highest Exports of the Year, Company of the Year that Provided the Most Employment Opportunities and University of the Year.

Baykar Makina General Manager Mr. Haluk Bayraktar participated in the ceremony as a guest speaker and shared an overview and recent developments of Baykar National UAV with the participants. Mr. Bayraktar noted that the technoparks, R&D centers and incubation centers are the centers that will determine the future of Turkey. He stated that from the start of their journey 12 years ago, they are now moving forward with a total of 250 personnel, 140 of which are engineers and 110 are technicians.

Defense Industry Company of the Year: Roketsan
Company with the Highest Exports of the Year: P.I. Works
Company of the Year that Provided the Most Employment Opportunities: Intertech
Company of the Year that Generated the Most Projects: PavoTek
StartUp Company of the Year: YongaTek
Company of the Year that Benefitted the Most from Incentives Most: Nubigon
Project of the Year: Motek
Product of the Year: Altınay Havacılık
Incubator Company of the Year: Optiyol
Executive of the Year: Yeşim Cöngevel Sonbudak from Intertech Company
Team of the Year: Milsoft
Company of the Year: Delta Marine
University of the Year: Bahçeşehir University

Mr. Bayraktar noted "We delivered 12 Unmanned Aerial Vehicles to the TAF and 6 UAVs to the Security General Directorate. Within this context, we aim to support 1001 technology teams at secondary and high schools, and universities by 2023 in order to attract the interest of young people."

Following the speeches, the awards were presented to the representatives of the companies who were entitled to receive the awards in 13 categories.

Teknopark Istanbul performs its activities as a technology development zone established by the Undersecretariat for Defense Industries and Istanbul Chamber of Commerce. It contributes to Turkey's technology development capacity by local and foreign entrepreneurs. As of 2017, Teknopark İstanbul now hosts 170 R&D companies and 2,750 R&D personnel.

Ares Shipyard Stride Out in Maritime Industry

Under TOBB's leadership, Turkey's fastest growing 100 companies were identified through the cooperation of TEPAV (The Economic Policy Research Foundation of Turkey). The award ceremony was held with the attendance of Deputy Prime Minister Mr. Nurettin Canikli, hosted by TOBB President Mr. Rıfat Hisarcıklıoğlu. Ares Shipyards, an Antalya company which increased its sales by 4,473% in 3 years, and took first place. Companies in the top 100 grew 12 times faster than Turkey. Most of the companies in the list are from Istanbul with the majority in wholesale trade.

Speaking at the awards ceremony, TOBB President Mr. Rıfat Hisarcıklıoğlu stated that the average growth rate of the 100 fastest growing companies in Turkey between 2012-2015 was 438%, and according to contest results, "This is a terrific figure, 12 times higher than the increase in national income in Turkey."

12th Round of Pakistan-Turkey High Level Military Dialogue Group Meeting Held in Pakistan

Pakistan and Turkey - Working toward a Comprehensive Bilateral Strategic Framework Agreement

The 12th Round of the Pakistan-Turkey High Level Military Dialogue Group (HLMDG) was held at the Ministry of Defense of Pakistan in Rawalpindi from 25-26th January 2017. Lt Gen (Retd) Zamir-ul-Hasan Shah, Secretary of Defense led the Pakistan delegation while the Turkish delegation was led by General Ümit Dündar, Deputy Chief of the Turkish General Staff of the Republic of Turkey.


© Pakistan MoD

Prior to holding of the Plenary Session, General Ümit Dündar, had a meeting with Lt Gen (Retd) Zamir-ul-Hasan Shah. During the meeting, matters of mutual interest including the entire spectrum of bilateral defense cooperation were discussed. Both leaders expressed their concern on terrorist attacks in Pakistan and Turkey. The Secretary Defense apprised the visiting delegation about the successes achieved by Pakistan as a result of military Operation Zarb-e-Azb and the National Action Plan.

Both sides deliberated upon various areas of interest, including security, counter terrorism and the prevailing regional environment particularly with reference to Afghanistan and the Middle East. In addition, delegations took stock of the measures that have been taken since the last HLMDG meeting that was held in Turkey in October 2015.

General Ümit Dündar also held meetings with the Minister for Defense, Chairman Joint Chief of Staff Committee, Chief of the Army Staff and Chief of the Air Staff. In all of these meetings, matters relating to defense cooperation covering training, exchange visits and co-production of defense equipment were discussed.

The highlight of the HLMDG meeting was that both sides agreed to work toward a Comprehensive Bilateral Strategic Framework Agreement which must encompass all facets of cooperation.

Talks were held in a most cordial and congenial atmosphere. Delegation leaders resolved to work together toward enhanced cooperation in defense and security related fields. It was agreed that 13th Round of the Pakistan-Turkey HLMDG meeting will be held in Turkey.

Lockheed Martin Introduces Paragon Direct Attack Munition

Lockheed Martin has announced that its Dual Mode Plus laser-guided bomb (LGB) will be branded Paragon. The Paragon direct attack munition is an affordable, effective alternative to current dual-mode weapons.

"The new brand Paragon exemplifies a model of excellence, and reflects the system's performance and capability," said Joe Serra, Precision Guided Systems director at Lockheed Martin Missiles and Fire Control. "The Paragon direct attack munition has demonstrated performance well within operational requirements and can be released farther from the target than other dual-mode or GPS-guided weapons."

Paragon leverages the reliability and affordability of Lockheed Martin's combat-proven LGB, integrating an inertial navigation system (INS)/GPS all-weather moving-target capability to deliver increased standoff, mission flexibility and reliable performance.

"Our flexible streamlined manufacturing enables us to offer Paragon as an affordable solution to help stretch defense budgets," Serra said. "Greater capability at a more affordable price benefits our customer by increasing competition in performance-based acquisitions."

Paragon has been successfully integrated on the F/A-18. Additional F/A-18 flight testing continues and F-16 test flights are planned for the second quarter of 2017.

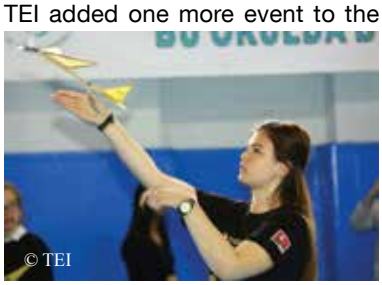
Effective against fixed, relocatable and moving targets, the Paragon direct attack munition maintains the physical dimensions, mass properties and outer mold line of Lockheed Martin's combat-proven LGB, and integrates seamlessly with aircraft employing LGBs or similar direct-attack weapons using conventional MIL-STD-1760/1553 or Universal Armament Interfaces.

Ambitions Soar as Young Ladies from Area High Schools Participate in TEI's Women of Aviation Worldwide Week

TEI, Turkey's leading company in aviation engines, celebrated Women of Aviation Worldwide Week once again, organizing two successful events.
High school students participated in shaping their own futures by allowing their dreams and ambitions to soar, fueled by words of encouragement and wisdom from a panel of Women Aviators.

On International Women's Day (March 8th, 2017), TEI organized a "Model Airplane and Flying Competition" in order to inspire female high school students to imagine and perhaps pursue careers in the aviation sector. During the afternoon event, the students were introduced to the sector and given a closer look at the possibilities that aviation may hold for them. A common thread in the discussion panel from successful women in the aviation field was that an increase in female leaders will be essential in revealing Turkey's full potential.

In commemoration of March 8th, 1910, the date when the first female pilot of the world was licensed, TEI added one more event to the


© TEI

successful events it has promoted every year since 2010. The week of March 8th is held in high regard as demonstrated by TEI with the events organized each year during "Women of Aviation Worldwide Week".

40 students from 20 different schools attended the Model Airplane and Flying Competition on March 8th. The event was organized by TEI under the scope of a social responsibility project, with the support of the Eskişehir Provincial National Education Directorate, at Sabiha Gökçen Vocational and Technical Anatolian High School.

Prof. Dr. Orhan Oğuz Anatolian High School took first place in the competition in the category


© TEI

of making the most aesthetically pleasing airplane model, and Ahi Evran Vocational and Technical Anatolian High School both tied for first place in the category of flight endurance for their airplane models.

In the second half of the day, a panel of 'Women Aviators' gathered in a discussion session and shared their motivational experiences with the young ladies in the audience. The audience of high school students listened intently, participating in shaping their own futures by allowing their dreams and ambitions to soar, fueled by the panel's words of encouragement and wisdom.

The sector was introduced to students who were interested in aviation during the session held at Hacı Süleyman Çakır Anatolian High School. General Electric Aviation Turkey Technology Center General Manager and TEI Board Member, Dr. Aybike Molbay,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ITU Astronautical Engineering Department's Associate Professor Melike Nikbay, Turkish Airlines A320 Co-Pilot Gökçe Kübra Tuğran Yıldırım and TEI MRO Director Pinar


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Günaydın, shared their experiences with the students during the panel. The panel was moderated by Defence Turkey magazine Editor in Chief Ayşe Evers. The panelists underlined the fact that the number of women working in the Defense and Aviation sector is still insufficient and encouraged the young ladies to pursue careers in these fields. The common message conveyed by the speakers was that the students need to discover their desired profession and to aspire to further themselves in that specific area of focus, thus playing an important role in sector advancement as a woman.

Rolls-Royce Announces Investment in Research & Development for Ship Intelligence

Rolls-Royce has today announced the latest stage in its research and development plans to make remote and autonomous shipping a reality and reap the benefits of increasing digitalization in the marine industry.

The company is looking to develop partnerships and opportunities with other organizations around the world to, create the capability, competencies and jobs to supply the technology and components required.

Today, the latest part of that program has been confirmed with the announcement, in Finland, of a significant research grant by Tekes – the Finnish Funding Agency for Innovation. The funding will enable Rolls-Royce to invest further in a research and development center in Turku, Finland. The company plans to carry out further development projects there focused on the future development of land-based control centers, and the use of artificial intelligence in future remote and autonomous shipping operations.

Mikael Mäkinen, Rolls-Royce, President – Marine said: "Digitalization will transform the shipping industry in the years ahead, and the time is now right to set out how we are going to make this happen. Over the coming years we need to invest globally to develop the required capabilities and to establish a range of market-ready products and systems to take advantage of what is a significant global market opportunity.

"By combining our world leading capability and knowledge, with a clear plan of where we need to go next, we can work with our customers, governments and our global academic research network to develop and bring to market the advanced technology, products and supporting services needed both 'on-vessel' and 'on-shore' to make our vision of future remote and autonomous ships a reality."

© Rolls-Royce

In Norway, the company is currently investing in a range of R&D projects, which will include a new Marine Fleet Management Centre in Aalesund, to allow remote monitoring, data analysis, optimisation of ships and their on-board equipment. The center will allow Rolls-Royce to extend its 'Power by the Hour'

concept, already proven in its Aerospace business, to serve the marine sector. 'Power by the Hour' is a new service to be delivered from the Marine division of Rolls-Royce which makes use of 'big data' to monitor, plan and perform maintenance and repairs on onboard ship equipment.

Asbjørn Skaro, Rolls-Royce, Director, Digital & Systems – Marine, added: "We are pleased to see the establishment of a center for Remote Control & Autonomous Ships in Finland, and welcome the continued support from Tekes. We are looking at further funding and capability opportunities in countries including Finland, Norway, UK and Singapore to develop our ship intelligence technology and build customer partnerships worldwide.

"By drawing on our existing capabilities in our Marine business, together with the global expertise we have across the Rolls-Royce Group and our relationships with partners, we believe we can secure up to £200m of investment to revolutionize shipping."


© Rolls-Royce

Lockheed Martin to Deliver World Record-Setting 60kW Laser to U.S. Army

The Beam Combined Fiber Laser is the Most Powerful Laser of its Type Yet Demonstrated

Lockheed Martin has completed the design, development and demonstration of a 60 kW-class beam combined fiber laser for the U.S. Army.

In testing, earlier this month, the Lockheed Martin laser produced a single beam of 58 kW, representing a world record for a laser of this type. The Lockheed Martin team met all contractual deliverables for the laser system and is preparing to ship it to the US Army Space and Missile Defense Command/Army Forces Strategic Command in Huntsville, Ala.

"Delivery of this laser represents an important milestone along the path to fielding a practical laser weapon system," said Paula Hartley, vice president, Owego, New York general manager and Advanced Product Solutions within Lockheed Martin's Cyber, Ships & Advanced Technologies line of business. "This milestone could not have been achieved without close partnership between the U.S. Army and Lockheed Martin; we are pleased to be able to deliver this system for their further integration and evaluation."

Lockheed Martin's laser is a beam combined fiber laser, meaning it brings together individual lasers, generated through fiber optics, to generate a single, intense laser beam. This allows for a scalable laser system

that can be made more powerful by adding more fiber laser subunits. The laser is based on a design developed under the Department of Defense's Robust Electric Laser Initiative Program, and further developed through investments by Lockheed Martin and the U.S. Army into a 60kW-class system.

"The inherent scalability of this beam combined laser system has allowed us to build the first 60kW-class fiber laser for the U.S. Army," said Robert Afzal, Ph. D., senior fellow for Laser and Sensor Systems. "We have shown that a powerful directed energy laser is now sufficiently light-weight, low volume and reliable enough to be deployed on tactical vehicles for defensive applications on land, at sea and in the air."

According to Afzal, the Lockheed Martin team created a laser beam that was near "diffraction-limited," meaning it was close to the physical limits for focusing energy toward a single, small spot. The laser system also proved to be highly efficient in testing, capable of translating more than 43 percent of the electricity that powered it directly into the actual laser beam it emitted.

Laser weapons provide a complement to traditional kinetic weapons in the battlefield. In the future, they will offer reliable protection against threats such as swarms of drones or large numbers of rockets and mortars. In 2015, the company used a 30kW fiber laser weapon, known as ATHENA, to disable a truck from a mile away.

Raytheon Awarded Contract to Provide the Qatar with Early Warning Radar System

Raytheon has been awarded a $ 1,066,297,129 fixed-price, incentive-firm letter contract for a Qatar early warning radar system. Contractor will provide an early warning radar system that will be integrated into the Qatar integrated air and missile defense enterprise. Work will be performed at Woburn, Massachusetts, and is expected to be complete by June 30, 2021. q

Honeywell Forecasts 3,900 to 4,400 Global Helicopter Deliveries Over Next Five Years

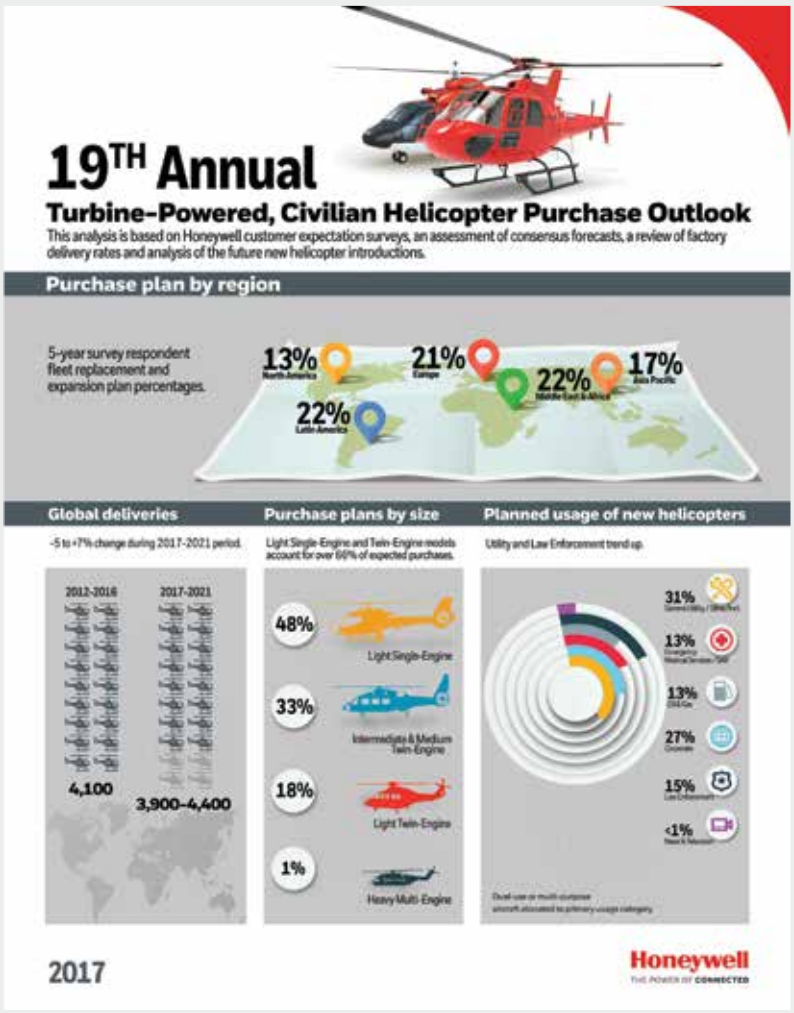
New helicopter purchase-plan rates lower than the 2016 survey
All regions have lower new helicopter purchase plans in the 2017 survey
Increased interest in light single-engine and medium twin-engine helicopters in this year's survey
Highest purchase-plan rates from corporate and law enforcement segments

Impacted by a slow global economic growth environment and volatility in oil and gas-related markets, the helicopter industry is reacting with a cautious outlook for near-term new purchases. In its 19th annual "Turbine-Powered Civil Helicopter Purchase Outlook," Honeywell forecasts 3,900 to 4,400 civilian-use helicopters will be delivered from 2017 to 2021, roughly 400 helicopters lower than the 2016 five-year forecast.

"The current global economic situation is causing fleet managers to evaluate new helicopter purchases closely, and that's why we're seeing a more cautious five-year demand projection compared with previous years," said Mr. Ben Driggs, president, Americas, Honeywell Aerospace. "Even in a slow growth environment, Honeywell is well-positioned to help operators keep current fleets lasting longer with aftermarket upgrades and repairs."

Key global findings in the outlook include:

- The survey showed new purchase-plan rates were lower for the next five years, for all regions, leading to a more cautious near-term outlook.
- When considering a new purchase, operators' results mirrored those from last year, with make and model choices for their new aircraft most strongly influenced by range, cabin size, performance, technology upgrades and brand experience.
- Helicopter fleet utilization in the past 12 months generally increased compared with last year. Over the next 12 months, usage rates are expected to improve significantly in North America and Latin America, but at a reduced rate in Europe.



Regional Overview

Latin America: The 2017 results show lower fleet replacement and growth expectations compared with 2016 results. Still above the world average, the purchase plans have declined more than 13 percent compared with the prior year.

- Latin America led all global regions in the rate of new aircraft purchase plans, but is down year over year and impacted by weak economic performance in Brazil and Venezuela.
- Latin American respondents currently favor light single-engine models, representing almost 60 percent of their planned acquisitions, followed by intermediate and medium twin-engine platforms.

Middle East and Africa: The region has the second-highest new purchase rate among the regions, with up to 22 percent of respondent fleets slated for turnover with a new helicopter replacement or addition. However, purchase plans are 8 percent lower compared with 2016 survey results.

- Close to 80 percent of planned new helicopter purchases are intermediate and medium twin-engine models.
- Light single-engine models are the second-highest-mentioned platform in the survey by operators.

North America: Purchase expectations fell by more than 2 percent in this year's survey. The purchase plans are down for a second year since 2015.

- • More than 75 percent of planned North American purchases were identified as light single-engine models, while just under 13 percent of new purchases were slated as intermediate or medium twin-engine models.
- North American purchase plans are a significant component of the overall 2017 survey demand, as the region represents more than 40 percent of the current world fleet.

Europe: Purchase plans decreased by more than 3 percent in this year's survey, down for a second year in a row.

- The sample of Russian operators responding in the 2017 survey remains small, which continues to add some uncertainty to the overall European results.
- Excluding heavy-twin helicopters, European purchase intentions currently tend to favor all classes in nearly equal shares this year.

Asia Pacific: Despite solid results from these nations, overall buying plans slipped about 1 percent. Operator purchase plans continued to drift slightly lower compared with the past few years in the 2017 results.

- APAC operators tended to focus more on corporate and oil and gas end uses for their new purchase plans, and consequently, intermediate and medium twin-engine helicopters were the most popular models in their new aircraft plans.
- India held fairly steady year over year based on very small sample input.
- There are a number of countries contributing more relative and absolute new helicopter purchase plans in the region, including China, Australia, South Korea, Japan and Malaysia.

BRIC countries (Brazil, Russia, India and China): Purchase plans are lower for all countries except Russia in this year's survey. Overall, BRIC plans are down more than 11 percent compared with 2016 results.

- Brazilian purchase plans are down significantly, by almost 20 percent in 2017, reflecting the impact of the economic recession in the country.
- Small sample sizes in Russia and India make it difficult to draw conclusions.
- Planned Chinese purchase rates slipped, reflecting near-term slower economic growth prospects.

Methodology

The 2017 outlook presents a snapshot of the helicopter business at a point in time and reflects the current business and political environment. This year's survey queried more than 1,000 chief pilots and flight department managers of companies operating 3,746 turbine and 362 piston helicopters worldwide. The survey excluded large fleet or "mega" operators, which were addressed separately. Input received from large oil and gas support and emergency medical service fleet operators is factored into the overall outlook in addition to the individual flight department responses. The survey detailed the types of aircraft operated and assessed specific plans to replace or add to the fleet with new aircraft.

F-35 Successfully Conducts First Firings of MBDA's ASRAAM

The F-35 Lightning II stealth fighter jet has successfully conducted its first firing trials of the MBDA Advanced Short Range Air-to-Air Missile (ASRAAM).

The trials are the first time a British-designed missile has been fired from the F-35 Joint Strike Fighter, and the first time any non-US missile has been fired from the aircraft.

Conducted from both Naval Air Station Patuxent River and Edwards Air Force Base in the USA, the effort has seen both flight trials and air-launched firings of the ASRAAM successfully take place.

MBDA is currently under contract, awarded in 2016, to produce the highly capable infra-red (IR) guided air-to-air missile for the UK's F-35s. ASRAAM's large rocket motor and clean aerodynamic design gives it a high kinematic capability that delivers superior end-game performance compared with other countries' in-service IR missiles.

The trials were conducted by the integrated test teams at Patuxent and Edwards, which include Lockheed Martin, BAE Systems, MBDA and Northrop Grumman.

The development trials work is being conducted under the integration program for ASRAAM onto the UK's F-35 aircraft. This effort is currently progressing to plan and these integration activities will allow the Initial Operating Capability of the aircraft by the UK.

MBDA is also under contract for the ASRAAM Capability Sustainment Program (CSP) to build replenishment missiles for the Royal Air Force's Eurofighter Typhoon aircraft. The CSP effort makes use of ASRAAM's commonality with the CAMM missile family, also being bought by the Royal Navy and British Army, to deliver extensive cost savings across the UK Armed Forces.

SpaceDataHighway to Reach Asia-Pacific

Airbus Defence and Space announces the kick-off EDRS-D, the third communication node of the SpaceDataHighway. Airbus Defense and Space will expand the EDRS-SpaceDataHighway with a third node, EDRS-D, to be positioned over the Asia-Pacific region by 2020. This third node will be the next step towards global optical fiber in the sky and will support the Pacific Rim region, which has witnessed its communication needs for airborne missions rise dramatically.

EDRS-D will include several major innovations to be developed in partnership with ESA. Following the ESA Ministerial Council in December 2016, critical activities dedicated to laser communication in space are being initiated.

EDRS-D will be equipped with multiple laser communication terminals performing optical bi-directional links in order to serve a number of satellites, drones and aircraft simultaneously. It will also be able to establish a laser communication link with another geostationary relay satellite of the SpaceDataHighway, in order to relay data to the other side of the globe, while being at the cutting-edge of security standards.

The SpaceDataHighway service will enable rapid near-real time tasking and high bandwidth data download ensuring highest reactivity, lowest latency and high volume data transfer for Earth observation satellite and airborne platforms. This represents a step change in the speed of space communications. Ultra-broadband laser communications and the geostationary orbit of the relay satellites combine to deliver a unique, secure, near real time data transfer service, making data latency a thing of the past.

Thanks to laser technology the SpaceDataHighway can transfer high-volume data from Earth observation satellites and airborne platforms, at a data rate of 1.8 Gbps and can transmit up to 40 terabytes per day in quasi real time. The European Union's Copernicus Sentinels are the first spacecraft to benefit from these next generation services.

The SpaceDataHighway program is a result of a Public-Private Partnership (PPP) between ESA and Airbus Defense and Space. The German Space Administration DLR is also a key contributor. The innovative laser communication terminals (LCT) are developed and built by the German Airbus subsidiary Tesat Spacecom.

EDRS-A, the first relay satellite for the SpaceDataHighway program was launched on 29 January 2016. Positioned at 9° East, this first communication node offers coverage from the American East Coast to India since its start of service in November 2016. A second satellite will be launched in 2017, which will extend the coverage, capacity and redundancy of the system.

Leonardo-Finmeccanica: Successful first Flight for the new Aermacchi M-345

The prototype of the new Aermacchi M-345HET (High Efficiency Trainer) two-seat basic jet trainer has successfully completed its first flight from Venegono Superiore airfield (Varese, Italy) on December 29. The aircraft was flown by Quirino Bucci and Giacomo Iannelli from Leonardo Aircraft Division.

Quirino Bucci, Project Test Pilot Trainers of Leonardo Aircraft Division, expressed great satisfaction at the end of the 30-minute flight and said: "The aircraft conducted itself perfectly, meeting the expectations of the design parameters while showing excellent performance. The engine in particular demonstrated a great capacity to react to regime changes, which is a fundamental characteristic for a basic training aircraft."

The M-345 is the latest-generation aircraft from Leonardo for military pilot training and provides global Air Forces with an economically affordable and effective solution, thanks to a significant reduction in acquisition and life-cycle costs compared to those of powerful turboprop trainer aircraft. The test campaign will be completed within 2017. The next tests will check the advanced avionics systems, the engine and the flight envelope expansion, including altitude, speed and maneuverability.

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