

# WE DEFEND THE MAJOR TARGETS OF OUR COUNTRY

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# WE DEFEND WITH FAITH

We are one of the trailblazing institutions that have carried Turkey into the future since 1975. With our knowledge and experience dating back, we come up with life-touching solutions not only in the field of defense technologies but also in the civilian fields.

Above all, we are a tech company. We are here for our country's interests and future. We aim to prevent our country's foreign dependency in our fields of activity and contribute to the economy by exporting technology.

**There is a great deal we defend and we have thousands of our employees who stand behind these. As a great team of over 9 thousand people, we continue to advance with the values we defend.**



ASELSAN stocks are  
traded on Borsa Istanbul  
with the ASELS symbol.



Please scan the QR code to  
access to the PDF version  
of our annual report.



# WE DEFEND FOR OUR HOMELAND

We are at work towards a safe future for our beautiful country. We work day and night to meet the needs of our security forces and armed forces of the friendly and allied nations in a quick and reliable way. As a large family of thousands of employees, we defend our country in the air, on land, at sea, in cyberspace, and in aerospace and work up to the collar for our technological independence.





# WE DEFEND FOR OUR PLANET

We protect not only our country but also the future of the world. We add our strength to the combat against climate change as it threatens our world. With our global successes and practices regarding sustainability and the relevant technological systems and solutions, we stand up for our country and humanity.





# WE DEFEND FOR THE FUTURE

We bolster the dreams of our children and youth up for the National Technological Move. We are introducing them to the technologies that will shape our future and advocating for their bright future.



# WE DEFEND FOR OUR DEVELOPMENT

We are the industrial leader of our domestic supplier ecosystem which gains momentum each passing day. With our strategic partners and over four thousand suppliers, we are at the forefront of our country's struggle for technological independence as part of our nationalization efforts.





# WE DEFEND FOR LIFE

Every life-touching high technology bears the signature of our profound engineering. We carry our country into the future through the value-added products and solutions that we offer in the energy, healthcare, finance, and automation industries with our national R&D and innovation strength.





# WE DEFEND FOR INITIATIVES

Entrepreneurship and innovation are a matter of existence in today's world. By supporting high-tech initiatives, we aim to increase the competence and high technology exports of companies that develop national and domestic products.



# WE DEFEND FOR THE HIGH

We wave our flag also in aerospace, the "topmost hill" of humankind. We globally demonstrated our reliability in aerospace technologies with TÜRKSAT-5B. We stand for the development of the industry by integrating our technology with the aerospace ecosystem in our country.





## Vision

To be a reliable, competitively preferred, environmentally friendly, and human-conscious technology firm, which preserves its sustainable growth in the global market via the values created for stakeholders, as well as serving its national purpose in the establishment.

## Mission

By focusing primarily on the needs of the Turkish Armed Forces; to provide high value-added, innovative, and reliable products, and solutions to both local and foreign customers in the fields of electronic technologies and system integration and become a defense company that reduces Turkey's dependence on foreign technology, achieves its global goals by increasing its brand awareness, and makes the Turkish nation proud.





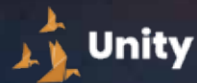


# Our Cultural Manifesto and Values

## ASELSAN Cultural Manifesto

It is difficult to gain the trust of a Nation; it requires drawing its strength from its values. First of all, it requires a spirit of unity. It requires sharing responsibility and progressing together with the synergy of differences. Its secret lies in always looking for excellence while competing with the world. It is about using the resources of this country in the most appropriate way to achieve the best. The way to do this is to put innovation at the center of philosophy. It is about constantly producing new ideas, trying the untried, and doing what is said to be impossible to pioneer in technology. It requires targeting development in every field and seeing challenges as opportunities. It is about being wise today and inspiring the future by constantly improving with feedback. If we do all these by keeping our promise and providing confidence, only then we will become competitively preferred, reliable like a partner, and an environmentally friendly and human-conscious national technology firm that grows with our values. And only then, we can be a reliable technology worldwide as ASELSAN of Turkey. We are ASELSAN. We are the ones producing technologies of the future with our values and working culture that make us who we are.

## Our Values



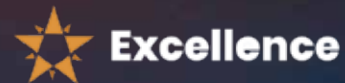
### Unity

We believe in the power of solidarity and togetherness in every situation. We protect each other's rights, encourage and appreciate one another. We share our knowledge and experience, respect differences, and create synergy with them.



### Trust

We value open, clear and transparent communication. We do what we say, we say what we do. We keep our promises, and deliver on time. We focus on solving the problem, not on the person who causes it.



### Excellence

We work according to the processes and look for ways to improve them. By using our resources efficiently, we meet the expectations of our stakeholders in the best manner. We attach importance to the traceability and reproducibility of our work.



### Development

We learn constantly and take responsibility for our personal development. We are aware of the importance of feedback in our development. We develop our potential with challenging goals. We contribute to the development of our internal and external stakeholders.



### Innovation

We challenge the ordinary, generate new ideas, and support creative solutions. While we are not afraid of making mistakes, we see them as opportunities to learn. We expand with different ideas and reflect innovative approaches around the world to our business.



# ASELSAN Shareholding Structure and Financial Position

Net sales of ASELSAN went up by 25.1% in 2021, reaching TRY 20.1 billion.

## ASELSAN's Shareholding Structure

Turkish Armed Forces Foundation (TAFF)

74.20%



BIST

25.80%

## ASELSAN's Financial Position

Turkish Armed Forces

66%



Exports  
11%

Public and Private  
Institutions  
23%

Our Shareholders	Share Amount (TRY)	Share Ratio (%)
Turkish Armed Forces Foundation (TAFF)	1,691,651,248.92	74.20
Free Float (BIST)	588,348,751.08	25.80
<b>Total</b>	<b>2,280,000,000.00</b>	<b>100.00</b>







## Local Affiliates





## Local Affiliates

### MICROELECTRONICS R&D DESIGN AND TRADING LTD. CO. Istanbul

[Share Amount](#)

**TRY 1,700,000**

[ASELSAN's Share Ratio \(%\)](#)

**85**

MICROELECTRONICS Ltd. Co. was established to design and develop integrated circuits and electronic systems in Istanbul. In 2010, ASELSAN became a partner in the company with a share of 85%.

### ASELSANNET ELECTRONIC AND COMMUNICATION SYSTEMS INDUSTRY, TRADE, CONSTRUCTION AND CONTRACTING LTD. CO. Ankara

[Share Amount](#)

**TRY 55,000,000**

[ASELSAN's Share Ratio \(%\)](#)

**100**

The company was established in Ankara in 2004 to meet the electronic and communication device requirements of civilian institutions and organizations. Since 2009, it has also added turn-key and installation work for communication system infrastructures among its activities. ASELSAN is the company's 100% shareholder.

### ASELSAN KONYA WEAPONS SYSTEMS INC. Konya

[Share Amount](#)

**TRY 239,700,000**

[ASELSAN's Share Ratio \(%\)](#)

**51**

The company was established in Konya in 2018 in order to carry out research, design, development, and engineering activities for defense industry products, especially for weapons and weapon systems, to make production, testing, assembly and integration, sales, and marketing, importing and exporting of these products, to provide training, maintenance, and after-sales services, and to engage in all kinds of commercial and industrial activities related to these issues. ASELSAN holds a 51% stake in the company.

### ROKETSAN ROCKET INDUSTRY AND TRADE INC. Ankara

[Share Amount](#)

**TRY 21,906,223**

[ASELSAN's Share Ratio \(%\)](#)

**14.897**

The company was established in Ankara in 1988 to manufacture all kinds of missiles, rockets, rocket launchers, and rocket fuel and their engines, warheads, and other components, and also to manufacture, market, and sell all kinds of military and civilian products and their parts where a high level and sensitive technology is required. ASELSAN holds a 14.897% stake in the company.

### APSILSAN ENERGY INDUSTRY AND TRADE INC. Kayseri

[Share Amount](#)

**TRY 2,378,740**

[ASELSAN's Share Ratio \(%\)](#)

**1**

The company was originally established in the Kayseri Organized Industrial Zone on May 21, 1981, to meet the basic requirements of the Turkish Armed Forces for rechargeable nickel-cadmium batteries. Today, the company produces all kinds of civil and military back/hand radios, combat tools and equipment, and batteries for aircraft and helicopters. ASELSAN holds a 1% stake in the company.

### TÜYAR MICROELECTRONICS INDUSTRY AND TRADE INC. Gebze-Kocaeli

[Share Amount](#)

**TRY 8,905,875**

[ASELSAN's Share Ratio \(%\)](#)

**51**

The company was established in the Gebze district of Kocaeli in 2017 in order to perform activities related to micro and nano dimensional devices that contain semiconductors and similar technological materials. ASELSAN holds a 51% stake in the company.

### ASELSAN PRECISION OPTICS INDUSTRY AND TRADE INC. Sivas

[Share Amount](#)

**TRY 6,500,000**

[ASELSAN's Share Ratio \(%\)](#)

**50**

The company was established in Sivas in 2014 in order to carry out research and development studies for the optical, optical set, and optical devices for all types of ultraviolet, visible, and near-infrared bands, and to manufacture and sell such optical elements. ASELSAN holds a 50% stake in the company.

### ULAK COMMUNICATION INC. Ankara

[Share Amount](#)

**TRY 32,640,000**

[ASELSAN's Share Ratio \(%\)](#)

**51**

The company was established in Ankara in 2017 in order to carry out R&D and engineering activities of mobile and broadband communication systems used by commercial network operators, to manufacture, test, install and integrate, sell and market, import and export such systems and spare parts, and to provide training, maintenance and support services. ASELSAN owns 51% of the company's capital since 2018.

### ASELSAN BİLKENT MICRO NANO TECHNOLOGIES INDUSTRY AND TRADE INC. Ankara

[Share Amount](#)

**TRY 16,500,000**

[ASELSAN's Share Ratio \(%\)](#)

**50**

In 2014, the company was established in Bilkent, Ankara with a 50% participation of ASELSAN to carry out research and development activities for the applications of all types of semiconductors and similar technological materials, and to manufacture and sell micro and nano dimensional devices that contain these materials. ASELSAN holds a 50% stake in the company.

### BİTES DEFENCE AVIATION AND SPACE TECHNOLOGIES SOFTWARE ELECTRONICS INC. Ankara

[Share Amount](#)

**TRY 127,500**

[ASELSAN's Share Ratio \(%\)](#)

**51**

The company was established in Ankara to operate mainly in the fields of augmented reality, artificial intelligence, simulation software, research, design, development, and engineering. ASELSAN owns 51% of the company's capital since 2019.

### EHSİM ELECTRONIC WARFARE SYSTEMS ENGINEERING TRADE INC. Ankara

[Share Amount](#)

**TRY 125,000**

[ASELSAN's Share Ratio \(%\)](#)

**50**

The company was established to operate mainly in the fields of Electronic Warfare and Tactical Command Control Systems in Ankara. ASELSAN owns 50% of the company's capital since 2019.

### DASAL AVIATION TECHNOLOGIES INC. Istanbul

[Share Amount](#)

**TRY 4,000,000**

[ASELSAN's Share Ratio \(%\)](#)

**40**

The company was established in 2019 in order to operate in the field of aviation technologies. ASELSAN owns 40% of the company's capital since 2020.

### TEKNOHAB INC. Ankara

[Share Amount](#)

**TRY 6,000,000**

[ASELSAN's Share Ratio \(%\)](#)

**13.04**

The company was established in Ankara in 2018 in order to create investment opportunities in technology-intensive areas, provide job opportunities to researchers and skilled people, help technology transfers, and facilitate foreign capital to enter our country that will enable high technology. ASELSAN owns 13.04% of the company's capital.

### TR EDUCATION AND TECHNOLOGY INC. Ankara

[Share Amount](#)

**TRY 1,400,000**

[ASELSAN's Share Ratio \(%\)](#)

**35**

The company operates in the fields of carrying out human resource activities, giving consulting, coaching, and accreditation services, and performing education, teaching, culture, art, sports, and exhibition organizations and digital marketing activities at all levels. ASELSAN owns 35% of the current capital of the company which started its operation in 2018.

### ASELSAN GLOBAL FOREIGN TRADE INC. Ankara

[Share Amount](#)

**TRY 250,000**

[ASELSAN's Share Ratio \(%\)](#)

**100**

The company was founded to carry out import, export and marketing activities of all kinds of civil and military electronic products and systems. 100% of the current capital of the company established in 2019 belongs to ASELSAN.





# Global Affiliates



- Affiliates
- Branches
- Offices



## Global Affiliates

### ASELSAN BAKU COMPANY Baku-Azerbaijan

#### [Share Amount](#)

**1,601,978 Azerbaijani Manat**

#### [ASELSAN's Share Ratio \(%\)](#)

**100**

The company was established in 1998 with a 100% participation of ASELSAN in order to carry out the promotion/marketing and sales activities of military and civil communication devices.

### ASELSAN MALAYSIA SDN. BHD. Kuala Lumpur-Malaysia

#### [Share Amount](#)

**100 Malaysian Ringgit**

#### [ASELSAN's Share Ratio \(%\)](#)

**100**

The company was established in 2017 with the title ASELSAN Malaysian Sdn. Bhd., 100% is owned by ASELSAN, to engage in the field of remote-controlled weapon systems.

### ASELSAN UKRAINE LLC. Kyiv-Ukraine

#### [Share Amount](#)

**8,140,730 Ukrainian Hryvnia**

#### [ASELSAN's Share Ratio \(%\)](#)

**100**

The company was established in 2020 with a 100% participation of ASELSAN in order to undertake marketing and business development activities in Ukraine.

### ASELSAN MIDDLE EAST PSC. Amman-Jordan

#### [Share Amount](#)

**1,225,000 Jordanian Dinar**

#### [ASELSAN's Share Ratio \(%\)](#)

**49**

The company was established in 2012 with a participation ratio of 49% by ASELSAN and 51% by KADDB Investment Group (KIG) in order to carry out the design, production, development, and marketing of night vision and thermal imaging devices to meet the requirements of the Jordanian Armed Forces.

### IGG ASELSAN Integrated Systems LLC. Abu Dhabi-UAE

#### [Share Amount](#)

**9,800,000 UAE Dirham**

#### [ASELSAN's Share Ratio \(%\)](#)

**49**

The company was established in 2011, with ASELSAN holding a 49% stake and IGG holding a 51% stake in the company, with the aim of producing, testing, and integrating ASELSAN products in the United Arab Emirates (UAE), selling them in the Gulf countries, primarily in the UAE, and providing after-sales technical support.

### KAZAKHSTAN ASELSAN ENGINEERING LLP. Nur-Sultan-Kazakhstan

#### [Share Amount](#)

**3,464,300,000 Kazakhstani Tenge**

#### [ASELSAN's Share Ratio \(%\)](#)

**49**

The company was established in 2011 with a participation ratio of 49% by ASELSAN, 1% by the Presidency of Defense Industries (SSB), and 50% by Kazakhstan Engineering, in order to manufacture, develop, and perform maintenance and repair activities of electronic devices and systems to meet the military and civilian requirements of Kazakhstan.

### BARQ QSTP LLC. Doha-Qatar

#### [Share Amount](#)

**480,000 Qatari Riyal**

#### [ASELSAN's Share Ratio \(%\)](#)

**48**

The company was established in 2018, in order to operate with command and control systems, thermal and night vision camera, crypto, remote-controlled warfare systems. 48% of the company belongs to ASELSAN, while 51% belongs to Barzan Holding, and 1% to SSTEK Inc.

## OUR BRANCHES

### ASELSAN SOUTH AFRICA EXTERNAL PROFIT COMPANY (ASELSAN SOUTH AFRICA BRANCH) Pretoria-Republic of South Africa

The company was established as a branch in 2011 to design optical systems and to operate in the promotion and marketing of ASELSAN products in South Africa and neighboring countries.

### ASELSAN MACEDONIA BRANCH Skopje-Macedonia

Founded as a branch at the end of 2014 within the Macedonian Corridor-10 Highway Toll Collection System project, ASELSAN Macedonia operates with the aim of fulfilling the local obligations related to the project.

### ASELSAN CYPRUS ADVANCED TECHNOLOGIES RESEARCH CENTER Güzelyurt-TRNC

The ASELSAN Cyprus Advanced Technologies Research Center, which will undertake its activities at Middle East Technical University Kalkanlı Technology Valley (METU KALTEV) located in the Northern Cyprus Campus, was established in 2019.

### ASELSAN ELEKTRONİK SANAYİ VE TİCARET A.Ş.QSTP-B Doha-Qatar

The company was founded as a branch in 2021 to fulfill maintenance, repair, and business development activities in Qatar.

## OUR OFFICES

### ASELSAN Saudi Arabia Office

### ASELSAN Pakistan Office





## Facilities

ASELSAN continues to operate at its facilities in Ankara Macunköy, Akyurt, and Gölbaşı with a total indoor area of over 450,000 m<sup>2</sup>.

### Macunköy Facility



**> 132,014 m<sup>2</sup>**  
Indoor area

**> 186,848 m<sup>2</sup>**  
Total land area

It was established on a total area of 186,848 m<sup>2</sup> where the indoor area occupies 132,014 m<sup>2</sup>. ASELSAN Macunköy Facility hosts the Headquarters, and the Presidencies of Communications and Information Technologies, Defense System Technologies and Transportation, Security, Energy, Automation, and Healthcare Systems.

### Akyurt Facilities



**> 122,200 m<sup>2</sup>**  
Indoor area

**> 302,400 m<sup>2</sup>**  
Total land area

It was established on a total area of 302,400 m<sup>2</sup> where the indoor area occupies 122,200 m<sup>2</sup>. The Microelectronics Guidance and Electro-Optic Business Sector is located in the ASELSAN Akyurt Facility.

### Gölbaşı Facilities



**> 195,702 m<sup>2</sup>**  
Indoor area

**> 665,802 m<sup>2</sup>**  
Total land area

Radar and Electronic Warfare Systems Business Sector, which undertakes activities for radar and electronic warfare systems for land, air, sea, aerospace, and unmanned platforms, is in charge of this facility established in the Gölbaşı district of Ankara. The facility is built on a total area of 665,802 m<sup>2</sup>, of which 195,702 m<sup>2</sup> is indoor.

### Başkent Organized Industrial Zone Facility



**> 32,817 m<sup>2</sup>**  
Indoor area

**> 381,730 m<sup>2</sup>**  
Total land area

Located on an open space of 381,730 m<sup>2</sup>, the facility has an indoor area of 32,817 m<sup>2</sup>. ASELSAN BOSB facility also houses several units of Defense Systems Technologies and some of the test systems within Transportation, Security, Energy, Automation, and Healthcare Systems.

### Teknopark Istanbul Facility



**> 36,400 m<sup>2</sup>**  
Indoor area

**> 10,688 m<sup>2</sup>**  
Total land area

It was established on a total area of 10,688 m<sup>2</sup>, of which 36,400 m<sup>2</sup> is indoor.



## Test Fields

Gölbek test field occupies an area of 3,294,000 m<sup>2</sup>.

### GÖLBEK Test Field



> 3,294,000 m<sup>2</sup>

Total area

### Akyurt Test Field



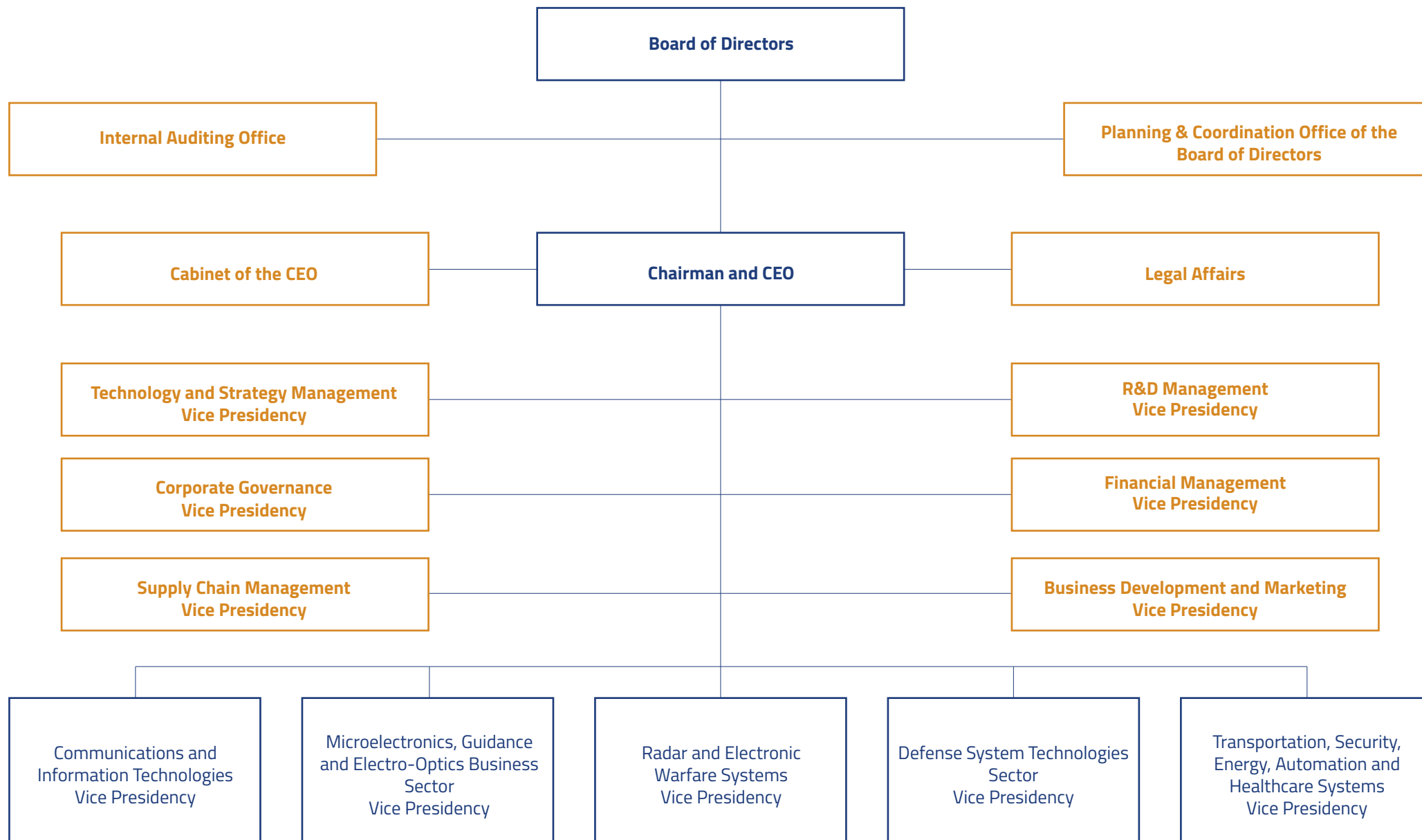
> 333,000 m<sup>2</sup>

Total area





# Organizational Structure





# Main Financial Indicators

ASELSAN left a successful year behind and raised its total assets to TRY 46.4 billion in 2021 with a year-over-year increase of 36.1%.

Condensed Balance Sheet (TRY Million)	2021	2020
Total Assets	46,413	34,094
Tangible Fixed Assets	3,432	2,342
Intangible Fixed Assets	2,268	1,555
Total Shareholders' Equity	25,835	18,098

Condensed Income Statement (TRY Million)	2021	2020
Net Sales	20,139	16,104
EBITDA	5,502	3,927
Net Profit for the Period	7,127	4,461

Main Financial Indicators	2021	2020
R&D Spending (TRY million)	5,615	3,356
Operating Profit Per Employee (TRY thousand)	511.9	419.0
EBITDA Margin (%)	27.3	24.4
Net Cash Provided by Operations (TRY million)	2,433	1,719
Cash (TRY million)	2,492	4,082

## HIGHLIGHTED FIGURES OF 2021

> **36%**  
Total Asset Growth

> **25%**  
Net Sales Growth

> **40%**  
EBITDA Growth rate

> **60%**  
Net Profit Growth

### Backlog (USD Billion)

2021	8.5
2020	9.5

### Net Sales (TRY Million)

2021	20,139
2020	16,104

### Operating Profit Per Employee (TRY Thousand)

2021	511.9
2020	419.0

### Net Cash Provided by Operations (TRY Million)

2021	2,433
2020	1,719

### EBITDA Margin (%)

2021	27.3
2020	24.4

### EBITDA (TRY Million)

2021	5,502
2020	3,927





# Sustainability Performance

In 2021, the total externally-funded R&D spending of ASELSAN corresponded to TRY 4.7 billion.

## Economic Value Created

Total Reven (TRY million)

**25% Increase**

2021	20,139
2020	16,104

Total Assets (TRY Million)

**36% Increase**

2021	46,413
2020	34,094

Total EBITDA (TRY Million)

**40% Increase**

2021	5,502
2020	3,927

## Turkey's Largest R&D Center

**TL 5,615 Million**

Total R&D Spending

**TL 4,666 Million**

Total Externally-Funded R&D Spending

**TL 949 Million**

Total Shareholders' Equity-Funded R&D Spending

**176** Patent Applications and **56** Registration Certifications in 2021

## A World-Class Professional Corporate Governance Approach

Corporate Governance Rating:  
**9.35**

Ratio of Shares Traded in Borsa Istanbul:  
**25.80%**

## Competent and Dynamic Human Resources

Total Number of Employees:  
**9,460**

Number of Talent-A Employees:  
**191**

## OHS Practices with a Focus on Business Continuity and Efficiency

Award Winner in the Merit Category at the International Safety Awards 2020

A Leading Company with ISO 45001:2018 Certification in Turkey...

Total Hours of Training for Employees: 155,098 hours

## A Responsible Management Approach Minimizing Environmental Impacts

A score above the global average in CDP Climate Change Reporting, in which it has been included for years  
A- score in the CDP Water Reporting, in which it was included in 2021 for the first time

## Social Investments Bolstered By Employees' Voluntary Participation

A Social Responsibility Movement Led by Employees: ASELSAN Social Innovation Leaders (ASiL), and the Solidarity Foundation established under the ASiL Structure

Turkey's most preferred Vocational High School: ASELSAN Vocational and Technical Anatolian High School



# Message from the Chairman, President and CEO

Our achievements kept gaining worldwide recognition while we uncovered solutions for the strategic system needs of all institutions and organizations in our country.

Despite all challenges which continued in 2021 due to the pandemic such as disruption of global production and logistics chains, restrictions, geopolitical uncertainties, and risks, Turkey's ASELSAN was locked in its ambitions and presented numerous national successes to our beloved nation. As a 46-year tradition, ASELSAN offered high added value to all its users who relied on the company, at home and abroad, within the course of a year. Every moment that we spent throughout the year developing and producing our defense systems contributed to the security and welfare of the friendly and allied nations as well as of our country. With the solutions that we offered in the field of life technologies, we ideally fulfilled our duty of "serving the motherland."

Our achievements kept gaining worldwide recognition while we uncovered solutions for the strategic system needs of all institutions and organizations in our country. "ASELSAN does not stop, cannot stop," said we, as it has always been. ASELSAN maintained its sustainable success among the world defense industry giants, of which it was ranked 97<sup>th</sup> in 2007, and ranked 48<sup>th</sup> in the Defense News Top 100 list in 2020. In 2021, our company kept its position in the ranking and succeeded in being the only Turkish company in the top 50 list.

Our sustainable financial gains were shown by also our 2021 figures. 2021 turnover of ASELSAN rose by 25%, compared to the last year, reaching TRY 20.1 billion. Continuing its sustainable growth with its investments, ASELSAN posted a net profit of TRY 7.1 billion. Our company received over USD 2 billion in new business in 2021, a year where uncertainties were very evident. By the end of 2021, the total backlog of ASELSAN amounted to USD 8.5 billion.

We continued to rapidly extend our global presence with our sales and production network. In 2021, we sold ASELSAN products to six new countries where no sales had ever been made before. Within the last three years, 15 new countries became our new users, increasing the number of countries that use ASELSAN products to 78.

We carried on our R&D activities with more than 5,000 staff and achieved steady growth in 2021. The total R&D spending made by our company corresponded to USD 610 million. In 2021, we ranked first in the "R&D 250, Turkey's Top R&D Spending Companies" survey.







We were among the top companies in the world at the end of 2021 after earning the grade A in CDP Water Reporting and added the “Water Leader” to our environmental titles.

> TL 20.1 billion  
Net Sales

> TL 5.5 billion  
EBITDA

> TL 7.1 billion  
Net Profit for the Period

As we have left another year behind on our path with the objective of independent national technologies under the guidance of the Presidency of Defense Industries, we fulfilled our responsibility towards our country. We kept contributing to our economy by achieving total sales of TRY 20 billion with a climb of 25%.

In the year ended, we placed purchase orders worth USD 1.5 billion to more than 5,500 suppliers of which 3,300 are domestic. The orders delivered to our domestic suppliers amounted to over USD 1 billion. Despite the adverse impacts of the pandemic, we transferred more than USD 1 billion to domestic suppliers in 2021.

We completed the nationalization process of 197 products successfully in 2021. In this way, we managed to keep approximately USD 200 million in our country by raising the number of nationalized products to over 500 within the last three years.

Without being limited to the defense field, we carried on our nationalization activities in transportation, security, energy, healthcare, and financial technologies as well. Through our payload and equipment that we also developed in satellite and space, we have significantly removed the foreign dependency of our country in line with the goal of achieving full independence in the defense industry. In this context, our company demonstrated its global reliability with the TÜRKSAT-5B orbited on December 19, 2021.

In 2021, we carried out human resources practices that will increase the quality of business continuity. We invested in the young talents of our country, thereby including 1,176 people in our family.

Furthermore, the issue of sustainability which takes precedence in our country has been at the top of our focus. We shared the holistic sustainability approach prioritized in operations and strategy of our company, with both our investors and all stakeholders through the international success achieved with Carbon Emission Reporting. In 2021, our company became a Green World Ambassador by adding another to its long-held title of Climate Leader and won the silver prize at the International Green Apple Environment Awards. In accordance with responsible and effective management of our resources, we continued to successfully manage the implementation process of the ISO 50001:2018 Energy Management System, a management approach considering conscious and productive use of energy, in 2021. As ASELSAN, a pioneer in numerous areas with a sustainable business management mentality,

we initiated the CDP Water Security reporting in 2021. We were among the top companies in the world at the end of 2021 after earning the grade A in CDP Water Reporting and added the “Water Leader” to our environmental titles.

In 2021, we attended our industry's substantial events such as IDEF, TEKNOFEST, and SAHA Expo with the most impressive stands where our technologies were showcased and in the broadest possible areas. We introduced our products and systems to the local and foreign guests. Through our national technologies, we created a global awareness.

We achieved all the gains and accomplishments you will see in our 2021 annual report with our competent human assets and suppliers.

ASELSAN, which sprang from the roots of our nation and will always remain there, will continue to achieve even greater success for our country in 2022.

I would like to extend my sincere thanks to all of our Board Members who have taken charge of the sustainable development and growth of ASELSAN in 2021, all of our executives who work day and night for the implementation of decisions, and all my colleagues who have left their mark on the history of ASELSAN and will carry us to the future.

Kindest regards.

**Prof. Dr. Haluk Görgün**  
Chairman, President and CEO



## Members of the Board of Directors



**Prof. Dr. Haluk Görgün**  
Chairman, President and CEO



**Prof. Dr. Ercüment Arvas**  
Independent Member of the Board of Directors



**Mehmet Fatih Kacı**  
Member of the Board of Directors



**Dr. Nurşen Sarı**  
Independent Member of the Board of Directors



**Alpaslan Kavaklıoğlu**  
Member and Vice Chairman of the Board of Directors



**Prof. Dr. Turan Erol**  
Independent Member of the Board of Directors



**Salih Kul**  
Member of the Board of Directors



**Mustafa Murat Şeker**  
Member of the Board of Directors  
(Managing Member)



#### Prof. Dr. Haluk Görgün

##### Chairman, President and CEO

Prof. Dr. Haluk GÖRGÜN completed his undergraduate and graduate education in the Electrical Engineering Department of Yıldız Technical University and his Ph.D. in Rensselaer Polytechnic Institute in New York, USA in 2003. After completing his Ph.D. studies, he engaged in scientific studies at the University of Connecticut between 2004 and 2005. He became an associate professor in 2008, and a professor in 2013 at Yıldız Technical University where he served from 2005 to 2008 as an assistant professor. Between 2014 and 2018, he served as the Rector at Gebze Technical University where he made significant contributions in the establishment phase. He still continues to serve as the Chairman of the Board of Trustees and Board of Directors at Gebze Technical Education and Research Foundation. Prof. Görgün was elected as an Associate Member of the Turkey Academy of Sciences in 2013, and he served as a Member of the Board of Directors in the Informatics Valley. Having served on various committees and boards at TÜBİTAK and the Council of Higher Education (YÖK), Görgün owns many national and international articles/memorandums besides publishing editorship and projects. He was elected as a Member of the Board of Directors at the ASELSAN Ordinary General Assembly held on 15 March 2017. As per the resolution taken at the Board of Directors meeting held on April 17, 2018, he was appointed as the CEO of ASELSAN on April 27, 2018, in addition to his position as the Chairman.

#### Alpaslan Kavaklıoğlu

##### Vice Chairman of the Board of Directors

He graduated from Ankara University, Faculty of Political Science, Department of Business Administration. He received long-term training in disaster management, regional development, and restructuring in Japan, and social development in Taiwan. He served as the District Governor in several towns, and as the Deputy Governor in some cities of Turkey. He worked as the Head of Department at the Republic of Turkey, Ministry of Interior, as a Legal Consultant, and as Vice President at the Turkey Emergency Management Presidency under the Prime Ministry of the Republic of Turkey. He graduated from the National Security Academy and then served as the General Director of the Prime Ministry of Security Affairs of the Republic of Turkey. Kavaklıoğlu who was elected as a Member of Parliament from Niğde for the 24<sup>th</sup> Term served as the Chairman of the Committee on Security and Intelligence, Member of the Committee on Internal Affairs (Spokesman), Member of the Committee on National Defense (Spokesman), Head of the Turkey - Japan Inter-Parliamentary Friendship Group, Member of the Turkish Group of the Inter-Parliamentary Union. As a Member of the Board of the Parliamentary Assembly, Kavaklıoğlu was later appointed as Deputy Minister at the Ministry of Defense of the Republic of Turkey with the decision of the Presidency dated August 9, 2018, and numbered 2018/91. Kavaklıoğlu has been serving as ASELSAN Board

Member since the Ordinary General Assembly Meeting held on April 26, 2019, and as the Vice Chairman of the Board of Directors since the Board Meeting held on June 30, 2021.

#### Prof. Dr. Ercüment Arvas

##### Independent Member of the Board of Directors

He completed his undergraduate and postgraduate programs in Middle East Technical University Electrical Engineering Department and Ph.D. program at Syracuse University in New York, United States. He continued his academic career at Syracuse University in 1988 and worked as a Professor at the same university between 1994 and 2014. He served as a consultant at various institutions such as the Air Force Office of Scientific Research, Digital Equipment Co., Philips Broadband, RIT Research Corp, Syracuse Research Corp, ANAREN Microwaves Inc., General Electric Co. and TÜBİTAK. Currently working at the Department of Electrical Engineering of Medipol University, Arvas was assigned as an Independent Member of the Board of Directors at the Ordinary General Assembly Meeting held on March 31, 2016.

#### Prof. Dr. Turan Erol

##### Independent Member of the Board of Directors

He obtained his bachelor's degree in Economics in 1985 and his master's degree in 1989 from the same department. In 1996, he obtained his Ph.D. in Economics from the Netherlands Tinbergen Institute/ Erasmus University. From 1997 to 2003, he served as an Associate Professor at Başkent University, lectured, and conducted research in Economics and Finance. In 2003, he received the Best Economic Research Award from the Union of Chambers and Commodity Exchanges of Turkey (TOBB). He still continues to serve as a Professor at the Faculty of Business and Management Sciences, Istanbul Sabahattin Zaim University. As a public service, he served as the Chairman, the Deputy Chairman, and a Member of the Capital Markets Board from 2003 to 2009, and the Chief Advisor to the Prime Minister from 2009 to 2018. In the private sector, he served as a consultant and as a member of the Board of Directors in eligible companies such as THY (Türkiye Hava Yolları) and its subsidiaries, ASELSAN, Tümosan, and Östim Yatırım at certain intervals as of 2010. Erol served as a Member of the Board of Directors between March 2016 and March 2017. He was elected as an Independent Member of the Board at the ASELSAN Ordinary General Assembly held on June 19, 2020.

#### Mehmet Fatih Kacır

##### Member of the Board of Directors

He was granted his Bachelor's Degree with Honors by having completed his study in the Department of Industrial Engineering, Boğaziçi University in 2008. In the companies he founded and managed, he has been active in sectors such as simulation software and hardware, virtual reality applications, etc. He served as the Chairman of the Board of Directors of the Technology Team Foundation of Turkey (T3 Foundation), of which

he was one of the founders. KACIR was one of the pioneers in the establishment of Deneyap Technology workshops within the T3 Foundation, in the Technology Stars Program for gifted students, in science centers and Enterprise Centers, and in the Teknofest Istanbul, Turkey's first Aviation Space and Technology Festival. In 2018, he was appointed as a Member of the Scientific Committee of the Scientific and Technological Research Council of Turkey (TÜBİTAK). Kacır was appointed as the Deputy Minister of Industry and Technology by the President's Decision published in the Official Gazette dated July 31, 2018, and numbered 30495. He is currently responsible for National Technology Thrust and Strategic Transformation activities at the Ministry. Prof. Dr. Fuat Sezgin continues to serve as the Board Member of the Islamic Science History Research Foundation. He was elected as a Member of the Board of Directors during the ASELSAN Ordinary General Assembly held on April 26, 2019.

#### Salih Kul

##### Member of the Board of Directors

In 1984, he graduated from the Department of Electrical and Electronics Engineering, the Turkish Military Academy as a Communications Lieutenant. Following several local and international responsibilities, Kul worked as commander of the First Army Regional Communication System Battalion and Commander of TASMUS Battalion. Upon the abolition of the Army Regional Communication Battalion, he organized the establishment activities of the TASMUS Battalion between 2004 and 2006. He was the Head of the Commission of Inspection of the Republic of Turkey, Ministry of National Defense during the procurement of TASMUS Systems. Between 2006 and 2012, he served as a Branch Manager, the Head of the Department of Senior Officers, and Electronic Regiment Commander at the General Staff Electronic Systems Command. After the said duties, Kul served as an Inspector in the Inspection Department of the Ministry of National Defense for one year and was then promoted one year early due to his professional success. He retired from his duty as the Head of the Communications and Electronic Systems Department at the Land Forces Command on August 30, 2015, to which he was appointed in 2013. He was elected as a Member of the Board of Directors in the ASELSAN Ordinary General Assembly held on April 26, 2019.

#### Dr. Nurşen Sarı

##### Independent Member of the Board of Directors

Nurşen Sarı was born in Erzurum in 1970. She earned her Bachelor's degree from the Department of Electronics and Communications Engineering, Kocaeli Faculty of Engineering, Yıldız University, and her master's and doctorate degrees at Istanbul Technical University, Institute of Science, Electronics and Communication Engineering Department in the field of Electronics and Communications in 2006. She served as a Research Assistant at Kocaeli University Electronics and Communication Engineering Department from 1992 to 1997. She worked as a Software Design Engineer at NETAŞ R&D

between 1997 and 1998, and as a System Engineer in the Electronic Warfare Research Group at Presidency of the Naval Forces Command, Research Center Command between 1998 and 2001. Sarı began to serve as a Senior Researcher at TÜBİTAK MAM Information Technologies Institute in 2001 and was assigned as a Visiting Researcher at NRL (Naval Research Laboratory) and Virginia Technical University in Alexandria, the USA from January to July 2003. In May 2013, she undertook the position of Deputy Director in charge of Underwater Defense and Acoustic Systems at TÜBİTAK BİLGEM Advanced Technologies Research Institute. Sarı assumed this position until March 2015. In March 2015, she started to work as Deputy General Manager in charge of Engineering and Programs at C Tech Bilişim Teknolojileri Sanayi ve Ticaret A.Ş. She still holds this position. Sarı who won the TÜBİTAK Bilgem Best Research Group award in 2012 and the TÜBİTAK BİLGEM Best Product Development award in 2014 has many articles/papers presented and published in national and international congresses, conferences, and symposiums. Sarı was elected as an Independent Member of the Board at the ASELSAN Ordinary General Assembly held on June 29, 2021.

#### Mustafa Murat Şeker

##### Member of the Board of Directors (Member)

Mustafa Murat Şeker was born in 1968 in Kayseri. He graduated from the Department of Electrical and Electronics Engineering at METU in 1992 and began his career at the Undersecretariat of Defense Industries in the same year. After working as an Assistant Specialist and a Specialist in several projects such as MEBS, Radar, Electronic Warfare, Satellite Communication, Helicopter, and Aircraft Modernization, he was assigned as Project Manager to the Radar and Satellite Projects group in 2002. Under this title, he managed the Göktürk project, Turkey's first reconnaissance, and surveillance satellite. Appointed as the Head of Marine Vehicles Department in 2011, Şeker carried out comprehensive and big projects such as Milgem and New Type Submarine. In 2014, he was assigned as the Head of the Electronic Warfare and Radar Systems Department. He coordinated the management of over fifty projects, including the Early Warning Radar and Stand-off Jammer projects. Şeker who was appointed as the Deputy Undersecretary in 2015 and still serves as the Defense Industry Vice President responsible for Electronic Warfare and Radar, MEBS, Cyber Security and Informatics, and R&D. He served as a member of the Audit Board of MIKES and HEAŞ companies between 2010 and 2013, Chairman and Member of the Board of Directors of ASELSAN A.Ş. between 2013 and 2020, Chairman of the Board of Directors of HAVELSAN A.Ş. in 2020 and Member of the Board of Directors of the Turkish Accelerator and Radiation Laboratory (TARLA) in 2021. Mustafa Murat Şeker was elected as a member of the Board of Directors of ASELSAN A.Ş. at the Ordinary General Assembly Meeting dated 29 June 2021. At the same time, he is the Deputy Chairman of the Board of Ankara Space Aviation Specialized OİZ.





# Corporate Governance

ASELSAN displayed a more successful performance in corporate governance processes in 2021.

## Our Shareholders

ASELSAN, which is a corporation of the Turkish Armed Forces Foundation (TAFF), is a joint stock company, and 74.20% of its shares belongs to TAFF. 25.80% of its shares is traded at Borsa Istanbul (BIST).

Our Shareholders	Share Amount (TRY)	Share Ratio (%)
TURKISH ARMED FORCES FOUNDATION (TAFF)	1,691,651,248.92	74.20
Free Float (BIST)	588,348,751.08	25.80
<b>Total</b>	<b>2,280,000,000.00</b>	<b>100.00</b>

## Corporate Governance

Paying attention to the sensitivity of its sector, ASELSAN maintains the principles of fairness, transparency, responsibility, and accountability, which are the basic principles of corporate governance, and keeps accelerating its steady growth and observing the interests of its stakeholders at the center of its activities. In order to carry its leadership in the national platform to the global arena, it continues to work without slowing down to ensure full compliance with corporate governance and legal regulations.

As a result of the changing and developing global conditions, our Company which adopted the "corporate sustainability" approach to fulfilling its economic, social, and environmental responsibilities completely performs its responsibilities towards society by preserving its ethical values and being sustainable with its operations in the field of corporate governance.

ASELSAN, which has adopted the concept of corporate governance as a core principle, has been publishing a Compliance Report on the Principles of Corporate Governance every year since 2004. The rights of shareholders, Annual General Meetings, dividend distribution policy, disclosure policy, human resources and ethical principles, relations with stakeholders, corporate social responsibility, the structure, formation, activity essentials and committees of members of board, risk management and internal audit including minority rights which are under the headings of shareholders, informing the public and transparency, interest groups and members of the board within the scope of the Corporate Governance Principles regulated by Capital Markets Board are detailed within the report. The Reports on the Compliance of Corporate Governance Principles are published on the company's website ([www.aselsan.com.tr](http://www.aselsan.com.tr)) and in the annual reports (as annex).

## ASELSAN'S corporate governance rating rose to 9.35.

ASELSAN was awarded a score of 8.77 out of 10 on December 13, 2012, by SAHA Kurumsal Yönetim ve Kredi Derecelendirme A.Ş. (SAHA) in 2012. This is the second-best preliminary score among the corporate governance grading scores given in Turkey. Since then, our Company's level of compliance with corporate governance principles is evaluated and updated by an independent rating institution.

ASELSAN's Corporate Governance rating which was 9.29 out of 10 on December 11, 2020, was increased to 9.35 out of 10 according to the report published by SAHA on December 10, 2021, as a result of the activities conducted to improve the Corporate Governance rating during 2021.

Corporate governance ratings in 2020 and 2021 and their subheadings are presented below:

Rating Distribution in 2020	Rating Distribution in 2021
Shareholders: <b>89.57 / 100</b>	Shareholders: <b>89.59 / 100</b>
Public Disclosure and Transparency: <b>98.72 / 100</b>	Public Disclosure and Transparency: <b>98.72 / 100</b>
Stakeholders: <b>99.17 / 100</b>	Stakeholders: <b>99.17 / 100</b>
Board of Directors: <b>88.55 / 100</b>	Board of Directors: <b>90.16 / 100</b>
Average Score <b>9.29</b>	Average Score <b>9.35</b>

ASELSAN Corporate Rating Reports published by SAHA may be obtained from our company's website at [www.aselsan.com.tr](http://www.aselsan.com.tr).

ASELSAN has been included in the Corporate Governance Index of Borsa Istanbul since the date it received its first corporate governance rating.



## Three committees contribute to the healthy fulfillment of the duties and responsibilities of the Board of Directors at ASELSAN.

### ASELSAN's Management Structure

#### ASELSAN Board of Directors

There is a board of directors consisting of 9 members elected by the general assembly in accordance with the TCC and the articles of association.

Three members of the Board, which consists of nine members in total, are independent.

Three committees formed in accordance with the corporate governance regulations of the Capital Markets Board, operate to enable the Board to fully execute its duties and responsibilities in ASELSAN.

#### Audit Committee

The committee consists of three independent members of the Board. The main responsibilities of the committee are to inform the public regarding financial issues and monitor ASELSAN's accountancy systems, independent internal and external auditing, and internal control systems' effectiveness and efficiency. The Head of the Internal Auditing Office reports directly to the Audit Committee and the Board. The Audit Committee convenes at least four times a year.

#### Corporate Governance Committee

The committee consists of four members of the Board of Directors. The head of the committee is an independent member of the board. The investor relations manager also is a member of the committee in accordance with the regulations of the Capital Markets Board. The Committee proposes suggestions to the Board of Directors for the compliance with corporate governance principles and the realization of improvement activities. It also observes the activities conducted by the Investor Relations Department. The Committee convenes at least four times a year.

#### Early Detection and Management of Risk Committee

The committee was established to determine the risks arising from the Company's strategic, operational, financial, and external factors and to manage the risks identified in line with the Company's corporate risk profile. There are three Board members on the committee. The chairman of the committee is an independent member of the Board of Directors. The Committee meets at least six times a year and reports to the Board of Directors.

The principles regarding the formation of committees of ASELSAN and the manner in which they work, meet and report are determined by the Board. Detailed information regarding the corporate management structure of ASELSAN, Members of the Board of Directors and the committees may be obtained from the [www.aselsan.com.tr](http://www.aselsan.com.tr) website.

#### Committees at ASELSAN

Three committees have been formed in accordance with the Capital Markets Board's Principles of Corporate Governance by ASELSAN's Members of Board.

Audit Committee	Corporate Governance Committee**	Early Detection and Management of Risk Committee
Nurşen SARI* (Head of the Committee)	Ercüment ARVAS* (Committee Member)	Turan EROL* (Committee Member)
Ercüment ARVAS* (Head of the Committee)	Mustafa Murat ŞEKER (Committee Member)	Yavuz ÇELİK (Committee Member)
Turan EROL* (Committee Member)	Yavuz ÇELİK (Committee Member)	Salih KUL (Committee Member)
	Salih KUL (Committee Member)	
	Pınar ÇELEBİ (Member of the Committee)	

\* Independent Member of the Board of Directors

\*\*The Nomination Committee and Remuneration Committee were not formed due to the structure of the Board of Directors at ASELSAN. The duties and responsibilities of these committees are undertaken by the Corporate Governance Committee.



# Senior Management



**Prof. Dr. Haluk Görgün**  
Chairman, President and CEO



**Prof. Dr. Mehmet Çelik**  
Vice President, Technology and Strategy Management; Vice President, Transportation, Security, Energy, Automation, and Healthcare Systems



**Mustafa Kaval**  
Vice President, Microelectronics, Guidance and Electro-Optics



**Prof. Dr. Sezai Elagöz**  
Vice President, R&D Management



**Mehmet Fatih Güçlü**  
Vice President, Chief Financial Officer



**Osman Devrim Fidancı**  
Vice President, Business Development and Marketing



**Oğuz Şener**  
Vice President, Radar and Electronic Warfare Systems



**Nuh Yılmaz**  
Vice President, Supply Chain Management



**Prof. Dr. Hakan Karataş**  
Vice President, Corporate Management



**Bayram Gençcan**  
Vice President, Communication and Information Technologies



**Behcet Karataş**  
Vice President, Defense System Technologies





#### Prof. Dr. Haluk Görgün

Chairman, President and CEO

Prof. Dr. Haluk GÖRGÜN completed his undergraduate and graduate education in the Electrical Engineering Department of Yıldız Technical University and his Ph.D. in Rensselaer Polytechnic Institute in New York, USA in 2003. After completing his Ph.D. studies, he engaged in scientific studies at the University of Connecticut between 2004 and 2005. He became an associate professor in 2008, and a professor in 2013 at Yıldız Technical University where he served from 2005 to 2008 as an assistant professor. Between 2014 and 2018, he served as the Rector at Gebze Technical University where he made significant contributions in the establishment phase. He still continues to serve as the Chairman of the Board of Trustees and Board of Directors at Gebze Technical Education and Research Foundation. Prof. Görgün was elected as an Associate Member of the Turkey Academy of Sciences in 2013, and he served as a Member of the Board of Directors in the Informatics Valley. Having served on various committees and boards at TÜBİTAK and the Council of Higher Education (YÖK), Görgün owns many national and international articles/memorandums besides publishing editorship and projects. He was elected as a Member of the Board of Directors at the ASELSAN Ordinary General Assembly held on 15 March 2017. As per the resolution taken at the Board of Directors meeting held on April 17, 2018, he was appointed as the CEO of ASELSAN on April 27, 2018, in addition to his position as the Chairman.

#### Mehmet Fatih Güçlü

Vice President, Chief Financial Officer

He completed his undergraduate studies in Economics at the Faculty of Economics of Istanbul University. Mehmet Fatih Güçlü started his professional career in 1996 at Eksim Dış Ticaret A.Ş. and assumed different positions in various sectors. He worked at several group companies under Çalık Holding between 2005 and 2009 as Reporting Manager to Affiliates and Budgeting Department, Manager of Financial Affairs, and Director of Finance. He served as CFO and Assistant General Manager in Mediapark Hospitals Group from 2009 to 2011, and as CFO and Assistant General Manager at BH Airlines, a partnership of THY in Bosnia-Herzegovina, from 2011 to 2012. He worked as CFO and Assistant General Manager at SunExpress Airlines in Antalya and Germany between 2012 and 2016. He served as General Coordinator at Deima Elektromekanik Ürünler between 2016 and 2017. Throughout these years, he also carried out the tasks as the Chairman of the Advisory Board and Strategic Committee of Iran Airtour. Güçlü began to work as the Director of the Accounting and Financial Affairs at ASELSAN in 2017. As of 1 October 2019, he has been appointed as the CFO and Vice President with the resolution of the ASELSAN Board of Directors.

#### Prof. Dr. Hakan Karataş

Vice President, Corporate Management

Hakan Karataş completed his undergraduate degree in the Department of English Language and Literature, the Faculty of Science and Literature, Istanbul University. He worked as an English Teacher at the prestigious Kabataş High School between 1996 and 2000, and as a Lecturer in the Foreign Languages Department of Yıldız Technical University (YTU) in 2000, where he also continued his career as Deputy Head of the Human Resources Development Centre in 2003. Karataş who served as Executive Assistant of the YTU Rector from 2004 to 2008 completed his Master's Degree with a major in Education Programs and Teaching Studies, in the Department of Educational Sciences in 2007. He later earned his Doctorate degree from the same Department in 2011. He began to work as an Assistant Professor at the YTU Faculty of Education in 2012. In 2016, he was awarded Associate Professorship in the field of Educational Sciences by the Inter-University Board. Karataş has published numerous articles, papers, publications, and projects. Between April 24 and July 02, 2018, he served as the Consultant of the Board of Directors at ASELSAN A.Ş. He was assigned as the Corporate Governance Vice President on July 2, 2018.

#### Prof. Dr. Mehmet Çelik

Vice President, Technology and Strategy Management;

Vice President, Transportation, Security, Energy, Automation and Healthcare Systems

Mehmet Çelik graduated from the Department of Mechanical Engineering, Middle East Technical University (METU) in 1989. He obtained his master's degree in 1991 and his doctorate degree in 1997 from the same department. He worked as a research associate in Department of Mechanics between 1989 and 1997. From 1995 to 1996, he served as a visiting research scientist at Ohio State University. At MST/REHİS (Radar and Electronic Warfare Systems Business Sector) group, he served as a Senior Lead Design Engineer and Manager of the Mechanical Analysis and Test Unit from 1998 to 2010. He was awarded the title of associate professor with a major in Mechanical Engineering Studies in 2003. After he was assigned to KTO Karatay University as Prof. Dr. in 2010, he served as the Head of the Mechatronics and Mechanical Engineering Department, the Chairman of the Bologna Coordination Commission, Vice Dean and Director of the Institute of Science at this university. Çelik was also a member of the Project Evaluation Committee in KOSGEB and acted as an Academic Member of the Jury. Furthermore, he was a referee in TÜBİTAK projects and academic congresses. Between 2012 and 2015, he worked as a Training and Technical Consultant and Project Technical Manager at ASELSAN Microelectronics, Guidance, and Electro-Optics Sector Group. He served as the Vice President of TÜBİTAK. Besides, he assumed various offices as a Member and Vice-Chairman of the Science Board at TÜBİTAK, and as a Member of the Council of Higher Education (CoHE's/YÖK's) Quality Board. He still continues to serve as a lecturer in the Department of Mechanical Engineering, KTO Karatay University, and he is also a Regular Member of the Turkish Academy of Sciences (TUBA). Çelik who worked as the Advisor of the Board of Directors between February and April 2017 has held the office of the President of ASELSAN Academy Board and Vice President for Technology and Strategy of ASELSAN since April 2017. He was assigned as a Member of the Council of Higher Education on July 14, 2018, and as a Member of the Science, Technology, and Innovation Policies Committee of the Presidency on October 8, 2018, pursuant to Presidential Decree. As of January 2022, Çelik who still acts under the above positions has been deputizing for the President of Transportation, Security, Energy, Automation, and Healthcare Systems.

#### Osman Devrim Fidancı

Vice President, Business Development and Marketing

He received his BS degree from Dokuz Eylül University Electrical and Electronics Engineering Dept. in 1999, an MS degree from George Washington University (GWU) Electrical and Computer Engineering Dept. in 2002, and an MBA degree from Istanbul Bilgi University in 2009. He began his professional career at Nortel Networks/ Netaş as the Hardware/VLSI Design Engineer in 1999 and then conducted research studies and made publications in the fields of high-performance computing and cryptanalysis while working as the teaching and research assistant at GWU High-Performance Computing Laboratory (HPCU) from 2001 to 2003. He held various managerial and leadership roles at various defense contractors including the Program Manager role at Vestel Defence for the G-class Frigate Modernization Program (GENESIS) between 2005-2008, the Business Development and Strategic Planning Manager role at RMK Marine from 2008 to 2012. As the Public and Defense Solutions Director of Türk Telekom/ Argela, he took the leadership role in the business development and initiation phases of the National Base-station Development Program (ULAK) between 2012 and 2014. Mr. FIDANCI worked as the Business Development Director at Honeywell between 2014 and 2017. Following his role at BMC as the International Business Development Director, Fidancı joined ASELSAN in July 2018 and as per the Board Resolution dated January 29, 2019, he is appointed as the Vice President of Business Development and Marketing.

#### Bayram Gençcan

Vice President, Communication and Information Technologies

In 1985, he graduated from the Turkish Military Academy - Electrical & Electronic Engineering as a Communications Lieutenant. In 2008, Bayram In 2008, Gençcan retired from the Armed Forces with the rank of Senior Colonel and has started to provide consultancy services on communication systems in the Ministry of Health since 2009, especially in the 112 radio communication infrastructure improvement and integration with JEMUS project. Gençcan who has completed two master's degree programs in Public Administration and Organization Management also graduated from Ankara University Faculty of Law. He served as a Member of the Board of Directors of ASELSAN from March 15, 2017, to April 5, 2019. As per the resolution of the Board of Directors of ASELSAN dated January 29, 2019, he was appointed as the Vice President of Communication and Information Technologies.

#### Mustafa Kaval

Vice President, Microelectronics, Guidance and Electro-Optics

He graduated from the Department of Mechanical Engineering, Middle East Technical University in 1986. He received his master's degree also from the Department of Mechanical Engineering, Middle East Technical University in 1989. Mustafa Kaval who began his professional career in ASELSAN as an Engineer in 1986, served as a Technical Leader between 1997 and 2000 and as a Project Leader between 2000 and 2004. He was assigned as the Manager of the Air Defense Weapon Systems Program Department in Defense Systems Technologies Division in 2004 and carried out that duty until 2012. Afterward, he served as the Director of the Air Defense Systems Program Directorate in Defense Systems Technologies Division from 2012 to 2014. Afterward, he served as the Director of the Air Defense Systems Program Directorate in Defense Systems Technologies Division from 2012 to 2014. He served as the President and the Vice President of the Defense System Technologies Sector from September 2014 to November 2020. He was assigned as the Vice President responsible for Microelectronics, Guidance, and Electro-Optics Business Sector in the Board of Directors meeting dated October 27, 2020, to be effective as of November 3, 2020.

#### Oğuz Şener

Vice President, Radar and Electronic Warfare Systems

He graduated from the Department of Electrical and Electronics Engineering, Middle East Technical University in 1987. He received his master's degree also from the Department of Electrical and Electronics Engineering, Middle East Technical University in 1990. Oğuz Şener who started his professional life in 1986 as a co-op Engineer in ASELSAN, afterward worked as an Engineer, a Chief, and a Technical Leader. He served as the Electronic Hardware Manager in Microwave Systems Technologies Division between 2000 and 2007, and as Radar Electronic Warfare Systems Design Technologies Director from 2008 to 2014. Additionally, he served as the President of the ASELSAN Technology Supreme Board between 2013 to 2014. Şener served as a Referee for TÜBİTAK Projects and for investments to universities in State Planning Organization; and served as an Expert for workshops organized by several ministries and TÜBİTAK. He was assigned as the Vice President responsible for Radar and Electronic Warfare Systems in the Board of Directors meeting dated July 24, 2014, to be effective as of September 1, 2014.

#### Behcet Karataş

Vice President, Defense System Technologies

He graduated from the Department of Electrical and Electronics Engineering, Middle East Technical University in 1989. He received his master's degree also from the Department of Electrical and Electronics Engineering, Middle East Technical University in 1994. Karataş started his professional career in Turkey Electricity Authority in 1989 and continued his career as an Engineer in ASELSAN in 1993. He was assigned as the Manager of the Remote Controlled Weapon Systems Program Department in 2010 and carried out that duty until 2014.

Afterward, he served as an Integrated Logistics Support Director in Defense System Technologies Business Sector from 2014 to 2017, and as a Naval Systems Program Director between 2017 and 2020 in the same Business Sector. He was assigned as the Vice President responsible for the Defense System Technologies Business Sector in the Board of Directors meeting dated October 27, 2020, to be effective as of November 3, 2020.

#### Prof. Dr. Sezai Elagöz

Vice President, R&D Management

Sezai Elagöz completed his undergraduate studies at the Department of Physics of Ankara University Faculty of Science and his M.Sc. and Ph.D. at the Racham Graduate School of Condensed Matter Physics at the University of Michigan with a scholarship from the Republic of Turkey, Ministry of National Education, Youth and Sports in 1993. He served as an assistant professor, associate professor, and professor at Cumhuriyet University, Faculty of Sciences between 1993 and 2011. He continued his career at Faculty of Engineering where he founded the Nanotechnology Engineering Department. Between 2013 and 2018, he served as a consultant in ERMAKSAN where he was responsible for establishment and commissioning of the optoelectronic infrastructure and for the national production of high-power laser. Elagöz served as the President of Microelectronics, Guidance, and Electro-Optics (MGEO) and the Vice President of ASELSAN between June 13, 2018, and November 2, 2020. He then served as the Consultant to the CEO as of November 2, 2020. He was assigned as R&D Management Vice President at the ASELSAN Board Of Directors Meeting held on December 29, 2020. Moreover, Elagöz is the Member of ASELSAN BİLKENT MİKRO NANO A.Ş. Board of Directors, the Chairman of ASELSAN Hassas Optik A.Ş. Board of Directors, the Member of TÜBİTAK R&D Support and Process Management Executive Council, the Chairman of TÜYAR A.Ş. Board of Directors and the Member of the Presidency of Defense Industries Air Defense Executive Council.

#### Nuh Yılmaz

Vice President, Supply Chain Management

Nuh Yılmaz was born in Kırşehir in 1975. He graduated from Dokuz Eylül University Faculty of Law in 1997. He received his master's degree from Başkent University Business Administration Department in 2021. He began his professional career in the Banking industry in 1997 as an Internal Auditor. After having eight years of internal auditing experience, he worked as Manisa Regional Manager, Bursa Regional Manager, and Istanbul Anatolian Side Regional Manager. During this period, he took charge of numerous projects in the fields of Commercial and Individual Marketing, Communication, and Customer Management and provided training and seminars for employees of the industry. He has one book published about banking and customer management, and several articles published on Participation Banking. After 17 years of banking experience, he began to serve as a Business Development Manager at TÜBİTAK Marmara Research Center in 2015. He performed business development, strategic business partnership development, and proposal preparation activities for over 200 projects of seven Institutes within the Center. Besides, he coordinated the Corporate Communication activities of the Center. He was assigned as Vice President of TÜBİTAK, TEYDEB (Technology and Innovation Funding Programmes Directorate) in 2018. During his tenure, he took charge of the coordination of the TÜBİTAK R&D Support Program, University-Industry Support Program, Technology Transfer Offices Support Program, Venture Capital Support Program, and Project Markets Support Programs. He joined the ASELSAN family in September 2018. In December of the same year, he was appointed as Finance Director under the Financial Management Vice Presidency. With the resolution of the ASELSAN Board of Directors dated March 30, 2021, he was assigned as the Vice President of Supply Chain Management.



## Highlights of 2021

The HUB system and its modems which provide point-to-point communication for the Ka-Band utilized in VSAT systems will be produced with domestic and national resources.



### Strategic cooperation of TÜRKSAT and ASELSAN

With the participation of the Minister of Transport and Infrastructure, Adil Karaismailoğlu and the Head of Defense Industry, Dr. İsmail Demir, Ka-Band National Satellite Communication HUB System, and Modem Development Project was signed by the Chairman of Türksat A.Ş.'s Board of Directors Prof. Dr. Kemal Yüksek, the Chairman and CEO of ASELSAN Dr. Haluk Görgün, the CEO of Türksat A.Ş. Hasan Hüseyin Ertok and Vice President of ASELSAN Bayram Gençcan.

Adil Karaismailoğlu stated that the production of Türksat 5B is proceeding according to the planned schedule, that the satellite is planned to be launched into space in the second half of this year, and that Türksat 6A, the first communication satellite produced with domestic and national capabilities, will take off into space in 2022.

Among these satellites, the Ku-Band and X-Band Payloads for Türksat-6A are being developed by ASELSAN. ASELSAN units will be utilized also in the Türksat-5B Satellite to leave the mark of the company on history.

As part of the agreement, the HUB system and its modems which provide point-to-point communication for the Ka-Band services used in VSAT systems will be produced through domestic and national resources. In this context, 150 modems will be produced and 2 HUB systems will be established. Through the system to be created, product sales will be realized for corporate customers, home users, military applications and special tactical applications.



## Minister of Industry and Technology Mustafa Varank visited ASELSAN's Akyurt facilities, where the Microelectronics Guidance and Electro-Optics Sector is located.



### Minister of Industry and Technology at ASELSAN

Minister of Industry and Technology Mustafa Varank visited ASELSAN's Akyurt facilities, where the Microelectronics Guidance and Electro-Optics Sector is located.

Informed regarding the new systems developed by ASELSAN and its future plans, Varank investigated the activities on site. Minister Varank who made a statement following his visit said that ASELSAN develops and produces, particularly electro-optics and avionics systems at Akyurt facilities. Varank highlighted the significant efforts of Turkey in recent years for the production of its national

technologies. "One of the most substantial fields is the defense industry. With the speed we've gained in recent years, Turkey raised its localization rates from about 20% to over 70%," said he.

Varank shared information about the reconnaissance, surveillance, and targeting system "CATS" developed by ASELSAN for air platforms, and said: "This system generated by ASELSAN was tested successfully on UAVs and is being utilized now. The cameras used in UAVs which were restricted for us to purchase from abroad are these systems. They were manufactured quite successfully here."

Varank also pointed out that the Company develops pretty different systems and said: "ASELSAN has crucial capabilities, especially in the field of aviation. Development of avionic systems and the systems related to their management takes place here. ASELSAN is considerably effective in the avionic systems of the critical platforms to be produced by Turkey in the long view. These systems are designed and developed, and our aircraft and helicopters are equipped with the applications of such systems. Both our companies that produce the platforms and ASELSAN, as their supporting institution literally perform enviable works."



### ASELSAN standing by Turkish soldiers

Numerous devices and systems developed and produced by ASELSAN were presented in "Life Exhibition of Turkish Soldiers Strengthening with Domestic and National Technology" which was held by the Ministry of National Defense at the Land Aviation Command. In the exhibition, a wide range of ASELSAN Communication Systems, Thermal Imaging Systems, and Night-Vision Devices were introduced to the press.

Among the systems introduced at the exhibition, SERÇE-3 Multi-Rotor Unmanned Flying System, which stands out with its high payload carrying capacity and wind resistance, and fully autonomous usage features, was also included among the systems introduced by ASELSAN. SERÇE-3's flight was also performed during the presentation.



### Climate leader ASELSAN

Boosting its success in working against climate change every year and reflecting its sustainability approach to its score, ASELSAN once again received the Climate Leader award in the Carbon Disclosure Project (CDP), one of the prestigious environmental projects.

Included in CDP Turkey Program with its first reporting in 2012 and granted the Climate Leadership Award three years in a row due to its increasing success, ASELSAN performs R&D and production activities with the responsibility of adding value to a society based on the commitment to regarding the environment as custody which will be conveyed to the future generations.

The 2020 CDP Turkey Climate Leadership awards were presented on 31 March 2021 with an online webinar award ceremony due to the COVID-19 pandemic. Chairman and CEO of ASELSAN Prof. Dr. Haluk Görgün said: "We are managing the climate change-related risks with our high technology, human value and sound knowledge. Our nationalization activities continue at full speed with the desire that our steps for climate change lead the whole value chain."





## Highlights of 2021

The Plate Recognition System (GEKO+) has obtained a Turkish Standards Compliance document, marking a success in compliance with Turkish Standards.



### Plate Recognition System (GEKO+) on-site with TSE Certification

ASELSAN's Plate Recognition System (GEKO+), which proved itself in security, traffic, and smart transportation projects, has also been successful in complying with Turkish Standards and has obtained a TSE (Turkish Standards Institution) certification.

The domestic and national Plate Recognition System GEKO+ will take its place on-site in the fields of

- Plate/brand/model/color detection
- Parking violation detection
- Average speed detection
- Electronic Control System
- Red light violation detection

with its TSE certification.



### Atak helicopters will get to know friend and foe with ASELSAN

Integration and tests of the ASELSAN product IFF Mod 5/S responder device, designed under the leadership of the Presidency of Defense Industries and used in various helicopters, airplanes, unmanned aerial vehicles, and ships, into the T129 ATAK helicopter completed and ready for use. The next ATAK deliveries will be made through the IFF Mod 5/S Transponder device which is a distinctive product of ASELSAN.

The T129 ATAK helicopter was developed using national capabilities specific to Turkey in order to meet the attack helicopter needs of the Turkish Armed Forces. The performance of the T129 ATAK helicopter has been optimized for demanding hot weather high altitude missions, and it serves effectively in the operations of the Turkish Armed Forces with its high maneuverability and performance capability in the day and night conditions.



### ASELSAN solution for Samsun Traffic

The Protocol for Smart City Traffic Safety Project was signed between Samsun Metropolitan Municipality and ASELSAN.

"Smart City Traffic Safety Project", the first phase of Smart Cities activities that will ease the life of the public by modernizing Samsun contains numerous novelties. The local and national solutions developed by ASELSAN within the project will be environmentally conscious and contribute to the economy. The project is primarily intended to change the existing signaling system in Samsun and make it dynamic, thus ensuring the communication of the intersections with each other and relieving the traffic flow with the most appropriate signal times. With the project, the following works will be performed in Samsun as well:

- Modernization of geometry of the intersections that disrupt the rate of traffic flow and synchronization on the existing road routes
- Integration of Traffic Guidance and Information Systems to roads



According to the survey “R&D 250 - Turkey’s Top R&D Spending Companies”, the company that made the highest R&D spending in 2020 became ASELSAN with TRY 3 billion 356 million.



## ASELSAN once again R&D leader

According to Turkishtime magazine’s survey “R&D 250 - Turkey’s Top R&D Spending Companies”, the company that made the highest R&D spending in 2020 was ASELSAN with TRY 3 billion 356 million.

ASELSAN has realized 749 of the 6,384 projects of the top 100 listed firms. Besides, ASELSAN took place in the list as the company with the highest number of R&D staff (5,264 employees), and the company with the highest rate of female employees in the R&D department (1,117 employees).

Based on the report, the company which is projected to have the highest R&D spending in 2021 was once again ASELSAN, the leader in 2020. The company’s planned R&D spending for 2021 corresponds to TRY 3 billion 860 million.

The survey was prepared, using statements of the companies with R&D centers which were approved by the Ministry of Industry and Technology, as part of the R&D 250 survey; the information provided by Turkey’s top 500 export companies, and announcements of the companies listed in Borsa Istanbul, in the Public Disclosure Platform (KAP).

The defense industry that seriously raised its own share in R&D in previous years has been the key driver of the total growth in R&D this year. According to R&D investment rates of the top 50 R&D spending companies by industry, it is seen that the defense industry has a quite high rate of 60.7%.



## “One hundred percent domestic and electric” on Samsun roads

Avenue EV, the Turkish automotive industry’s first 100% domestic electric bus developed in cooperation with ASELSAN and TEMSA will set off from Samsun.

The busses developed within the “Industry Cooperation Project” of the T.R. Ministry of Industry and Technology can be used uninterruptedly for 24 hours. The daily cost of a diesel bus may rise up to TRY 1,500 whereas that of an electric bus may fall down to TRY 15.00. With the launch of electric buses, the national economy will be relieved considerably and Turkey will become a strong global player in this field.

The vehicles will be equipped with batteries and traction systems one hundred percent domestically and nationally developed by ASELSAN. Furthermore, numerous sub-systems of vehicles such as the engine cooling system, vehicle control computer, and driver instrument panel will be localized by ASELSAN.



## ASELSAN among world giants again

This year, ASELSAN ranked 48<sup>th</sup> again this year in the list of the world’s top 100 Defense Industry Companies (Defense News Top 100) published by Defense News magazine, an independent US-based military publication. ASELSAN, the locomotive of the domestic and national defense industry became the only Turkish company ranking in the top 50 of the list.

Published annually by Defense News magazine based on the sales in the defense industry of the previous year, “Defense News Top 100” is accepted as the world’s most prestigious defense industry list. As the most significant source of the Turkish Army and security forces in the field of electronic devices and systems, ASELSAN has continued its efforts to rank higher on the list.



## Highlights of 2021

ASELSAN and Sefine Shipyard carry on their works for developing the new unmanned surface vehicles for the security of our Blue Homeland.



### Turkish unmanned systems to become brands at sea

ASELSAN and Sefine Shipyard carry on their works for developing the new unmanned surface vehicles for the security of our Blue Homeland. Two new unmanned surface vehicles that have commenced production will be used for tasks such as autonomous reconnaissance-intelligence, surface warfare, underwater warfare, and protection of base/harbor/critical facility and high-value floating platforms.

Block assembly activities of the autonomous and swarm capable armed unmanned surface warfare vehicle has been initiated with the ceremony held at Sefine Shipyard. The same ceremony involved the sheet metal cutting of the autonomous and swarm capable unmanned underwater defense warfare vehicle.

Both marine vehicles are capable of speeds over 40 knots. The autonomous vehicles with a range of more than 600 nautical miles will be able to serve for about four days without the need for supply. With their high maneuverability and speed, the autonomous marine vehicles will perform missions and cruises flawlessly even in the toughest sea conditions.

Outstanding features of the new Unmanned Marine Vehicles are as follows:

- They will be able to send the images they receive to desired centers in real-time and detect and classify surface elements.
- Even in cases of lost communication, they will be able to perform autonomous

navigation and operations while avoiding fixed and moving obstacles.

- Thanks to the autonomy software, they will be able to navigate adaptively based on what they perceive from the sensors on them, and move autonomously according to maritime traffic rules.
- ROKETSAN's tactical missile system and ASELSAN's stabilized machine gun system STAMP will achieve autonomous protection of base/port/critical facility and floating platforms in surface warfare.
- Both marine vehicles will be able to be transported by cargo planes, military ships, or by road and transferred to their duty points.
- The autonomous marine vehicle designed for surface warfare can be converted into trimaran form with the expandable platform. In this way, the useful load capacity will be raised, thereby allowing for the use of different weapons and systems. Moreover, the vehicle will be able to perform electronic warfare, underwater warfare, and mine warfare functions.
- In addition to its surface warfare mission, the Autonomous Unmanned Marine Vehicle will be utilized for the security of military bases and civil ports against asymmetrical threats. With the satellite system it features, the vehicle will transmit real-time video and images.
- As part of the cooperation with Türk Loydu, the development of autonomous military ship rules will be supported.





ASELSAN welcomed its visitors in the largest exhibition area in IDEF 2021 which was held in Istanbul and brought the substantial domestic and international actors and supply bodies of the defense industry, and country delegations together.



## ASELSAN, the symbol of pride and trust

IDEF'21, the 15<sup>th</sup> edition of the International Defense Industry Fair was held on August 17-20, 2021 at the TÜYAP Fair Convention and Congress Center under the auspices of the Presidency of the Republic of Turkey, hosted by the Ministry of National Defense, with the support of the Presidency of Defense Industries, under the management and responsibility of the Turkish Armed Forces Foundation and organized by TÜYAP Tüm Fuarçılık Yapım A.Ş. ASELSAN, the symbol of independence in the defense and technology field was the most remarkable company at IDEF International Defense Industry Fair this year.

ASELSAN welcomed its visitors in the largest exhibition area in IDEF 2021 which was held in Istanbul and brought the substantial domestic and international actors and supply bodies of the defense industry, and country delegations together. The company which meets the demands of many domestic customers, especially the Turkish Armed Forces, the General Directorate of Security, and the Gendarmerie General Command for defense and security systems has exhibited its unique systems and solutions in IDEF. At ASELSAN stand, over

250 products and systems were introduced in the sections of Naval Systems, Air Defense Systems, Border-Coastline Security Systems, Communication Systems, Electronic Warfare Systems, Electro-Optic Systems, and Weapon Systems.

The systems developed by ASELSAN are used not only by domestic customers but also by 71 countries abroad. Visitors to the fair from abroad also found the defense industry products they needed at the ASELSAN stand.

ASELSAN which exhibited its own products in an area of 7 thousand m<sup>2</sup> in IDEF 2021 presented "Nationalized Products" for the first time this year. The fair features critical products previously purchased from abroad and nationalized by ASELSAN. Thanks to these efforts, the company has brought in nearly USD 200 million from abroad to Turkey in the last three years. At the fair, the suppliers which joined forces with ASELSAN, the industrialists who are prospective suppliers for the company, and SMEs discovered the collaboration opportunities and exchanged ideas in the special sections reserved for them.



## Indispensable for police operations: Jammer Team

The "Jammer" team, which has played a critical role in the operation of the Istanbul Police Department, mostly uses the back-type signal mixers developed by ASELSAN.

Previously, Istanbul Police used equipment installed on vehicles or minibusses in operations and social incidents. Thanks to ASELSAN, back-type signal jammers were adopted to be used in public events and operations as of May 1, 2021.

There are 50 back-type signal mixers in various units of the Istanbul Police Department. The back-type signal jammer that requires two minutes of installation before usage is worn with special equipment.

The national jammer 100% domestically manufactured by ASELSAN ensures staff's safety of life and communication discontinuity of the target element against any remotely controlled radio frequency-controlled threat element. The device which does not emit radiation is controlled through radiofrequency.



## Highlights of 2021

The mass production contract of HİSAR O+ was signed by the Presidency of Defense Industries (SSB) and the business partnership between ASELSAN-ROKETSAN.



### ASELSAN and Türk Telekom reach national co-operation

ASELSAN's next-generation base station antenna with multi-band support and the ability to provide 2G-3G-4.5G services, produced by ASELSAN with more than 40 years of experience, has started to be actively tested in the field together with Türk Telekom.

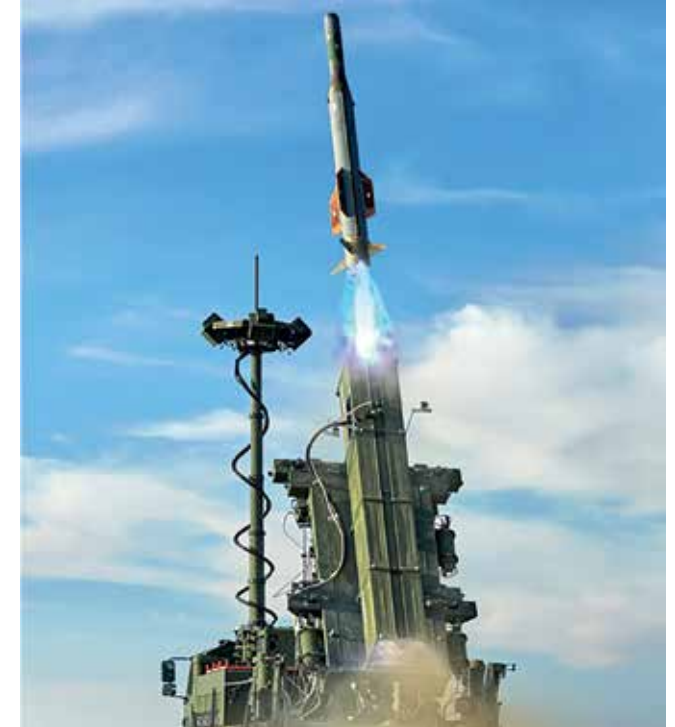
Chairman and CEO of ASELSAN Prof. Dr. Haluk Görgün stated: "As ASELSAN, we care deeply about the results of the live tests on the operator field for the development of our products. We keep developing our product based on the feedback from the testing activities conducted in collaboration with Türk Telekom. Our mass production activities and the installations for other operators continue for the second half of 2021 at full speed. We are working full steam ahead to develop a new type of domestic and national antennas using our advanced technologies."



### ASELSAN assurance for energy supply

Provisional acceptance process of Ceyhan Marine Terminal which was undertaken by ASELSAN at the helm of the Presidency of Defense Industries (SSB) and is the biggest facility within the Safety Project of BOTAS (end-user), Oil and Natural Gas Pipelines (PDBHG) was completed.

The security system set to ensure the security of BOTAS facilities which have critical importance for the continuity of our country's energy supply consists of an intrusion detection system via MIDAS Fiber Optics, EKİNOKS steady/movable/ex-proof CCTV cameras, and the infrastructure elements such as patrol track, sterile field, and internal/external wire fence.



### HİSAR O+ mass production contract signed

The Presidency of Defense Industries (SSB) and ASELSAN-ROKETSAN business partnership drew up a contract about the mass production of HİSAR O+ which was proved to be ready for usage during the Ballistic Test Campaign held between June and July 2021.

The widespread use of HİSAR O+ systems is very important to meet the point and regional air defense needs of our country, which own strategic and critical facilities. HİSAR O+ which will meet the air defense needs of the Turkish Armed Forces (TAF) with domestic and national systems will undertake critical roles in our country's air defense.



In Teknofest, ASELSAN exhibited numerous products and systems which range from unmanned aerial systems to civil technologies, from weapon systems to tank concepts of the future.



## Mark of science and technology on Teknofest

ASELSAN left its mark on Teknofest, the world's largest aviation, space, and technology festival held at Istanbul Atatürk Airport between September 21-26, with the competitions, events, and products experienced by children and young people.

Techno Adventure, ASELSAN's long-term social responsibility project actualized in 2019 hosted many children during Teknofest. The children who discovered science there met the Techno Adventure characters of ASEL, Eda, and Mete. Techno Adventure encourages new generations to become curious, inquisitive, and productive individuals, as a requirement of our era by providing them with appropriate and beneficial habits on technology, IT, and defense.

In Teknofest, ASELSAN exhibited numerous products and systems which range from unmanned aerial systems to civil technologies, from weapon systems to tank concepts of the future. Developed and produced with national resources, the CATS System of ASELSAN was exhibited at the BAYKAR stand, which drew intense interest, and on BAYKAR's unmanned aerial vehicles. Teknofest visitors experienced SARP Remotely Operated Stabilized Weapon System, Cockpit of General Purpose Helicopter, Future's Tank Concept, thermal weapon sights, and quadrant sights.

Besides, the company organized gripping competitions as part of Teknofest. Unmanned Underwater Systems Competition was held under the leadership of ASELSAN once again this year. With this competition, ASELSAN created awareness of unmanned underwater systems which will play a critical role in making our underseas more controllable. Winners of the competition which aims to pioneer widespread use of unmanned underwater technologies were awarded.

Furthermore, the Artificial Intelligence in Transportation Competition held by ASELSAN in collaboration with TÜBİTAK and Cezeri also continued during the festival where young talents have been discovered and motivated. ASELSAN also provided technical staff support for the other competitions organized over the course of the festival.



## Digital Turkish Lira Collaboration Platform

The Central Bank of the Republic of Turkey (CBRT) continues to search for the potential benefits of the circulation of digital Turkish lira which will complement the existing payment infrastructure. As part of the Central Bank Digital Turkish Lira Research and Development (R&D) Project, the process commenced upon the finalization of the proof of concept and moved on to the next stage with the participation of technology stakeholders.

In this respect, the CBRT signed bilateral memorandums of understanding with ASELSAN, HAVELSA, and TÜBİTAK-BİLGEM, and established the Digital Turkish Lira Collaboration Platform. In the light of the findings of the first phase which contains preliminary testing of strategic and critical technologies related to the project, expanding the platform with the involvement of new participants is planned.

Within the first phase of the pilot study, the CBRT will develop a prototype Digital Turkish Lira Network and run limited closed-circuit pilot tests with the technology stakeholders. In line with the results obtained, the CBRT will proceed to advanced phases of the pilot tests which will be more prevalent and have broader participation. It is also planned to carry out the tests that may require diversification on topics like blockchain technology, the use of distributed ledgers in payment systems, and integration with instant payment systems as part of the Digital Turkish Lira R&D Project.





## Highlights of 2021

The number of companies with strategic partner status reached 75 with the 25 new agreements signed.



## ASELSAN on route to becoming a global giant with strategic partners

ASELSAN Strategic Partnership Meeting was held in Ankara with the participation of suppliers and strategic partners. The number of companies with strategic partner status reached 75 with the 25 new agreements signed. The Chairman and CEO of ASELSAN Prof. Dr. Haluk Görgün underlined the technological independence objective of ASELSAN and highlighted that 3,300 of ASELSAN's 5,500 suppliers are domestic companies

Emphasizing that working with domestic suppliers and strategic partners does not remain unfulfilled with more than 500 products being nationalized since 2018 through contracted projects, internally-funded

R&D projects, and catalog publishing with the National and Domestic Product Development Board, which they established three years ago, Görgün reported that they ensured almost USD 200 million have remained in the country.

ASELSAN Supply Chain Management Vice President, Nuh Yılmaz made a presentation regarding the supply chain and the expectations from strategic partners. Yılmaz reported that ASELSAN conveys its innovation capabilities to other companies, test-verification and several production equipments are made available to its suppliers within the bounds of possibility, and even are sold at symbolic prices.



## Saha Expo in the spotlight

Organized by Saha Istanbul Defense and Aerospace Cluster Association, Saha Expo Defense and Aerospace Exhibition was physically held at Istanbul Exhibition Center on November 10-13, 2021. In addition, the event was at the service of participants and visitors as a virtual exhibition between November 15, 2021, and February 15, 2022. The exhibition showcased Turkey's domestic production potential in defense, aviation, maritime and space industries, as well as collaborations that will make significant contributions to the national technology move.

Unlike the former organizations, the participants and visitors of the Saha Expo were informed about not only nationalized products but also the systems which utilize such products. During four-day event, ASELSAN Supply Chain Management Vice Presidency made 392 face-to-face meetings with 255 companies, 20 of which were foreign companies. In the event, 252 face-to-face meetings took place at the ASELSAN stand while 140 were performed by visiting companies' stands. The agenda of the face-to-face meetings consisted of nationalization, generation of new resources, open orders, and new collaborations.

Visitors and purchasing delegations from Europe, USA, Africa, Middle East, Ukraine, Russia, Malaysia, Indonesia, Bangladesh, and India attended the exhibition which was supported by the Ministry of National Defense, Ministry of Internal Affairs, Ministry of Industry and Technology, Ministry of Commerce and Presidency of Defense Industry.

The exhibition where state-of-the-art technologies in the defense, maritime, aviation and aerospace industries were presented brought its participants and international producers and global product and service suppliers together. At the exhibition which hosted more than 25 thousand visitors, hundreds of SMEs which produce parts, components, subsystems, and systems met with the worldwide platform producers.

With XperExpo developed by BİTES which is a member of Saha Istanbul and an affiliate of ASELSAN, the participants had the chance to experience the game-changing technologies by visiting the booths at the virtual exhibition and examining the products and catalogs. At the virtual exhibition which allowed the product and company videos to be watched, the participants were able to make online chats with company officials and exchange their business cards.



ASELSAN X-Ray Devices were brought into use with a collective opening ceremony held by President Recep Tayyip Erdoğan in Gaziantep.



## Critical facilities in ASELSAN's care

In the light of Turkey's technological independence vision, ASELSAN carries on its leaps in civil fields. Within this framework, ARIN X-Ray Baggage Control Devices were also added to the ASELSAN Security Systems product family. ASELSAN X-Ray Devices were brought into use with a collective opening ceremony held by President Recep Tayyip Erdoğan in Gaziantep.

Developed domestically by ASELSAN and HTR in a short period of 11 months with national resources, ARIN X-Ray Baggage Control Devices were first delivered to the new terminal building of Gaziantep Airport. As part of the project, 12 ARIN X-Ray Baggage Control Devices were delivered to the new terminal building of Tokat Airport as well.

The X-Ray Baggage Control Devices used for security purposes are of critical importance for ensuring the security of various facilities such as airports, harbors, border gates, customs, and state buildings. ASELSAN ARIN X-Ray Baggage Control Devices can distinguish organic, inorganic, and metal substances according to their effective atomic number, and display them in six colors. The devices feature the capabilities of automatic explosive detection, high-density zone imaging, high-density alarm, density zoom capability (colored and black-and-white), organic scraping, automatic geometric and radiometric correction function, camera monitoring of tunnel entrances, exits, and expandable threat image projection (TIP) library.



## ASELSAN technology beyond the boundaries of atmosphere

Launched from Florida Cape Canaveral base with SpaceX's Falcon 9 rocket, the Türksat-5B satellite incorporates the data transmission equipment created by ASELSAN using completely domestic and national resources.

Türksat-5B satellite is equipped with a Ku-Band Receiver and a Ka-Band Low Noise Amplifier (LNA) developed by ASELSAN as an internally-funded R&D project.

Thanks to working closely with the international companies, which actively operate in the aerospace industry for long years, within this project, ASELSAN gained substantial experiences such as preparation and classification of the documents in accordance with the space standards, national production of space-qualified printed circuit boards, verification of the space-qualified production

processes and inclusion of numerous extensive new processes in qualification processes.

TÜRKSAT6A Local Communication Satellite Development and Production Project is carried out in accordance with the principles of the TÜBİTAK 1007 Program. ASELSAN is responsible for developing Ku-Band Payload and X-Band Satellite Communication Payloads. In the TÜRKSAT-6A Project, Turkey's first communication satellite.

Within the project, assembly and integration of payloads on the satellite flight, and their test activities were completed and they were sent to TUSAŞ facilities. It is aimed to launch TÜRKSAT-6A which contains many firsts, in 2023 after the completion of the Flight Model satellite level integration and testing activities to be carried out at TUSAŞ Facilities, and to start its 15-year mission in orbit.





## Highlights of 2021

**KOSGEB and ASELSAN decided to join forces for developing medium- and high-technology products in the manufacturing industry.**

**TRY 900  
Thousand**  
Micro-Enterprise Support

**TRY 1.5 Million**  
Small-Sized Enterprise  
Support

**TRY 6 Million**  
Medium-Sized Enterprise  
Support



### ASELSAN and KOSGEB to join forces

Stating that they will assist the industries with critical importance in nationalization through the R&D, P&D, and Innovation Support Program, KOSGEB and ASELSAN decided to join forces to develop medium- and high-technology products in the manufacturing industry.

The works to be conducted as part of this collaboration were discussed at a meeting where the Chairman and CEO of ASELSAN Prof. Dr. Görgün and the President of KOSGEB Hasan Basri Kurt participated. Supply Chain Management Vice President, Nuh Yılmaz from ASELSAN and Head of Technology, Innovation and Localization Department, Mehmet Görkem Gürbüz from KOSGEB also attended the meeting.

KOSGEB had already announced its support program for R&D at the beginning of 2021. In the first call of the support program namely the R&D, P&D, and Innovation Program, the electric car industry, and the next-generation mobile communication technologies like 5G had been targeted. With the cooperation protocol signed between ASELSAN and KOSGEB on June 9, 2021, the works related to the second call of the R&D, P&D and Innovation Support Program were commenced.

The call aims to nourish the R&D, P&D, and innovation projects of the enterprises in preferred industries, and of the enterprises

related to nationalizing the needs of the defense industry in order to raise competitive and high value-added production. In the new call published on December 15, 2021, the enterprises with SME status were given the application period until February 8, 2022.

The call for project proposals will be provided under three main headings:

- For defense industry; military connectors suitable for QPL, RF cables, high-volume directional diaphragm driver speakers, acoustic converters, and RF components
- In pharmaceutical and medical device fields; development of ultrasound devices, computed tomography and digital mammography devices, cellular and molecular imaging systems, image processing and scanning devices, robotic surgical systems, vaccines, and immunity products, diagnosis products, and biotechnological drugs.
- For use in the production of rail system vehicles and their critical components; traction system, bogie, balize, vehicle body design, pneumatic systems, gearbox, self relay, etc., a control system for the rail system, traveler information systems, and system integration.

Within the scope of the call, grants up to TRY 900,000 for micro-enterprises, TRY 1,500,000 for small enterprises, and TRY 6,000,000 for medium-sized enterprises will be provided. Grants will be offered to the participating companies for activities such as staff expenses, machinery-equipment expenses, industrial property rights expenses, test-analysis and certification expenses, consultancy-training promotion, and domestic/foreign fairs.





# Human Value Management at ASELSAN

Performance Ambassadors Project was implemented to boost the effectiveness of the Performance Development and Feedback System and reinforce the performance management culture with the targets.

Under the Information Exchange Program, the content created by employees aspiring to share their knowledge and experience with the ASELSAN staff, as well as video-based courses from experts of their respective fields were shared with all employees on the “a BİL-GE” platform.

Prizma Mentorship Program was designed to accompany the development journey of ASELSAN employees, whom ASELSAN considers as its most valuable resource, and to improve their leadership skills. Launched in June, 177 employees applied to the program, and 142 employees completed the mentorship training and were included in the process.

ASELSAN Development Center implementations, designed to contribute to the development of employees, continued online throughout the year. Feedback was given to 114 employees who participated in these applications in line with their competencies. Target Sharing and Setting the Right Target workshops were organized for managers during the year.

Performance Ambassadors Project was implemented to boost the effectiveness of the Performance Development and Feedback System and reinforce the performance management culture with the targets. In line with feedback pooled, the user interface of the Performance and Feedback System was developed to be more user-friendly. Target Sharing and Setting the Right Target workshops were organized for managers during the year.



The Career Development Planning system was arranged to allow employees to make their own development plans on a single screen by integrating 360° Competency Assessment results, the journey of development, and technical knowledge trainings. In line with such planning activities, employees had the chance to determine the actions which will promote their development, together with their executives.

Career paths were restructured and new interim titles were added. Two new assessment mechanisms in which the competencies of the employees will be prioritized were established while defining leadership and technical career paths. During the year, advertisements were posted for a total of 61 manager positions for which employees can apply.

The Organizational Development Project was started with the aim of putting the Team Leadership Career Path into practice by understanding the team structure of management units, developing effective human resources solutions by knowing the business processes better, and raising

efficiency by examining the structuring of the Company and determining the areas of development.

## İz Birakanlar of 2021 Awarded

In the İz Birakanlar Award Ceremony where the winning projects of the Nationalization, Process Development, and Quality categories in 2021 were awarded, the awards in İyi ki varsın, Pusula, and Development Workshop awards also found their owners.

İz Birakanlar of 2021 were awarded in the event watched online by our colleagues.

## Learning and Development Practices

ASELSAN Competency Development Catalogue was created by designing competency development journeys for different levels of 27 different behavioral dimensions based on the ASELSAN Competency Model. On the other hand, the technical information library was formed in line with the “Paths” set according to job descriptions and areas of expertise of ASELSAN departments. In the light of these activities, training lists were prepared on the basis of knowledge level for each path related to the technical information that can be improved through training.



## Human Value Management at ASELSAN

In the light of the value of development, the learning and development projects implemented to contribute to employees were deemed worthy of the Bronze Award in the Culture and Technology category of Global Council of Corporate Universities awards.

Under the Information Exchange Program, the content created by employees aspiring to share their knowledge and experience with all ASELSAN staff, as well as video-based courses from experts in their respective fields were shared with all employees on the “a BİL-GE” platform. As part of this, 390 information-sharing videos were published.

In line with a BİL-GE’s mission to contribute to the personal development of employees and to increase their corporate loyalty, apart from contributing to their professional and technical development, a BİL-GE Social Groups and Blog Page were put into use in line with the aim of supporting learning from each other and social learning, and increasing corporate loyalty. A total of 36 Social Groups were established in line with the interests of employees, and 11 blog posts were published.

The activities of the Leadership Development School, aiming to boost ASELSAN managers’ capabilities to enable them to achieve the Company’s strategic goals, are ongoing. Within the scope of these activities, 19 different Actional Learning Projects were determined and assigned to 74 Actional Learning Teams.

As part of the Talent-A Development Program, e-training and video-based training sessions for technical and personal development were

held for the Talent-A group under 35 different training titles in order to contribute to the development of the candidate engineering staff.

Training programs were created through the ASELSAN Learning and Management System for students who are included in Future-A and ATİK programs, contributing to their technical and personal development. Mentors chosen from ASELSAN employees were assigned to the students in the ATİK Program. Thus, the development of students was supported by the “learning from others” method.

ASELSAN whose Erasmus+ accreditation application in the field of professional training was accepted in 2020 was entitled to receive a grant in 2021 by preparing project plans in line with the targets determined during the accreditation application. This program aims to enable ASELSAN staff to attend the activities in their professional fields organized abroad and thus, develop their capabilities and skills.

### Success Crowned with the International Prestigious Awards

In the light of the value of development, the learning and development projects implemented to contribute to employees were deemed worthy of the Bronze Award in the Culture and Technology category of Global Council of Corporate Universities awards.



ASELSAN received a Gold award in the Best Learning Technology Application category, a Silver award in the Best Training Team category, and a Bronze award in the Best Social Learning Use category in the Human Capital Management Excellence Awards organized by Brandon Hall Group, one of the world’s most prestigious institutions.

ASELSAN won the Bronze Award in the Best Learning/Training Team category in the Stevie Awards, the only global award program that knows the world’s best employers and human resources professionals. In the Universum World’s Most Attractive Employers Survey, ASELSAN ranked first in the Engineering/IT category for the fifth time in a row.

### ASELSAN Vocational and Technical High School

CMM Quality Control Room, CNC Milling, Lathe Atelier, and CAD/CAM Laboratories were established and put into service of students at ASELSAN Vocational and Technical Anatolian High School (ASELSAN MTAL) launched with

the aim of contributing to the education of the labor force needed by the defense industry. In-service training was provided to teachers at the ASELSAN premises on the content of the courses and workshops in the curriculum of the “Defense Electronic Systems” and “Defense Mechanical Systems” branches.

A training program comprised of 12 different trainings was offered to the students through the ASELSAN Learning and Management System a BİL-GE to contribute to the personal and technical development of ASELSAN Vocational and Technical High School students. In addition, a Mentoring Program was launched to enable students to learn from others. The Career Talks event assisted the students in career planning. ASELSAN senior management and employees made presentations in the monthly briefings held within the scope of this event.



Talent-A Program won the Silver award in the “Best Evaluation and Sourcing” field in the “Talent Acquisition” category at the Brandon Hall Group’s 2021 Awards, making ASELSAN the only Turkish company to receive a Silver award in this category.

As part of the categories which require exams for recruitment, the Examination Procedures Module was designed and put into use on the Recruitment Portal.

#### Recruitment Applications

The Recruitment Portal and the digital processes used in recruitment were combined on a single platform, and the management of all recruitment and placement processes for the candidates who applied to ASELSAN and will be evaluated for open positions started to be performed through the Recruitment Portal.

As part of the categories which require exams for recruitment, the Examination Procedures Module was designed and put into use on the Recruitment Portal.

#### Talent-A

With the Talent-A program, it was aimed to make sure that young talents develop professional competencies prior to the start of their careers; embark upon their professional life with an awareness of the ASELSAN culture, and receive one-on-one mentoring and guidance for their career development starting from their years at the university.

Introduced in 2020, the Reverse Mentoring process continued in 2021 as well to help the Company make the most of young talents’ knowledge and perspective; enhance communications, and transform generational differences into a mutually beneficial concept rather than a hurdle.



The Talent-A participants who started to work on the projects with their mentors throughout the program have presented the projects they are working on under the program. The Talent-A participants who ranked in the project presentation were identified and awarded certificates and prizes by the Chairman of the Board of Directors and the General Manager at the closing event.

In the 2020-2021 period, 112 Talent-A participants started the program and 96 of them began to work at ASELSAN as Engineers/ Assistant Specialists in 2021. In the 2021-2022 period, 194 Talent-A participants were included in the program.

Talent-A Program won the Silver award in the “Best Evaluation and Sourcing” field in the “Talent Acquisition” category at the Brandon Hall Group’s 2021 Awards, making ASELSAN the only Turkish company to receive a Silver award in this category.

#### Next Big Move to Turkey

In 2021, the Next Big Move to Turkey Program had been in place as an overarching project that involved efforts to develop and further improve the existing qualified ‘minds’ in Turkey and to attract equally qualified Turkish citizens overseas back to Turkey within the context of ASELSAN’s fields of activity, strategic targets and the projects carried out to achieve such objectives.

Sponsoring activities were carried out on LinkedIn, and project-specific communications were carried out on social media.

Thanks to the efforts undertaken under “Next Big Move to Türkiye”, 62 professionals turned back to Turkey and joined the ASELSAN Family in the past three years.





## Human Value Management at ASELSAN

ASELSAN Technical Generation (ATİK) Program is a talent program that includes practices, which will ensure the preference of vocational high schools by creating employment opportunities in order to meet ASELSAN's need for technicians with the valuable people trained within ASELSAN.

In 2020-2021, 172 vocational high school students completed the ATİK program. In 2021-2022, 153 ATİK students joined the program.

ASELSAN Technical Generation (ATİK) Program is a talent program that includes practices, which will ensure the preference of vocational high schools by creating employment opportunities in order to meet ASELSAN's need for technicians with the valuable people trained within ASELSAN. It was aimed to support the technical and personal development of vocational high school students with the trainings and duties provided within the scope of the ATİK program.

During the 2020-2021 operating period, the ATİK program was conducted remotely due to the pandemic. Through Personal Development and Technical Training Sessions appointed by the Learning and Development Department, the development of ATİK participants were supported and shared with the mentors.

The development of ATİK participants was followed through evaluation forms sent to the mentors, and it was aimed to spread the feedback culture.

Within the scope of the ATİK Program, 172 vocational high school students completed the program in 2020-2021. In 2021 - 2022, 153 ATİK students joined the ATİK program.



### My Family ASELSAN

ASELSAN offered 75 special advantages to employees and their family members by making agreements with different institutions and companies.

A total of 6,760 ASELSAN employees and 500+ family members are registered to Ailem ASELSAN (My Family ASELSAN) application which has 7,272 users.

### Internal Communication Activities

- Thanks to ASİL Communities, ASELSAN values are continuously carried on every passing day with more employees and more events.
- The 46<sup>th</sup> anniversary of ASELSAN was celebrated with the events held at all facilities and satellite facilities.
- With "Our Future Is With You" events organized every month, new employees of ASELSAN were acquainted. Employees found the opportunity to get closely

acquainted with ASELSAN and its culture during the events which lasted the whole day.

- In Value Adding Photographs Contest, the best 3 photographs were selected for each value among 382 photographs that attended the contest. Awards were presented with the participation of the Chairman and CEO, and Sector Presidents and Vice Presidents.
- Pre-selection and semi-final tours of the internal online game contest were completed. Following the cut-throat competition of 300 teams and 1,500 ASELSAN employees, 16 teams gained the right to reach the final.
- With the "Aramızda" Webinar Series, the company has met with female university engineer candidates and carried out activities in universities to support and develop women's employment.
- Cultural activities in harmony with the values identified with employees got started.



Contact with candidates is performed via the ASELSAN Yaşam Instagram account. Life at ASELSAN was shown to all potential candidates and followers.

> 9,460

Total Number of  
Employees  
(by the end of 2021)

> 1,779

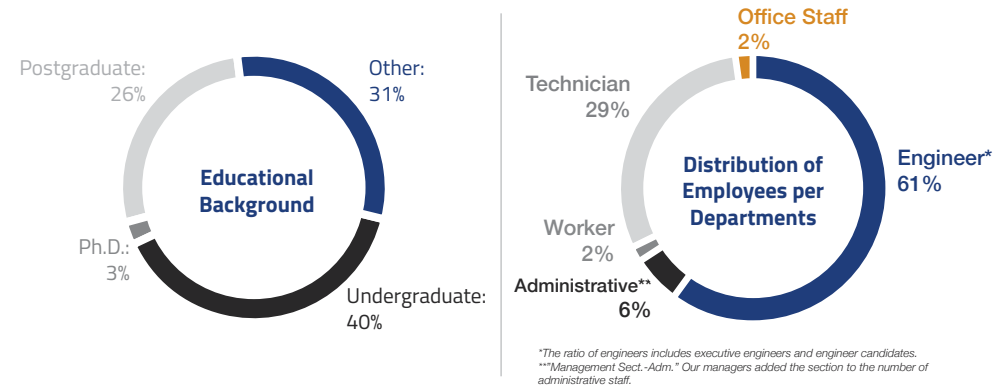
Number of  
Employees Started  
(by the end of 2021)

- ASELSAN Mothers' Recipes book and ASELSAN Father's book were prepared for Mother's Day and Father's Day respectively.
- Guidebook for Executives was prepared to help the executives quickly find the information on HR system and applications.
- Gifts were prepared for employees on Eid Al-Adha, Eid Al-Fitr, and the new year.
- The new welcome kits were included in the orientation process. Every month, newly recruited employees meet at the "Our Future Is With You" event.
- A value measurement survey was put into practice with the value ambassadors. A total of 3,000 ASELSAN employees attended the survey.
- ASİL Communities were actualized. As a result of the workshop held in 2021, a new systematic structure was designed, and communication and event activities were carried out to enable more employees to participate in sports and art communities.
- As part of 26-45 / 36-42 Webinar Series, seven online webinars were held in seven regions.
- Contact with candidates is performed via the ASELSAN Yaşam Instagram account. Life at ASELSAN was shown to all potential candidates and followers.
- The company attended 206 campus events organized for the university students, thereby meeting more than 40,000 students.

### Labor Policy of Human Resources

ASELSAN employees are 61% engineers\*, 29% technicians, 6% administrative\*\*, 2% office staff and 2% workers.

### Educational Background



### 8 R&D Centers

R&D Centers	Number of Employees
GY R&D	53
HBT R&D	547
MGEO R&D	1,294
MGEO-2 R&D	150
REHIS R&D	1,227
SST R&D	835
SST Istanbul R&D	Opened as of January 01, 2022
UGES R&D	511
Total	4,617

Technoparks	Number of Employees
ODTÜ Teknokent	229
ODTÜ Titanyum	136
Teknopark Hacettepe	88
Teknopark Istanbul	129
Teknopark Ivedik	350
Gebze Bilişim Vadisi	18
Total	950



## Procurement and Nationalization Activities

The proactive attitude, strategy changes, and process improvements of the procurement teams in procurement processes contributed to the retention of USD 128 million within the Company in 2021.

Order volume and the number of companies worked actively carried on rising in 2021 as well. ASELSAN actively works with more than 5,500 companies of which 3,300 are domestic. In 2021, purchase order of USD 1.5 billion was placed.

Within the scope of ASELSAN's continuous change and development vision, a substantial transformation in the structuring of supply took place in 2021 like in the other fields. Procurement activities performed at the level of the directorate were included in the upper concept of supply chain management and promoted to the level of Vice Presidency in April 2021.

With this step, it was aimed to gain in buying, to be able to perform strategic purchases, and to make nationalization which is in the spirit of ASELSAN, sustainable. For these reasons, the new supply organization was shaped based on four pillars: Nationalization, Industrialization, Strategy, and Digitalization.

Soon after the new organization was established, it managed to make a positive contribution both with its works and the awareness it created among internal and external stakeholders. It was started to manage purchasing activities with a central perspective that manages the needs of Sector Presidencies together with them and prioritizes the interests of ASELSAN.



Within this framework, all workflows related to procurement were revised in 2021 and their effectiveness was increased. Purchasing teams commenced being involved in the processes from the design and planning stages. All necessary measures for the global raw material crisis, chip crisis, and ongoing pandemic conditions were taken. Thus, it was ensured that the supply chain runs smoothly without disrupting the delivery plans. Aiming to keep its sound communication with suppliers, ASELSAN formed alternatives for the products it supplies, ensured mutual cooperation, and generated long- and short-term solutions.

In addition, purchasing strategies have been diversified in the previous period. The tender system has been restructured in a way that encourages participation and competition. The proactive attitude, strategy changes, and process improvements of the procurement teams in procurement processes contributed to the retention of USD 128 million within the Company in 2021.

Order volume and the number of companies worked actively carried on rising in 2021 as well. ASELSAN actively works with more than 5,500 companies of which 3,300 are domestic. A purchasing order of USD 1.5 billion was given in the previous year.





Over the last 10 years, orders placed with SME suppliers have increased six-fold. In 2021, orders placed with domestic companies amounted to over USD 1 billion, with nearly 70% of total orders placed with domestic companies.

In 2021, ASELSAN continued giving significant financial assistance to its suppliers like in the previous years. Despite the negative impacts of the pandemic, the suppliers were mostly paid in 2021 within the last three years. As of the year-end, an amount exceeding USD 1 billion was transferred to domestic suppliers. In addition, within the Supplier Financing System which has been successfully implemented since 2013, agreements with three new banks were made in 2021, thereby raising the number of the banks with which the company works in this field, to 15.

The countenance was given to domestic companies from the aspect of payment. Furthermore, more efforts were made to give these companies the newly-opened orders at the highest prices as far as possible. In 2021, more than 50% of the domestic orders were opened to ASELSAN-Approved Sub-Industry companies, Strategic Partners and Affiliates. The number of the approved sub-industry companies was raised by 16% to 442, compared to the previous year. In the last 10 years, the orders placed to the suppliers with SME status increased sixfold. In this regard, the amount of orders given to domestic companies exceeded USD 1 billion, and about 70% of the total orders were placed to them in 2021.

ASELSAN attaches great importance to developing supply competencies, including new companies in the procurement ecosystem, and increasing the competencies of existing companies. Every year, Strategic Cooperation Agreements are accordingly drawn up with the suppliers that increase added value and adopt the growth objectives of ASELSAN. In 2021, the Strategic Partnership processes were handled thoroughly and a new strategic partnership vision was set. With the new vision determined, the number of the Strategic Partners which was 50 in 2020 raised by 50% to 75 at the ASELSAN Strategic Partnership Meeting held on November 2, 2021. In the event where the company came together with the existing and new Strategic Partners, the new roadmap was shared, and the advantages provided to Strategic Partners and the basic expectations under the titles of Quality, Nationalization, On-Time Delivery, and Efficiency were communicated. Furthermore, four Strategic Partners which contributed to the nationalization activities of ASELSAN were awarded in the "Strategic Partner Nationalizing the Highest Number of Products in the Last Three Years" and "Nationalization of the Year" categories.

To achieve sustainability of the domestic supplier ecosystem, various cooperations are carried out with KOSGEB and numerous



Clusters and Associations of the defense industry. In IDEF 2021 and the Efficiency Technology Fair which bring the significant domestic and foreign actors of the defense industry, procurement authorities, and country delegations together, eight new cooperation protocols for the creation and nationalization of resources were signed. As an important outcome of these signed protocols, the Nationalization Call was launched with KOSGEB at the end of 2021. This has paved the way for up to TRY 6 million of grant to companies applying to the Call.

In 2021, ASELSAN attended 18 organizations such as IDEF, SAHA EXPO, the Efficiency and Technology Fair, and SANTEK, in 13 provinces. A total of 1,750 face-to-face meetings were held with existing and potential suppliers at the events. Ties with suppliers were strengthened, the supply ecosystem was equipped with new capabilities and the existing collaborations were consolidated.

With the efforts of the Component Engineering Unit newly created under the Supply Chain Management Vice Presidency, it was started to contribute to the creation of alternative materials even in the design phase. The work on discovering alternative resources was carried out for over 800 products in a short time.

Within the digitalization activities, the Supplier Portal was improved to track the open orders of more than USD 2 billion whose number already exceeds 65,000 items, in the digital environment. In addition, the Supplier Payment Tracking Screen was put into use, enabling suppliers to monitor domestic supplier payments on a weekly basis. Similarly, the Project-Based Order Tracking System was brought into use with the aim of allowing internal users to track their project-based orders more effectively and quickly. In this way, the material supply process was made more trackable and measurable.



## Procurement and Nationalization Activities

The nationalization of about 200 products was completed successfully in the former year. Thus, the number of the products nationalized in the last three years were raised to over 500. Currently, the nationalization activities for 554 products are ongoing.

As part of the new organization, the Compliance Department was established for the purpose of monitoring ASELSAN's obligations arising from international regulations about export controls, in a better way and directing business units more accurately in such processes. The Compliance Department will also play an active role in finding out the materials which may be subject to embargo and will provide significant input to nationalization studies while involving in export permit and licensing processes.

During 2021, improvements were made to ensure the necessary coordination from logistic operations of the suppliers to material acceptance processes and to boost efficiency. Consolidation was achieved by uniting the material acceptance processes which were separately conducted by ASELSAN Sector Presidencies before, as part of the new structuring. Thus, material acceptance processes were standardized by creating a single interface for the acceptance processes before suppliers.

As a result of the works on Technical Information Brochures performed during the year, over 700 brochures were brought together and the first Nationalization Catalogue in the defense industry was created. The catalog was launched at the Efficiency and Technology Fair between June 9 and 12, 2021.

The nationalization of about 200 products was completed successfully. Thus, the number of products nationalized in the last three years has increased to over 500. With the work carried out in 2021 in the field of nationalization, an amount of more than USD 75 million was ensured to remain within the country. Currently, the nationalization activities for 554 products are ongoing.

In IDEF 2021 organized on August 17-20, 2021, 176 successfully nationalized products were exhibited in three different fields, numerous domestic and foreign delegations were hosted in the stand area and the awareness of nationalization was boosted within the industry.





# Technology and Strategy Management

ASELSAN Strategy Management, Technology Management, Technology Roadmap, and Technology Investments, ASELSAN Academy, Innovation Management, Internally-Funded Research and Development Activities, Intellectual Property Rights Management, Digital Transformation, ASELSAN Entrepreneurship Center, ASELSAN R&D and Technology Business Development, and Central Project Management Office are conducted under a single roof by the Technology & Strategy Management Vice Presidency.

## STRATEGY MANAGEMENT

ASELSAN Strategic Plan is set as a result of the strategic analyses in view of growth, globalization, generating value for customers, carrying out R&D activities, being competitive and efficient, and strengthening human value and financial structure. The 5-year plan is updated annually.

With ASELSAN Strategy Management system, strategies based on the vision, mission, and values of ASELSAN and compatible with the strategies of critical stakeholders, especially the Turkish Armed Forces Foundation (TAFF), are developed, and goals, objectives, and activities are determined in the planning process, and the implementation of these activities and developments are assessed by a strategy management software in ASELSAN's Enterprise Resource Planning system.

### Strategic Planning

ASELSAN Strategic Plan is set as a result of the strategic analyses in view of growth, globalization, generating value for customers, carrying out R&D activities, being competitive and efficient, and strengthening human value and financial structure. The 5-year plan is updated annually. Activities are planned to achieve the strategic objectives and goals in the plan and realizations are reported during/ at the end of the year with the Strategic Plan Monitoring System. The realizations of the technological investments included in the Technology Road Map and Investment Plan are followed, and their effects are evaluated.



### Corporate Performance

ASELSAN Corporate Scorecards are updated within the strategy management software every year in line with ASELSAN Strategic Plan and, and the realizations are monitored by authorized managers throughout the year.

At the end of the year, the Corporate Performance Evaluation is carried out, and the results are utilized for the development of new strategies.

### Project Management Office

- Guideline on Project Management Principles and Contracted Project Management Process Functor, which were formed by the Central Project Management Office and got started in 2019 together with the Sector Project Management Units, were approved and put into effect in 2021.

- Integration of the Corporate Resource Planning System and the Joint Project Management Tool was completed.
- Application of Contracted Project Performance Score was designed and brought into use.
- To access information quickly and accurately, Project Dashboards and Project Prioritization Application were designed and started to be used. In this way, traceability in projects, enhanced speed in business mechanisms, strengthening of communication, effectiveness, and efficiency were ensured. The works on the improvement of the Project Dashboards and designing and developing of the Project Management Plan Application continue.





## Technology and Strategy Management

### TECHNOLOGY MANAGEMENT

In the 8<sup>th</sup> R&D and Design Centers and Technology Development Zones Summit attended by the Minister of Industry and Technology, ASELSAN was granted the award for ranking first in the “Company Recruiting the Highest Number of New R&D Employees in 2020” category. Moreover, with its R&D performance for 2020, ASELSAN ranked third in category E which contains the leaders of R&D Centers.

#### Collaborations With Universities:

> 134

Number of Projects Conducted with Universities in 2021

> 26

2021 witnessed the collaborations with 26 universities.

> USD 4.3 million

The Value of Projects given to universities amounted to USD 4.3 million in 2021.

Technology Roadmap and Investment Plan (TRIP) of ASELSAN which includes technology acquisition targets, technological investments, and internally-funded projects in the 5-year projection prepared every year were enriched this year by adding the innovations in content and methodology. The resource plan of the TRIP was fully integrated into the ASELSAN budget. As part of TRIP, three different information management platforms at ASELSAN were integrated with each other, ensuring correct data flow and ease of use. Strategic plan relations, project types of the technological investments and internally-funded projects in TRIP were defined. The cooperation between sectors was encouraged and the cooperation areas were made visible during the planning phase.



#### Innovation Management

In 2021, the first innovation competition of ASELSAN was held to make the innovation practices widespread at ASELSAN. The third edition of Talent Gate Project Competitions was organized with the theme of “Suyun Yarını (Water in the Future)” through the cooperation of the Presidential Human Resources Career Office (CBİKO) and ASELSAN.

Applications were carried out by the officials of CBİKO and ASELSAN and the academic jury delegation, and the finalist project applications were determined. In the final broadcast live, the first 3 projects were awarded at a ceremony attended by the senior management of ASELSAN, CBİKO, and the rectors of the applicant universities.

#### R&D and Technology Business Development

“R&D and Technology Business Development Department” was established to enhance ASELSAN’s Research & Development and Technological know-how with ASELSAN and its R&D-oriented external stakeholders and to create mutual gains based on knowledge and technological infrastructure, and common value for innovation with



external stakeholders. To capture different ideas and benefit from the experiences of academicians, technology workshops on certain themes were held with the leading universities of our country. Special sessions in the field of advanced technologies were held at these workshops jointly organized with Istanbul Technical University, Boğaziçi University, Hacettepe University, Uludağ University, and Bursa Technical University. Moreover, an internal workshop regarding the Global Navigation Satellite System (GNSS) Technologies was held with the participation of all Sector Presidencies within ASELSAN.

#### Activities for Internally-Funded R&D Projects

Technological capacity, ecosystem, and the number of products are increased in ASELSAN’s Internally-Funded R&D projects. In 2021, new practices were implemented to manage the internally-funded R&D process more efficiently and more effectively.

Guidance documents were created for the project manager, evaluation referee, and observer referee. It was started to monitor the target reports of the internally-funded R&D projects completed with the aim of measuring the success status of such projects objectively.



Considering the new projects initiated at ASELSAN in 2021, nearly 350 internally-funded R&D projects are actively performed. In 2021, almost 100 internally-funded R&D projects were also successfully completed and included in ASELSAN's technologies and product range.

Within the last three years, a broad ecosystem was achieved with the Internally-Funded R&D projects, the number of the technologies developed at ASELSAN rose up and the diversity of products and systems was ensured.

#### Activities for Internally-Funded R&D Projects

Through the internally-funded R&D projects, future technologies are followed up with the global status, knowledge and engineering staff in different sectors within ASELSAN are brought together with common goals and objectives, and planning of human resources and infrastructure is performed. In each project, Universities, Research Centers, and SMEs take part as subcontractors and can work together with ASELSAN's R&D staff. With this approach first implemented in 2018, a broad ecosystem was achieved with the Internally-Funded R&D projects, a number of the technologies developed at ASELSAN rose up and diversity of products and systems was ensured within the last three years.

Under the ASELSAN Management of Internally-Funded R&D Projects, nearly 350 Internally-Funded R&D Projects outlined below in numerous fields which contain the expertise of different sectors at ASELSAN are managed.

In the field of Communication and Information Technologies; Satellite System Payloads, Satellite Ground Systems, Land, Sea and Air Terminals Design Technologies, Data Link Technologies, Identification, Friend or Foe (IFF) System Technologies, Crypto and Information



Security Technologies, Air Traffic Control and Communication System Technologies, Next Generation Communication Technologies, etc.

In the field of Microelectronics, Guidance, and Electro-Optics: Electro-Optical Systems, Optical Design Technologies, Night Vision Systems, Imaging Technologies, Military and Civil Avionic Systems, Infrared Imaging and Laser Technologies, Detector Technologies, Unmanned Systems, Precision Stabilization, and Routing Technologies, etc.

In the field of Radar and Electronic Warfare Systems; Routing Technologies for these systems, Radar Systems specially developed for different platforms, Active Phased Array Radar Technologies, Microwave Modules, Advanced Material Technologies and Production Technologies, Radom Technologies,

In the field of Defense System Technologies; Robot, Framework and Autonomous Systems, Tank System Technologies, Air Defense, Wearable Electronics, Electromagnetic Launch System Technologies, Surface/Underwater Defense Technologies, Underwater Situation Awareness System Technologies, etc.

In the fields of Transportation Security, Energy and Health; Electric Vehicle Technologies, Wind Energy, Energy Management and Renewable Energy Technologies, Rail Vehicle Technologies, Health Technologies, Smart Systems and Technologies for Smart Cities.

In the field of preliminary studies performed for the sectors by the Research Center of the R&D Management Vice Presidency; Biodefense, Artificial Intelligence and Informatics, Autonomy and Mechatronics Technologies, Sensors and Imaging, Language Processing, Data Analytics, Compressed Detection, Internet of Things, etc.

In addition, "TÜBİTAK Order-Based R&D Projects" are conducted to develop several products and materials which were purchased from abroad and determined specifically, together with SMEs. In this regard, 10 R&D projects received support in 2021. With such projects, it is ensured that the efficiency of SMEs is raised and the product range is expanded to serve the defense industry while the products to be used in mass production are domestically developed.



## Technology and Strategy Management

### TECHNOLOGY MANAGEMENT

Intellectual and Industrial Property Rights play a critical role in ASELSAN's transformation based on technological development and innovation. In 2021, 177 patent applications and 18 utility model applications were made.



#### Technology Transfer

Intellectual and Industrial Property Rights which constitute a significant part of the intellectual capital owned by companies play a critical role in ASELSAN's technological development and innovation-based transformation. Every new technology and innovation developed adds value to ASELSAN. Several activities were carried out to consolidate the protection strategy against the duplication of ASELSAN's original designs, boost the number of patent and utility model applications, develop cost optimization of

industrial property rights, and commercialize inventions. Within this scope, 177 patent applications and 18 utility model applications were made in 2021. The common patent of ASELSAN and METU titled "Integrated Arrival Direction Estimation and Decomposition Method for Acoustic Sources" was chosen as the Standard-Based Patent by the "Moving Picture, Audio and Data Coding by Artificial Intelligence (MPAI)" organization. In this way, an ASELSAN patent was selected as the standard-based patent for the first time. The activities for commercializing the patent through the standard and generating licensing income were carried out.



#### ASELSAN Entrepreneurship Center

It is seen that the number of high-tech enterprises in the entrepreneurship ecosystem of Turkey is quite low. In general, the business innovation ideas that get results in a short time and require low investment shine out. However, high-tech enterprises require patient investors, professional technical mentors who will guide them, and special test and production infrastructures.

In 2021, ASELSAN established "ASELSAN Entrepreneurship Center" to enable the outputs to contribute to the competitive power of both ASELSAN and our country and to strengthen our strategic independence, by reaching this entrepreneur profile which

exists in our country and cannot be used effectively and providing the opportunities which cannot be found elsewhere. In this context, it is planned to provide mentoring to high-tech enterprises and academic initiatives with the Company's specialists and to open ASELSAN's infrastructures for the use of such entrepreneurs. With the support, investments, and guidance provided to these enterprises and initiatives, ASELSAN targets to create a difference in the growth of the high-tech startups.





The number of courses opened in the ASELSAN Academy Program reached 100. ASELSAN Academy added an international dimension to its activities and offered a credit course from a university abroad to its students this year for the first time.

In the Product Lifecycle Management (PLM) Project, the needs of ASELSAN PLM are analyzed and ASELSAN's transition to PLM System is conducted with the participation of all sector presidencies and the general management units and under the leadership of the Digital Transformation Department.

#### Digital Transformation

Digital Transformation Department was established in 2021 for the purpose of preparing ASELSAN for the future with the developing technology and Industry 4.0 concept on the global agenda, and the digital transformation that became a must for companies.

Technologies such as Digital Twin, Internet of Things, Big Data, and Deep Learning are used in projects that will prepare ASELSAN for the future, such as PLM, ERP, and CRM, and research and studies are continued to improve the ways of doing business (processes) as much as possible. To make ASELSAN ready for the PLM system, professional consultancy service was received and interviews were made with about 10 large-scale companies which use PLM, and their experiences were used. In the ASELSAN PLM project, the assessment activities of the ideal platform choice for ASELSAN were finalized and the supply stage has already begun. Thus, the foundations of the infrastructure and digital environment that enable interactive and efficient work in various fields from design to production, from program management to integrated logistics support will be laid. After the use of PLM within ASELSAN, time losses and completion times of products will



decline as the transitions between processes and communication between units will be facilitated.

Training and various events are held to adapt to the cultural change led by the digital transformation and to increase the company-wide awareness of digital transformation. Within the scope, the 1<sup>st</sup> Digital Transformation Workshop was held with the participation of valuable speakers from various universities, and public and private institutions.

#### ASELSAN Academy

The ASELSAN Academy continues its fifth year with 703 students, 96 of whom are PhD students. With 51 graduates this year, the number of students graduating from the program has increased to 91.

In ASELSAN Academy Graduation Ceremony held in October, added value and academic benefits of the graduates' theses for ASELSAN were assessed, and in the ranking, which was determined by taking into account outputs such as articles and patents, the top three

thesis authors and thesis advisors were presented with their awards. Within the scope of thesis studies, 14 journal articles, 43 conference papers 2 of which were granted the best statement award in international conferences, and 6 patent applications were made. ASELSAN Academy continues to stand by the students (employees) in their academic journey through its mentoring support.

The 4<sup>th</sup> Academy Workshop was held at Gebze Technical University to evaluate the development and output of the ASELSAN Academy program. During the workshop, the outputs of the ASELSAN Academy program and the thesis works of the students were presented. The theses are determined by issues that contribute directly to the nationalization goal of our country and help eliminate the export limitation.

With the aim of enhancing the opportunities for ASELSAN Academy theses and raising the added value to be created by them, a research support program named "TOHUM" was put into practice.



# Research and Development Activities

In 2021, over 20 R&D projects on numerous basic technologies ranging from artificial intelligence to biodefense were actively carried out. It is targeted to raise this figure to more than 40 in 2022.

A total of 8 internally-funded R&D projects were initiated and 5 internally-funded R&D projects were completed in 2021.

In the meeting held by the ASELSAN Board of Directors on December 29, 2020, a decision was made "to establish an R&D Management Vice Presidency to ensure an effective, efficient, and centralized management of our R&D activities, which constitute one of the most important elements of our mission since its establishment..."

R&D Management Vice Presidency commenced its activities at the beginning of 2021 with the aim of performing prospective and trailblazing research studies and developing next-generation technologies on the subjects included in ASELSAN's technology roadmap. In line with these targets, the organizational structure of the R&D Management Vice Presidency was designed as follows.

R&D Planning, Analysis and Management Decision Support Department was established for the management of the activities such as labor tracking, budget, cost studies, management, and R&D decision support;

R&D Quality Management Unit was established to institute, maintain and improve an R&D oriented Quality Management System within the R&D Management Vice Presidency.

Advanced Communication Technologies Research Department, Photonic Technologies Research Department were established for the development of high value-added technology



which will support the strategic working areas of Sector Presidencies and aspire to focus on working collaboratively;

Future Technologies Pioneering Researches Department was established to monitor the literature by following the latest developments in the world and determining the research and development topics to to prioritize the focus R&D topics in accordance with the emerging technologies;

R&D Collaborations and Program Management Department was established for management of the joint R&D Collaboration activities and R&D Project Management activities with domestic and international institutions and organizations in order to mitigate R&D researchers' workload on administrative topics and act as a facilitator for the R&D team throughout the project cycle, which ultimately help researchers to focus solely on the research subjects;

R&D Program Management Unit was established for planning and effective execution of research and development projects that present ASELSAN's vision in accordance with the targets set in the technological roadmap;

R&D Collaborations Unit was established for planning and execution of the joint R&D Collaboration projects with SSBs, universities, institutes, and domestic/international research institutions and organizations;

R&D Documentation and Information Management Unit was established for the creation of R&D-oriented or product-oriented documentation and information processing infrastructures according to Technological Readiness Levels.

Within R&D Management Vice Presidency, the number of internally-funded and contracted projects rose in 2021. A total of eight internally-funded R&D projects were kicked off and five internally-funded R&D projects were completed in 2021. In the same period, four patent applications were made and one book, five articles, and 29 statements for national/international congresses were published. It is targeted to raise the number of the internally-funded and contracted projects in 2022.

The research studies with the aim of technology gains are carried out in line with the principle of cooperation and mutual benefit with all stakeholders, and the R&D ecosystem is enlarged rapidly.

These studies, which continue under the R&D Management Vice Presidency, will provide large-scale infrastructure and know-how for technologies of the sectors in the future and will contribute to our country's technological independence in long term.



Financial and administrative activities performed under the R&D Management Vice Presidency are carried out by the newly-established R&D Planning, Analysis, and Management Decision Support Department.

#### R&D Collaborations and Program Management Activities

R&D Collaborations and Program Management Department, which was established after the foundation of the R&D Management Vice Presidency has completed its structuring and started its activities in order to manage our R&D projects for the acquisition of breakthrough technologies with a professional management approach and to increase R&D collaborations. R&D Collaborations and Program Management Department, together with Research Center Directorates, carried out collaborations with the leading universities/ institutions and organizations in Turkey and abroad with the aim of strengthening our R&D ecosystem in the relevant fields of technology. On the other hand, the R&D Program Management Unit started to manage projects with up-to-date methodologies by creating a management system suitable for the functioning of research and development project operation based on the ASELSAN project management process.

The Documentation and Information Management Department, which is considered one of the basic activities of the R&D Collaborations and Program Management

Department, began its work on designing the processes required for R&D activities and digitalizing them through documentation. It laid the foundations of the information and document infrastructure which nourishes the Technology Readiness Levels of the R&D-oriented Research activities. It carries on the efforts for arranging, publishing, and keeping the information, documents and processes produced and used, and providing their security as well as classifying them and checking their configuration and making them sustainable; namely managing them by preserving their content, format and relational features.

Under the leadership of the R&D Management Vice Presidency and Sabancı University Rectorate, a workshop on groundbreaking pioneering technologies was held and technical sessions were organized on approximately 20 topics. Two research centers (Nanotechnology Research and Application Center (SUNUM), Integrated Production Technologies Research and Application Center (TÜMER)) and nine laboratories were examined on-site under the main headings of Biodefense, Sensors, and Imaging, Artificial Intelligence and Informatics, Photonics, Advanced Materials and Autonomy,



and Mechatronic Technologies were examined on-site, and the potential cooperation opportunities about the issues which intersect with the fields of activity of the R&D Management Vice Presidency were assessed.

In November 2021, steps for potential collaboration were taken together with R&D Management Vice Presidency, Defense Industry Academy, and TR Eğitim ve Teknoloji A.Ş.

#### Financial and Administrative Activities of R&D Management

Financial and administrative activities performed under the R&D Management Vice Presidency are carried out by the newly-established R&D Planning, Analysis, and Management Decision Support Department. The department is responsible from Coordination on Strategic Activities, Operational Activity Plan, Corporate Goal Card,

Technology Roadmap and Investment Plan, Intellectual Rights and similar issues which are significant for Vice Presidency along with preparation of the reports which will support the decisions of senior management as well. Support on administrative and financial subjects is also provided to ensure that R&D staff can focus on only research activities.

ASELSAN A.Ş. In August 2021, the evaluation and supervision of the Research Center's R&D activities were successfully completed by Ministry of Industry and Technology at ASELSAN Macunköy Campus.

#### Quality Activities of R&D Management

R&D Quality Management Unit which directly reports to the Vice Presidency was established for the purpose of managing, planning, implementing, controlling, and continuously improving the processes for the activities of the R&D Management Vice Presidency.





## Research and Development Activities

Machine learning-based methods, which were developed by ASELSAN to obtain high-resolution images from low-resolution video and images, have won an award in the field of international mobile artificial intelligence applications.



### Artificial Intelligence and Information Technologies

Within the artificial intelligence studies, contracted projects with the Presidency of Defense Industries (SSB) continued in line with the targets of the Turkish Land Forces Command and the Turkish General Staff.

With the aim of including competitive features in the developed products, new projects with SST and UGES Sector Presidencies have been launched. The studies which will provide support to software design processes through artificial intelligence began to pay off the first results. The stage of creating future artificial intelligence-supported projects 5G and cryptography has been reached with the HBT Sector.

**Sivas Cumhuriyet University and ASELSAN** Cumhuriyet Artificial Intelligence Applications Conference was held in collaboration with R&D Management VP. The subject matter experts from ASELSAN and expert academicians attended the conference as spokespeople. Some of the actual studies of the Research Center were presented as a statement at the conference.

In TEKNOFEST 2021, "Artificial Intelligence in Transportation" conference was held together with Cezeri and TÜBİTAK.



### Sensors and Imaging Technologies

The road map for quantum technologies, which are of critical importance for our country, has been clarified. Through such studies carried out in coordination with SSB, it is aimed to obtain significant gains for our country together with the relevant stakeholders.

Machine learning-based methods, which were developed by ASELSAN to obtain high-resolution images from low-resolution video and images, have won an award in the field of international mobile artificial intelligence applications.

An internally-funded project on developing "Superparamagnetic Nanobubbles" that can be used both for imaging and recovery purposes in the healthcare industry has been initiated.

In the field of magnetic particle imaging, world-leading studies on the development of human-sized systems have started. Furthermore, the algorithms that ensure high accuracy for the Automatic External Defibrillator product of the UGES sector have been developed.



### Advanced Material Technologies

The center assigned with the attribute of a leading institution in "Graphene and Two-Dimensional Material Focus Technology Network" studies which are performed under the auspices of SSB completed the activities of drawing a technology roadmap in the related field.

As part of the cooperation with SST and UGES Sector Presidencies, new projects have been designed. The R&D studies on graphene-based local and national e-textile, a newly-focused subject worldwide commenced. With the project performed at ASELSAN, the signing ceremony of which was held with the participation of İTÜ Rector Prof. Dr. İsmail Koyuncu, nanomaterial-based sensor series for chemical gas detection is developed.



Domestic and national “Optical Spectroscopy Methods Development” project for detecting chemical and biological agents was implemented as of the year-end.



## Biodefense Technologies

Studies for the development of an “Electrochemical-Based Sensor” were initiated with the support of TÜBİTAK 1004 for the purpose of acquiring skills in detection/diagnosis applications in the field of health.

Domestic and national “Optical Spectroscopy Methods Development” project for detecting chemical and biological agents was implemented as of the year-end.

Hypothesis testing of the Virus Diagnosis System developed as a desktop-workable prototype for detecting the virus due to the COVID-19 pandemic was completed as well.



## Autonomy and Mechatronic Technologies

The projects in the fields of autonomy and mechatronic technologies launched with SST and MGEO Sector Presidencies in the former years proceed. A proposal was submitted to the R&D Broad Area Call on the Development of Central/Distributed Swarm Management Technologies which were opened by SSB. In addition, a new project in the field of shape-shifting unmanned aerial vehicles is launched this year. It is aimed to develop solutions for the needs of our country in this field.



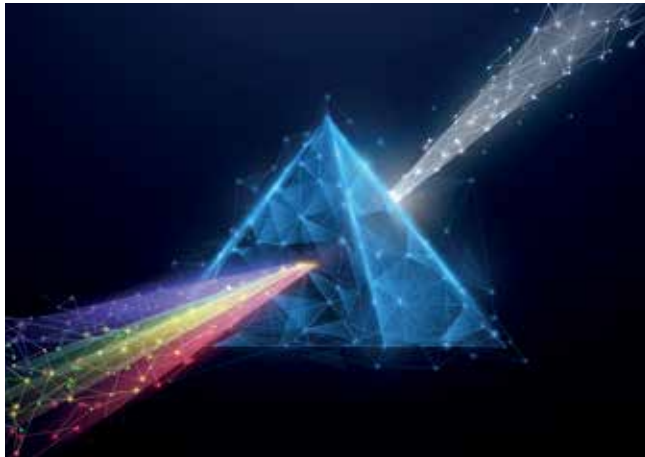
## Cyprus Advanced Technologies Research Program

The projects kicked off with UGES and REHİS Sector Presidencies continued successfully. New project ideas were created pursuant to the medium- and long-term objectives of the HBT Sector. Substantial steps have been taken in cooperation with academics in the TRNC, which is one of the founding objectives of the Center, and the first cooperation has been initiated. A protocol was drawn up with the TRNC Ministry of Economy and Energy for the Island's network needs and improvement works.



## Research and Development Activities

Photonic Technologies Research Department will carry out research processes to develop original and innovative photonic technologies in ASELSAN's current and potential fields of activity.



### Photonic Technologies

Established in 2021, the Photonic Technologies Research Department will implement all of the research processes (project proposal, feasibility, method concept development, simulation, experimental design, analysis, verification, reporting) required for bringing new fields of activity to ASELSAN and enhancing competitive capabilities of the Sector Presidencies, with the aim of developing original and innovative photonic technologies in ASELSAN's current and potential fields of activity.



### Advanced Communication Technologies

Advanced Communication Technologies Research Department founded in 2021 will perform research and development activities as part of the next-generation communication technologies, wearable communication technologies, communication with light, inter-satellite communication, smart frequency planning, vehicle-to-everything, next-generation internet and internet of things, next-generation mobile ground stations, message operating systems, self-organizing networks, cognitive radios and secure communication technologies with the aim of developing original and innovative communication technologies in ASELSAN's current and potential fields of activity.



### Future Technologies Pioneering Researches

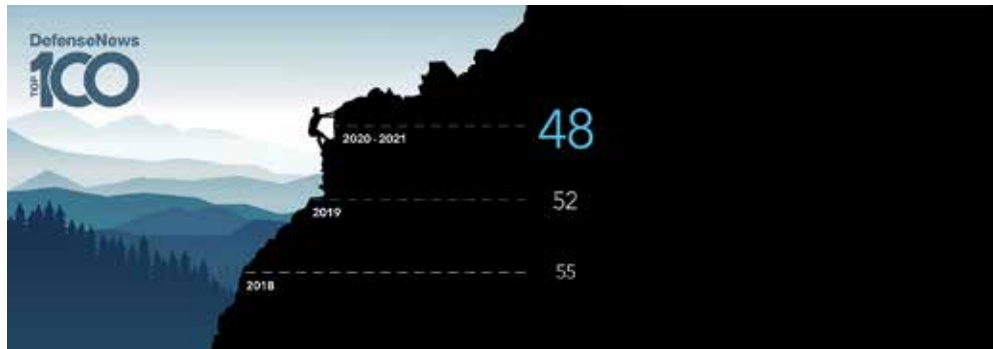
Established in 2021, the Future Technologies Pioneering Researches Department began its activities with the aim of identifying research areas for new generation technologies that shape the developments in the world in ASELSAN's current and potential fields of activity, that can contribute to game-changing, national opportunities and capabilities at a strategic level, to carry out pioneering research in these areas, and to monitor the developments in the world, new technology studies carried out in universities and institutes and literature on the groundbreaking technologies of the future.





## Business Development and Marketing Activities

By the end of 2021, the total value of international sales contracts signed in the last three years reached a record level of USD 1 billion 24 million. International sales rose by 44% in USD currency, compared to the previous three-year period.



ASELSAN maintained its sustainable success in 2021 with the mission of being the only Turkish company in the top 50 by ranking 48<sup>th</sup> in the "Defense News Top 100" list of the Defense News Magazine.

Business Development and Marketing Vice Presidency signed international sales contracts of USD 267 million in 2021.

In view of the period after the export-focused organizational structuring, the total international sales amount reached a record level as of the end of 2021 (Total value of the international sales contracts signed between 2019 and 2021 amounts to USD 1 billion 24 million). International sales rose by 44%, compared to the previous three-year period.

Furthermore, foreign cash inflows reached a record level in the last three-year period (a total cash inflow of USD 829 million was achieved between 2019 and 2021), and

the foreign cash inflows went up by 86%, compared to the previous three-year period. By the end of 2021, the overseas backlog of orders also exceeded USD 1 billion.

In 2021, ASELSAN products were sold to six new countries where no sales had ever been made before. The total number of countries using products increased to 78 after the inclusion of 15 new countries.

With these achievements, ASELSAN maintained its sustainable success in 2021 with the mission of being the only Turkish company in the top 50 by ranking 48<sup>th</sup> in the "Defense News Top 100" list of the Defense News Magazine.

The Marketing Communication (MarCom) function within the Business Development and Marketing Vice Presidency combined its communication strategy in global markets and all business development and marketing activities in a common perception with the motto of "Technology Serving People & Planet."

Business development and marketing activities for hi-tech products of ASELSAN have continued comprehensively in all corners of the world in 2021. The Business Development and Marketing Vice Presidency staff of various nationalities, with different skill sets carried out business development activities in 40 different countries under pandemic conditions and performed abroad for approximately 2,600 days. Thanks to the cooperation with the solution partners, more users have been reached. Even in cases where customer demand had not yet materialized, proactive marketing management successfully converted business opportunities into sales contracts.

In the world's leading defense industry fair, IDEF 2021 which was held with a high profile of participants under pandemic conditions and brought the defense professionals together, the Business Development and Marketing Vice Presidency hosted a total of 160 delegations from 81 different countries and had the opportunity to introduce their latest solutions.

Within the Business Development and Marketing Vice Presidency, new restructuring processes were carried out in 2021 with the goal of achieving end-to-end and sustainable customer satisfaction.

Customer loyalty programs were planned with the Customer Success Management to ensure the continuity of existing customers and to attract new customers. Besides, Partnership Development Department was introduced to offer domestic and national solutions that are not included in ASELSAN's current product range and future roadmap, but are developed in our country, to global markets under the ASELSAN brand and under its leadership.

Up-to-date data regarding international markets, information on competition analysis, and purchasing motivations of countries were pooled in a common database by the Business Development and Marketing Vice Presidency. Such data were processed, using the business intelligence solutions with the "Management and Development is not Feasible without Measurement" mentality. In addition, the activities which aim to develop decision support systems for business decisions with artificial intelligence technology started.

In line with its motto "technology serving people and planet" ASELSAN will keep working tirelessly with the vision of reaching people all over the world in every corner of the world and offering the solutions which will enhance their quality of life.



## Communication and Information Technologies

With the Integrated Communication System solutions of ASELSAN, the internal and external communication needs of the platforms of various sizes, which will be newly integrated into the navy or are already utilized, are met distinctively.

[SATELLITE GROUND SYSTEMS >](#)[SATELLITE PAYLOAD >](#)[MISSION CRITICAL COMMUNICATION SYSTEMS >](#)[INFORMATION TECHNOLOGIES >](#)[ENCRYPTION AND CYBER SECURITY >](#)[MILITARY COMMUNICATION SYSTEMS >](#)



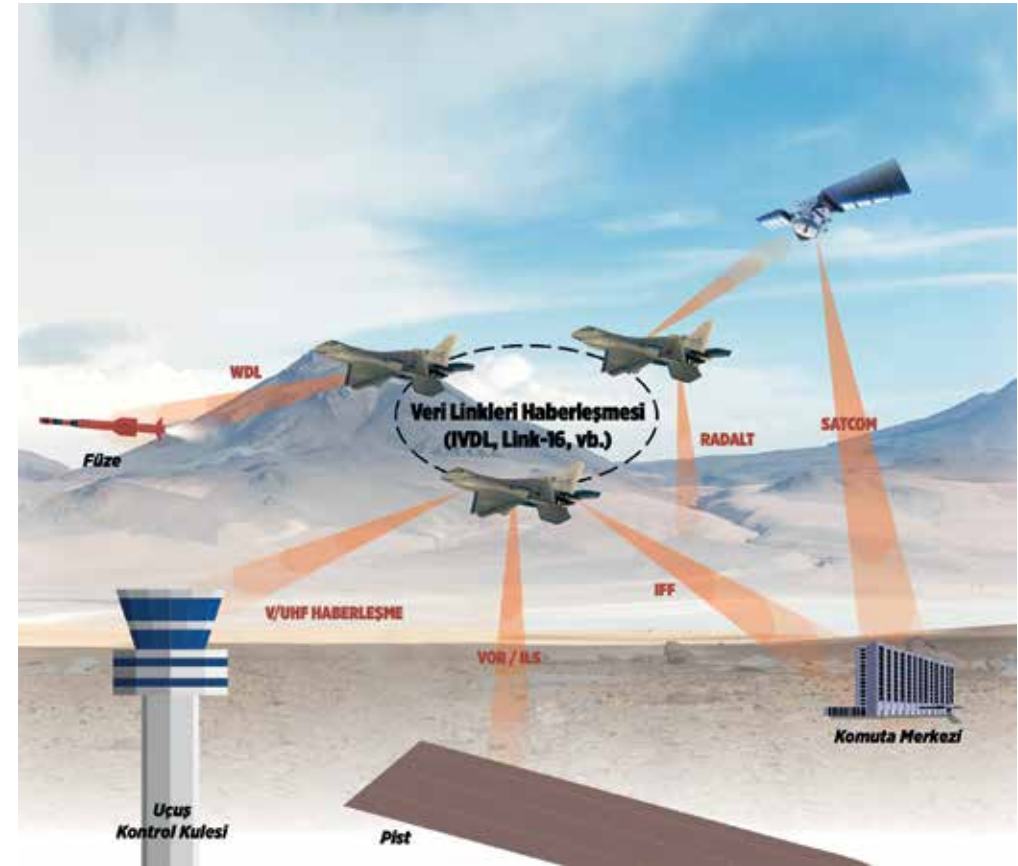
With the Integrated Communication System solutions of ASELSAN, the internal and external communication needs of the platforms of various sizes, which will be newly integrated into the navy or are already utilized, are met distinctively.

### Multi-Band Digital Joint Radio (MBDJR) Project

- HF Power Amplifiers (RFTR), HF Power Supply (ELSiS), and HF Antenna Application Units (FiLKON) which are within the configurations of 9671 HF Radio and are imported were localized upon their delivery in 2021.
- V/UHF antenna and discone antenna procured from abroad before were also localized as part of nationalization and included in the inventory of the Turkish Armed Forces.
- Broadband Waveform (BW) software whose field tests were successfully completed was installed on Software-Based Tactical Radio. It was put into use following the completion of its integration.
- The first field installations of the Power Amplifier-3 (GY3) units used in 9661 Radio configurations were completed, and the Fixed Central Power Supply units were qualified and added to the TAF inventory by performing the first product verification and delivering the first batch.
- The first product verification and the first batch delivery of the Smart Hand Terminal and Device Mounting Kit units of EHKET radios were performed and included in the TAF inventory.
- As part of the project, delivery of all control towers and integration of S70A (D/DSAR) platform communication devices were completed.

### MMU-BÜHSET (ICNI) Project

- BÜHSET reached the maturity phase compatible with the actual schedule of the main program although MMU Program T0 is September 2010 and BÜHSET (ICNI) Project is included in the schedule of the main program. The activities that are prerequisite for SRR (System Requirements Review) stage were completed. A noteworthy progress was achieved as part of SFR (System Functional Review) preparations.
- Bids have been received for all functions planned to be subcontracted, and some are ready to sign subcontracts.
- Prototype development activities have proceeded considerably and production preparations continue.



### Naval Communication Systems

With the Integrated Communication System solutions of ASELSAN, the internal and external communication needs of the platforms of various sizes, which will be newly integrated into the navy or are already utilized, are met distinctively.

- Factory acceptance tests for Barbaros Mid-Life Modernization Project were successfully completed.

- Within Preveze Mid-Life Modernization Project, Internal Communication System was integrated into the TCG Preveze submarine and platform acceptance tests were accomplished.
- Factory acceptance tests for DİMDEG Integrated Communication System were completed.
- As part of the TVEG Project, Port Acceptance and Sea Acceptance tests were brought to completion and the ship was put into service.





## Communication and Information Technologies

As part of the Barbaros YÖM Project, a high-powered announce system mounted to a rotatable platform was designed and produced for possible loud-voiced announcements to be made by the ship for close targets.



### Original R&D and Nationalization Activities

- Developed domestically for Preveze Class submarines together with the subcontractor, Antenna Switching Unit allows for optional matching between HF/VHF/UHF radios of the submarine and the limited number of antennas on the outer surface of the submarine, considering the technical features of the radios and antennas. Initial product verification activities are ongoing.
- The design activities for the Antenna Adaptation Unit domestically developed for Preveze Class submarines are carried on together with the subcontractor.

- The design and verification activities for the Pressure-Resistant Leak-Proof Box domestically developed for Preveze Class submarines are ongoing.
- Engine-Controlled Antenna Tilting Mechanism which was developed for HF Antennas on Surface Platforms was installed on TCG Giresun as a pilot model and the testing process of the mechanism began on the platform.
- Within the scope of Barbaros YÖM Project, the Power Supply for the communication system which is specific to platform requirements was developed together with the subcontractor.

- As part of the Barbaros YÖM Project, a high-powered announce system mounted to a rotatable platform was designed and produced for possible loud-voiced announcements to be made by the ship for close targets.

### TCC (Transferable Communication Center) Project

Acceptance activities of two TCCs developed for the needs of the Turkish Naval Forces Command were completed and put into use.



### Identification Systems-IFF Mode 5 Projects

In addition to the existing Mode 5 Transponder, Short/Medium-Range Interrogator, and Long-Range Interrogator device, IFF Mode 5 Combined Interrogator device was developed by ASELSAN to enable the IFF system to be used for all platforms. The first delivery of the device has been successfully concluded in December. Thus, ASELSAN included a crucial device in IFF Mode 5 family once more.

### Data Link Projects

- Within Intelligence, Reconnaissance, Surveillance (IRS) Data Link Systems, C-Band Ground Antenna was nationalized. It is planned to carry out flight tests of the system via BAYKAR TB2 UAV platform.
- Deliveries of HiSAR Air Defense Systems Data Link Development Projects have been completed and serial production activities have been commenced.
- Design activities within SiPER Air Defense Systems Data Link Development are ongoing.



Within the National Space Program declared by the Turkish Space Agency, the Ground Station Antenna System for Lunar Mission which will be a first in Turkey will be provided by ASELSAN.



#### Satellite Communication Ground Systems

- As part of the X-Band Satellite Communication System Project, for the first time, the satellite communication system which is integrated into an armored vehicle and is capable of communicating in motion was included in the inventory.
- In 2021, a contract for Ku-Band Satellite Communication System 2 Project was drawn up with the Presidency of Defense Industries. The contract covers the works for enhancing the capability of the Ship Terminal, Portable Terminal, and the existing system which are being developed nationally. In 2021, 20 Portable Terminals were offered for the use of TAF within three months after the signing of the contract. The critical design review phase activity for the project was completed in 2021.
- A contract on the delivery of the Airborne Satellite Communication Terminal and Flyaway Satellite Communication Center to AKINCI UAV platforms which were developed by BAYKAR was signed and the systems were delivered in 2021.
- Contract about Ka-Band National Communication HUB System and Modem Development Project which aims to develop different waveforms together with Modem and HUB equipment was drawn up between TÜRKSAT and ASELSAN. For the first time, the design of (Türksat) Hub and Modem for a civil satellite communication system has been initiated. The goal is to eliminate the need for the products of foreign companies which operate for many years.
- Integration of the modules and equipment such as LNB, BUC, Cavity Filter, and Waveguide filter which are utilized in satellite terminals and procured difficulty, into the terminals whose design, production, and qualification processes have been accomplished on all spectral bands, started, and it has been aimed to eliminate foreign dependency in this field.
- In 2021, Factory Acceptance Tests of the Shipborne Satellite Communication Terminals within the DIMDEG Project, delivery works of TVEG Project, and updating works of JEMUS 8-5 İl Project were carried out.
- As part of the Open Sea Patrol Ship Project conducted by the SST Sector and for which a contract was signed in 2021, two X-Band Shipborne Satellite Communication Systems and two Ku-Band Shipborne Satellite Communication Systems are to be delivered.
- Prototype production of the Submarine Satellite Communication Antenna System which was designed in Turkey for the first time by ASELSAN was brought to completion. As part of the Preveze Mid-Life Modernization Project and the Milgem-5 Satellite Communication System Project, critical design activities were performed.
- Within the National Space Program declared by the Turkish Space Agency, the Ground Station Antenna System for Lunar Mission which will be a first in Turkey will be provided by ASELSAN.





## Communication and Information Technologies

**TÜRKSAT-5B satellite with Ku-Band Receiver and Ka-Band Low Noise Amplifier (LNA) equipment developed by ASELSAN was launched from Florida Cape Canaveral base by SpaceX's Falcon 9 rocket on December 19, 2021, at 06.58 a.m. (Turkish time).**

### Satellite Payloads

**TÜRKSAT-6A:** In the context of the nationally-developed Türksat-6A Communication Satellite, Ku-Band and X-Band Payloads have been developed by ASELSAN, and the assembly, integration, and testing activities of the Ku-Band and X-Band Payloads developed by ASELSAN on TÜRKSAT 6A Flight Model Payloads panels, which were transferred to ASELSAN in 2020, have been completed in July 2021. TÜRKSAT-6A flight panels were dispatched to TUSAŞ in August 2021 for being integrated into the satellite platform.

**TÜRKSAT-5B:** satellite with Ku-Band Receiver and Ka-Band Low Noise Amplifier (LNA) equipment developed by ASELSAN was launched from Florida Cape Canaveral base by SpaceX's Falcon 9 rocket on December 19, 2021, at 06.58 a.m. (Turkish time).

- Within Satellite Communication Payloads, Internally-Funded "Digital Channeling" R&D project was brought to completion. Furthermore, preparations for the "Operational/Digital Communication Payloads" trend which will gain momentum across the world in the future were completed.
- To adapt to the concept of "Small Satellites" which will be cheap and launched frequently, already now, detailed and intensive works on

"Component Selection for the New Space" were conducted.

- Works on "Hybrid Technology" continue for more compact and more efficient designs which can compete with the devices of the world's leading equipment producers in terms of specifications. Investment in the "Wirebinder" device was made for hybrid prototype production and integrated into production.
- Design of a very high-speed X-Band Transmitter (> 600 Mbits/s) which will be utilized to transfer images to observation satellites has been initiated within the scope of internally-funded R&D projects, and it has been aimed to become the leading institution of our country in the field of this type of transmitters.

### Information Technologies, Cryptology and Cyber Security

- The Spatial Address Recording System (SARS) Data Generation and Deployment Project has been completed.
- Works on developing Artificial Intelligence-Backed Network Application Wall with One-Way Gateway System which has four configurations in the field of Cyber Security got started.
- Foreign 10G Crypto Device Development Works were completed and the production



- of the device actively began. Improvement/development process is ongoing.
- National 10GB IP Crypto Device Development Works began.
- ASELSAN VKS Project launched to make classified conferences was brought to completion.
- Works on Data Base Control and Anonymization System Project began.
- Works on developing the 8Tbit/s National Router Family and 8Tbit/s Ethernet Switch Family began.
- A total of 20 unencrypted devices developed as part of the National Router Family Project were prepared for mass production and sale. Software development/improvement is ongoing. The detailed design of the National Encrypted Router developed within this project was completed and the implementation stage has newly begun.
- Detailed design of three types of devices (Military MiniKAC, Commercial/Industrial MiniKAC, and Encrypted Commercial/Industrial MiniKAC) developed within the Mini Wireless Network Device (MiniKAC) Project

was carried out and the implementation stage has newly begun.

- Foreign Crypto Device Development Project was launched in cooperation with TÜBİTAK.
- SDN / NFV-Compatible Network Devices and vCPE Design Development Project began.
- Flexible Secure Programming Architecture (FSPA) Project kicked off. Works on designing and producing pedestal structures and RF units used in HBT- Metal Additive Manufacturing Works Satellite Ground Terminal antennas by means of metal additive manufacturing method commenced. Pilot production of a pedestal structure was performed for test purposes, and the verification stage has newly begun.

### HBT-Metal Additive Manufacturing Works

Works on designing and producing pedestal structures and RF units used in Satellite Ground Terminal antennas by means of metal additive manufacturing method commenced. Pilot production of a pedestal structure was performed for test purposes, and the verification stage has newly begun.





## Installation of the National Encrypted DMR Digital Radio System was completed in Istanbul, Europe's largest metropolis.

### General Directorate of Security Digital Communication Network (Ankara and Istanbul)

The National Encrypted DMR Digital Radio System which meets the countrywide radio communication needs of the General Directorate of Security was put into use in Ankara and Istanbul.

Ankara and Istanbul Provincial Systems were connected to each other through an "intra-provincial integration feature." This feature enables the user in one of the two provinces to make calls to the users in the other province through radio.

### General Directorate of Security Digital Communication Network (Adana and İzmir, DMR+LTE) Project (Public Security and Emergency Communication System)

With the new contract signed with SSB, the Digital Communication Network Project which contains DMR Narrow Band and LTE Broadband System networks was launched. Within the project, field installation and infrastructure works of the DMR narrowband system in İzmir province, and of the LTE broadband system in addition to the DMR narrowband system in Adana province are ongoing. Design works of 700 MHz base stations that make up the backbone of the LTE system were brought to completion, and mass production activities have been newly started.

### Gendarmerie General Command- JEMUS: Turkey Will Be Covered by JEMUS!

In the mission-critical radio communication system JEMUS Project of Gendarmerie General Command, Siirt provincial system was also activated. Installation activities proceed in Şırnak, Van, Bitlis, and Hakkari provinces. Contract was drawn up with SSB for Şanlıurfa, Mardin, Batman, Diyarbakır, Elazığ, Tunceli, Bingöl and Muş provincial systems. After the installation of these provincial systems was completed, the whole of Turkey will be covered by JEMUS.

To meet the need of AFAD units for disaster and emergency communication in our country, installation works of the digital communication system integrated in JEMUS continue at full speed. Works on AFAD Digital Radio System in 21 provinces were completed till the end of 2021.

Besides, Turkish State Railways decided to meet its communication needs along with the railway network across Turkey with ASELSAN solution, thereby signing a contract with the Company in 2021.



### 5G Business and Operating Models Workshop

The "5G Workshop" has been organized to evaluate business and operating models in broadband communication system technologies. ASELSAN representatives, affiliates, and mobile operators attended the workshop. In the event, the current position and future of our country from the aspect of 5G technology have been evaluated, cooperation opportunities have been discussed and teams have been created through focus working topics.

### 5G Base Station

Works on 5G Base Station works developed through internal funding continued with the design of Antenna Integrated Radio (AIR) and Distributed Unit (DU). The device to be equipped with various technologies features high capacity 64T64R antenna, massive MIMO capability with 200 MHz bandwidth, containerization structure on a cloud-native basis, and ORAN standards.

### Professional Communication

3810 Narrow Band and Broadband Hand Terminal development works are ongoing. With this terminal, both broadband (in LTE mode) and narrowband (in APCO and DMR modes) features will be included in a single device.

### ASELSAN STC-8255 Digital Tachograph Devices

All domestic and international certification processes of ASELSAN's newly-designed digital tachograph device were completed and the Type Approval Certificate required for the production and sale of the devices was obtained from the Ministry of Industry and Technology. The device whose production began in December 2021 proved that it met the industrial expectations by reaching a sales figure of 2,377 units in a short period of one month.



## Defense Systems Technologies Sector

Developed in Network Assisted Capability Project, the future's soldier Cenker offers significant features such as transferring the images of operation and immediate data to operation centers. KOCATEPE TACCIS product of the ADY Project which performed the digital transformation of the activities at strategic, operative, and tactical levels proved its readiness for joint task force operations in NATO exercises.

[COMMAND CONTROL SYSTEMS >](#)[AIR AND MISSILE DEFENSE SYSTEMS >](#)[LAND AND WEAPON SYSTEMS >](#)[NAVAL SYSTEMS >](#)[ELECTRONICS AND SOFTWARE >](#)



The first contract about the use of the İHTAR system preferred to protect the strategic facilities, in the private sector was drawn up with TÜPRAŞ.

#### Command Control Systems

Deliveries of the HERİKKS-VI System were carried out in June and December. Battery Command Control Operation Center which runs in coordination with the Control Warning Centers has been delivered for the first time. Final delivery of ADOP which is an important power factor in the field of Fire Support was completed.

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Puhu, Mirked, and acoustic sensors as well as the Şahin System which uses ATOM 40 mm grenade thrower, and Mobile Laser Weapon System were integrated into İHTAR. The first contract about the use of the İHTAR system preferred to protect the strategic facilities, in the private sector was drawn up with TÜPRAŞ.







## Defense Systems Technologies Sector

2021 was a year of numerous accomplishments in air defense. HİSAR Projects, which led our country to independence on air defense missile systems and take it to the next level, marked 2021 with successful launches and deliveries.

### Air and Missile Defense Systems

2021 was a year of numerous accomplishments in air defense. HİSAR Projects, which led our country to independence on air defense missile systems and take it to the next level, marked 2021 with successful launches and deliveries.

HİSAR-A+ systems with enhanced range and height performance have been delivered to Turkish Land Forces Command. On the other hand, HİSAR-O+ systems have been delivered and have begun to serve our land upon the completion of acceptance inspection processes. With the first mass production contract signed for HİSAR Projects, the number of systems in the field will rise and the air defense force will become even stronger.

The critical design process was brought to completion in the national long-range air defense solution, the Siper Project.

Despite all challenges in supply during the pandemic, the mass production of 35 mm Air Defense Gun Systems proceeds. The deliveries of numerous Fire Control Equipment and Modernized Towed Guns Systems have been completed to power the air defense force. Integration tests of the GÖKDENİZ close-in air defense system which was designed and produced for Naval Forces have been completed.

For ASELSAN, 2021 has been a year where the internally-funded development projects have yielded results. Firing tests of the GÖKER 35 mm Multi-Purpose Weapon System have been successfully completed. The Field tests of the KORHAN Next Generation Light-Armored Weapon System have been accomplished. KORHAN has demonstrated on the field that it will meet the future needs of the Turkish Land Forces in the most effective way with its superior capabilities.





With ALKAR 120 mm Mortar Weapon System, the effectiveness of mortars on the battlefield was enhanced. As part of mass production, domestic contracts were signed based on the need of the Gendarmerie General Command.

#### Land and Weapon Systems

Contract on the Modernized Panter Howitzer Mounted to Truck in which Panter Howitzers, one of the substantial fire support elements of the Turkish gunner due to their power of fire and stability, will be equipped with the Modern Firing Control System, which was developed in eight years together with stakeholders, especially ASELSAN employees, was signed.

The effectiveness of the mortars on the battlefield was boosted with the ALKAR 120 mm Mortar Weapon System, which was started to be mass-produced, during the modernization of mortars. As part of mass production, domestic contracts were signed based on the need of the Gendarmerie General Command.

Development and production works of slip rings that play a significant role in reducing our foreign dependence after the embargo continues at full speed. To date, 52 different slip rings have been designed. Together with 987 slip rings produced in 2021, the total number of slip rings has reached 5,100.

High performance was obtained in firing engineering tests of VOLKAN-M and VOLKAN-II Fire Control Systems developed for nationalization of the fire control systems of the tanks in Land Forces' inventory. It is aimed to accomplish the qualification tests in the near future and to include the systems which will be installed particularly on our national main battle tank ALTAY and M60T, Leopard2A4 tanks, in the inventory.

ASELSAN carries on working to become a global expert in the field of smart ammunition technologies. This year, the 100,000<sup>th</sup> ATOM 35mm Airburst Ammunition was produced and over 35,000 ammunitions were delivered to the Turkish Armed Forces. Integration of SARP System with ATOM 40mm Smart Ammunition was achieved. 40mm Smart Ammunition was delivered to the user together with the Şahin System.

Furthermore, delivery of the Remote-Controlled Warfare Systems which loom large in export items, to friendly and allied countries continued. Achievements gained in this field will increase incrementally with the contributions of ASELSAN Konya Weapons Systems Inc. which is located in Konya and speeded up the production activities after the commissioning of the production line in 2021.







## Defense System Technologies Sector

**Production Line Qualification firing from ATMACA Fire Control System at MİLGEM Kınalıada was executed on June 18, 2021.**

### Naval Systems

Platform modernization processes and original product development activities for naval systems continued. Factory Acceptance Tests of MİLGEM-5 İ-Class Frigate and the Warfare Systems provided by ASELSAN in Pakistan MİLGEM Projects have commenced. All ship and mission systems on the Testing and Training Ship delivered to Naval Forces and the systems provided for TCG Yüzbaşı Güngör Durmuş Logistics Support Ship have been delivered.

Production Line Qualification firing from ATMACA Fire Control System at MİLGEM Kınalıada was executed on June 18, 2021.

Factory acceptance tests of all combat systems were completed for the first ship of Barbaros Class Mid-Life Modernization Program. Firing tests for verifying the ballistic data of the 127 mm Gun Firing Control System, which was developed domestically and nationally, were performed on TCG Barbaros Ship. Thus, the first test in Turkey with which ballistic data were verified at sea was conducted.

The first delivery of FERSAH Hull Mounted Sonar System, was realized. Protocol on the development of Multistatic Sonar Suite, which will allow for the integration of all Anti-Submarine Warfare Sonars to increase underwater coverage, was signed with the Presidency of Defense Industries. Factory acceptance activities of the ZARGANA Torpedo Countermeasure System for Submarines for Pakistan and Indonesian Naval Forces were completed successfully.







Within ÇAKIL, the R&D project of the Presidency of Defense Industries which was conducted under the business partnership of ASELSAN ve TÜBİTAK Bilgem, the design and production of the first domestic processor was completed.

#### Çakıl: First National Processor

New technology development efforts are underway to increase the localization rate under the Defense System Technologies Sector. Within ÇAKIL, the R&D project of the Presidency of Defense Industries which was conducted under the business partnership of ASELSAN ve TÜBİTAK Bilgem, the design and production of the first domestic processor was completed. The single-core RISC-V-based processor ÇAKIL is equipped with uart, spi, jtag, and a memory interface and temperature sensor which are specific to the product. The processor supports the Real-Time Operating System (RTOS) and Embedded Linux operating systems developed by TÜBİTAK Bilgem. ÇAKIL was integrated into the SARP mission counter and presented together with the mission software. The product was unveiled in IDEF 2021 and introduced to the press by the Minister of Industry and Technology Mustafa Varank.

In future works, it is planned to perform mass production activities of ÇAKIL as a system-on-chip (System On Chip - SoC) enriched with multi-core and various integrated interfaces. It is targeted at achieving high performance with the application-specific accelerating hardware in this SoC. The Presidency of Defense Industries pioneers these targets with the name of the YONCA project, which is planned to be realized under the business partnership of ASELSAN and TÜBİTAK Bilgem.

#### ASELSAN Software Technologies Group

Sessions in which information about the latest software technologies was shared got considerable attention and resulted in the establishment of the ASELSAN Software Technologies Group, which reached approximately 1,000 people in size. In 2020 and 2021, a total of 47 sessions were held, and 74 hours of information-sharing were made.





## Microelectronics, Guidance and Electro-Optics

Delivery of six separate prototypes which were developed within the ELMAS project conducted to design and produce reinforced LCD display units that are utilized in aerial platforms and subjected to export license was accomplished in 2021. With this project, significant knowledge and background for the design and production of reinforced LCD display units are obtained.

[NATIONALIZATION & LOCALIZATION ACTIVITIES >](#)[ELECTRO-OPTIC SYSTEMS >](#)[GUIDANCE AND UNMANNED SYSTEMS >](#)[AVIONIC SYSTEMS >](#)[QUALITY ACTIVITIES >](#)[ORGANIZATIONAL STRUCTURE AND FACILITY >](#)[R&D CENTER >](#)



## The Critical Design Stage of YILDIRIM, which will be our country's first national Directional Infrared Counter Measures (DIRCM) system, has been completed.

### Nationalization & Localization Activities

As part of the KILAVUZ-100 IMU (Development of Kılavuz Series IMU and Its Integration into Platforms) Project, KILAVUZ-100 series navigation grade Inertial Measurement Units (IMU) were developed nationally with ASELSAN funding to meet the need of land and aerial platforms for inertial navigation systems. In this way, the foreign dependency of Inertial Navigation systems at the sensor level will be eliminated.

Radio Navigation Equipment (RNE) and RNE sub-systems which have been already supplied from abroad for the use of aerial platforms are developed together with the subcontractor through ASELSAN funding. The works on RNE and RNE sub-systems which are targeted to be put into the service of the defense industry with domestic and national resources continued.

Delivery of six separate prototypes which were developed within the ELMAS project conducted to design and produce reinforced LCD display units that are utilized in aerial platforms and subjected to export license was accomplished in 2021. With this project, significant knowledge and background for the design and production of reinforced LCD display units are obtained.

Miniature OLED Display Development Project was launched with internal resources. Within the project, the original design of the display and prototype production will be performed, using domestic and national AMOLED technology.

In the Project for the Development of Microbolometer Type Uncooled Infrared Detectors with National Resources, the worldwide actual microbolometer detector technology that features 640x480 array format 17µm pitch size was completely obtained with national resources for the first time. It was integrated into the System's Thermal Weapon Sight and system qualifications were carried out. The works for its integration into UGES Border Surveillance System and KARAOK missile seeker are ongoing.

Nationalization activity for visible light-sensitive image sensor component, which has a quite critical role in protecting helicopters against the threats of the shoulder-fired missile is used in UV Mission Warning Systems and subjected to embargoes, was completed successfully. Upon the nationalization of optic filters followed by image sensors, any critical component with foreign dependency was not left in the UVFIS system.



Within the Miniature Bomb Supply Contract signed with the SSB, localization and nationalization activities of Miniature Bomb subcomponents (IMU, GPS receiver, Antijam Antenna, Proximity Sensor, and TAPA) and subcomponents of Multi Round Launcher (Ejection Rack Unit and Pneumatic Tube) to be produced as part of the same project started. Jam-resistant Data Link System was developed within Swarm UAV Development Project with the aim of providing the communication of aerial devices between each other and with the Ground Control Station.

The Critical Design Stage of YILDIRIM, which will be our country's first national Directional Infrared Counter Measures (DIRCM) system, has been completed.

### Electro-Optic Systems

Development and qualification steps of the CATS EO Sensor System were accomplished with the operational flight/firing tests conducted with the participation of the Force Commands. Thus, the embargo in this field imposed on our country was neutralized and our EO System developed and produced with national resources was introduced to our country's defense industry. Integration of the

system into TB-2 and ANKA-S Platforms was completed, the mass production phase has begun and delivery of 31 systems was made and about 1,000 rounds of ammunition were performed successfully. Within the process, CATS camera will be added to the AKINCI Platform. Thus, the contribution of ASELSAN to UAV projects will continue incrementally.

Mass production activities proceeded as part of the DRAGONEYE Project. In 2021, deliveries were made based on the signed contracts for the needs of the Land Forces Command, the Gendarmerie General Command, and the General Directorate of Security, and the total number of deliveries exceeded 1,000. Deliveries of the system abroad continue at full speed.

With the number of deliveries approaching 4,000 each, ATS-70/71 is still being used by the end-users as the constant sight system of SARP systems.

Within M60T Tank Modernization activities, the firing tests performed in Şereflikoşhisar with the next generation Firing Control System developed by ASELSAN and KARTALGÖZÜ-15 Gunner's Periscope were brought to completion successfully, thereby reaching a substantial milestone for retention of M60T tanks with domestic and national tanks.

Works on the preparation for the production of the KARTALGÖZÜ-II Next Generation Tank Cueing System which will be utilized in main battle tanks are ongoing.

Deliveries of the ŞAHİNGÖZÜ OD System were accomplished as part of the European Union Border Security System Project and the Presidency of Defense Industries E/O Supply Project for the need of the Gendarmerie General Command were brought to completion.





## Microelectronics, Guidance and Electro-Optics

Within the works on laser systems that ASELSAN has been continuing for over 20 years, the power level of the laser sources started with 1kW power reached up to 3kW, and the field tests were accomplished.

Within Modular Temporary Base Zone (MGUB) Project, deliveries of the DRAGONEYE Electro-Optical System, ŞAHİNGÖZÜ-OD Electro-Optical System, YAMGÖZ (Close Range Surveillance System) and ATS-70 UKSS E/O Sight included in the electro-optical system configuration continue.

Works on the deliveries of TLUS, TSGS, YAMGÖZ, and ATS-65 proceed as part of the Armored Combat Vehicle (ACV) Modernization Project.

Installation of the GÖZ-SWIR camera and Dolunay Laser Illuminator at the base points was completed successfully.

Within Korkut and 35 mm Air Defense System Modernization (ADSM) and Airburst Ammunition Supply (AAS) Projects signed by the Presidency of Defense Industries to meet the low altitude air defense needs of armored mechanized units, deliveries of a thermal camera, laser distance meter, and day vision camera proceed successfully.

Design activities of Electro-Optical Sensor System equipped with KPLAS Laser Target Designator which was developed for Dragoneye device featuring 1024x768 detector and land vehicle platform were performed within the Special Purpose Tactical Wheeled Armored Vehicle (SPTWAV) Project.

Delivery and field installation activities of the electro-optical units of the İHTAR System which aims to protect critical facilities against Mini/Micro UAV threats continue uninterrupted as part of both domestic and international contracts.

Denizgözü-AHTAPOT Electro-Optical Director System was integrated into TCG Anadolu after TCG Burgazada and TCG Kınalıada. PİRİ-Infrared Search and Tracking System which emerged due to the needs of the Turkish Naval Forces and takes its name from the great Turkish sailor Piri Reis was put into use on our national ship TCG ANADOLU as of 2021.

Having become the primary optic system of the Turkish Navy and the Turkish Coast Guard as of 2021, the Denizgözü family comprises AHTAPOT, KIRLANGIÇ and MARTI Systems developed for naval platforms of all sizes, and the ORFOZ system developed for the purpose of coastal surveillance. In an environment where very few countries can fully meet all the reconnaissance and surveillance needs of their own naval forces, ASELSAN eliminated the foreign dependency on this field completely with the Denizgözü family that it developed with its own resources and created by spending hundreds of thousands of hours of labor.



TF-X IEOS TDP basically consists of Product and CTE sections. On the product side, IEOS System will be developed up to the preliminary design review (PDR) stage. On the CTE side, technology readiness levels of the critical technology elements determined within IEOS will be elevated. Closing of ASR (Alternative System Review) was performed as part of the project. On the other hand, works of SRR (System Requirement Review) continue in coordination with TUSAŞ. TRL-3/TRL-4 works proceed as part of the Critical Technology Elements (CTEs). The investment demands to be utilized for TRL-4 works have been approved.

The INFRARED MISSILE WARNING SYSTEM (IRMWS) Project was signed on October 15, 2021. The project aims to provide ASELSAN with the relevant technology, know-how, and infrastructure within the scope of the indigenous and national development, verification, integration, validation, and transfer to mass production of the ASELSAN Missile Warning System to be installed on the aircrafts of the Turkish Air Force. According to the SSİK decision taken, TUSAŞ A.Ş. will be the prime contractor of the project. ASELSAN MGEO will take charge of the project with

the title of the prime subcontractor. Other stakeholders ASELSAN REHİS, TÜBİTAK BİLGEM İLTAREN, EHSİM will be the 1<sup>st</sup> HBFM and the 2<sup>nd</sup> HBFM.

UV Missile Warning System is a system that generates warning information to protect TAF helicopter platforms which started to be produced at ASELSAN upon the transfer of license from the German Airbus company, against IR-guided missile threats. The photo-detector and six different optical filters, which are critical elements within the Sensor Unit, are supplied from Germany, while all other sub-assemblies are produced domestically. In 2017, due to the embargo initiated by the German government, these critical components could not be procured and FIS production was halted. The nationalization of optic filters was completed in November 2020. The filters were delivered by the end of 2021. As of February 2022, the difference qualification tests of the national photo-detector team were completed. It is planned to carry out helicopter integration and flight tests (FHIT). As part of the NEFİS Project, it is aimed to completely remove the export restriction of the UV Missile Warning System with a hundred percent domestic design.



## As part of OMTAS AKÜ-GB (Medium Range Anti-Tank Weapon System Fire Control Unit Surveillance Unit), the mass production phase 1 contract was brought to completion, and 245 systems were delivered to Roketsan A.Ş.

Laser Warning Receiver System (LIAS) detects, identifies, and classifies the laser signals of the laser threats aiming at the platform, namely Laser Target Designators (LTD), Laser Range Finders (LRF), and Laser Beam Riders (LBR), and is capable of picking them out by means of the threat library in the mission data file (GVD) to be uploaded to the system. Besides, it calculates the angle of incidence of the threatening laser signal on the horizontal axis. In accordance with the contract with SSB, all product deliveries of mass production were completed in 2018, the platform integrations carried out by REHİS in 2021 were supported and user training was provided.

As part of Van Cat Fusion Weapon Sight, R&D and product development activities were accomplished and the project was implemented successfully.

Mass production of the DORUK Hand-Held Electro-Optic Sensor System continued. In 2021, deliveries were made based on the signed contracts for the needs of the Land Forces Command, the Special Forces Command, and the General Directorate of Security, and the total number of deliveries exceeded 1,000.

As part of OMTAS AKÜ-GB (Medium Range Anti-Tank Weapon System Fire Control Unit Surveillance Unit), the mass production phase 1 contract was brought to completion, and 245 systems were delivered to Roketsan A.Ş.

A total of 1,200 Timsah Thermal Weapon Sights ordered by Gendarmerie General Command, Type-1 and Type-2 Thermal Weapon Sights ordered by Turkish Land Forces Command and TSD Stingers ordered by NSPA were completely and successfully delivered.

### Guidance and Unmanned Systems

ASLAN Unmanned Ground Vehicle attended the O-UGV1 competition which was organized by SSB and encouraged the participation of various companies. The competition was successfully completed. A declaration of will on the production of a Medium Class Unmanned Ground Vehicle was signed. The contract for an unmanned Submarine Defense Warfare Vehicle, which will ensure the security of Blue Homeland, was drawn up. Integration activities of the mission systems landed on water after the completion of production commenced. Within ALBATROS-S Unmanned Surface Vehicle Swarm Project, the capability of swarm autonomy was provided and a swarm of four was presented. Works on the swarm of eight continue.

ALBATROS-T Unmanned Surface Vehicles achieved successful performance during the Exercise named BLUE HOMELAND 2021 and a new contract was signed for 2022. In cooperation with SEFINE Shipyard, the block assembly activities of the Autonomous and Swarm Capable Armed Unmanned Surface Warfare Vehicle began. Development activities were continued for the concept of the SAKA Micro Unmanned Aerial Vehicle to operate together with ASELSAN's Medium Class UGVs. Field activities were carried out within the integration of SERÇE Systems with Firing Support Systems and CENKER Systems. Design activities of the Kamikaze Multi Rotor UAV System have continued.

As part of the Swarm UAV Development Project, distributed swarm architecture development activities and ground and flight tests proceeded. ASELSAN served as the leading institution as part of the Swarm Intelligence Focus Technology Network which was held under the guidance of SSB with the participation of the representatives of institutions and organizations, and academicians who are experienced and well-informed about the said subject, in order to provide inputs for creating the technology roadmap of our country in the field of swarm intelligence.

Firing tests of KARAOK Infrared Seeker were conducted successfully and the qualification stage has been reached. All deliveries were accomplished as part of the HİSAR-A and HİSAR-O Air Defense Missile Development Projects. In the firing tests carried out under the guidance of Seeker, the targets were successfully destroyed with a direct hit.



Deliveries of UMTAS and OMTAS Infrared Seekers continued within their mass production. Firing tests of the ASELSAN's original design Miniature Bomb were brought to completion successfully. Design works for its variants which have new features started. Testing activities of the KARAGÖZ GAG Aerostat Wide Area Surveillance System continued in different border regions.

Within the Multi-Purpose Pylon Development Contract signed with the Ministry of National Defense, multiple launchers with two guided ammunitions (LGK-82, HGK-82, KGK-82/83, TEBER-82) at one station of the aircraft will be developed and certification tests will be completed. As part of the Miniature Bomb Supply Contract signed with the SSB, the Miniature Bomb and Multiple Transport Launcher whose certification tests were completed in 2020 will be subject to mass production and delivered to the Air Force Command. In addition, cluster warheads will be developed within the same project.



## Microelectronics, Guidance and Electro-Optics

Qualification activities of ASELSAN avionics products delivered to TUSAŞ within Turkey's first Original General-Purpose Helicopter development project, GÖKBAY Project were completed. In 2021, the qualified devices of the prototype helicopters were delivered.

### Avionic Systems

Avionic systems design, manufacturing and integration activities regarding Turkish Utility Helicopter, Turkish Light Utility Helicopter (GÖKBAY), Gendarmerie Helicopter Modernization, Turkish Special Forces Helicopter Modernization, IFF Mode 5/S Integration to Airborne Platforms, ATAK, ANKA, TEMREN and HÜRKUŞ-B New Generation Basic Trainer Aircraft Programs, for which ASELSAN is the main avionics integrator, were carried out successfully.

Factory qualification, ground and flight tests of the AVCI Helmet Integrated Control System which was designed and produced for the T-129 ATAK attack helicopter were successfully performed. Mass production of the AVCI system continues. The qualification and kit delivery activities of Phase-2 in which the next generation integrated mission computer, AVCI, laser warning receiver, radar warning receiver, radar jammer, friend-foe identification system, and radio systems nationally developed by ASELSAN, and ATAK Helicopters were upgraded with national resources were completed. Produced by TAI with Phase-2 configuration, T129 ATAK helicopters were delivered to the General

Directorate of Security. Their deliveries to the Gendarmerie General Command and the Land Forces Command continue.

A subcontracting agreement was signed with TUSAŞ within the Philippines ATAK Program for the sale of ATAK Helicopters abroad. Mass production kit deliveries will commence in 2022.

For the systems as part of the Integrated Modular Avionics Systems Development Project (IMAS), the "SOF Hardware" milestone was approved by Sikorsky in January 2021. "First Flight" with prototype helicopter was performed on September 28, 2021.

Qualification activities of ASELSAN avionic products delivered to TAI within Turkey's first Original General-Purpose Helicopter development project, GÖKBAY Project were completed, and in 2021, the qualified devices of the prototype helicopters were delivered. Mass production of three more helicopters was included in the GÖKBAY Contract in order to meet the needs of the Gendarmerie.

Integration of IFF Mode 5/S Transponder into F-16 C Block 30 TM Combat Aircrafts was



carried out and the Acceptance Flight was performed successfully. Works on the other aerial devices in TAF inventory are ongoing.

Deliveries of the avionic devices for 2021 were completed in September within HÜRJET Project. Software delivery was made within the HÜRSİM Project conducted for the development of the HÜRKUŞ-B aircraft simulator. Business development activities for the sales of HÜRKUŞ aircraft to prospective users also proceed.

As part of the National Fighter Aircraft Program, Contract on the Development of Helmet Integrated Imaging System which functions as the eyes of pilots was drawn up with TUSAŞ. With this contract, one of the most critical avionic equipment of the National Fighter Aircraft which is one of the most significant projects in our country will be nationally developed by ASELSAN.

ANKA project which is one of the critical elements of the anti-terrorism and conducted under the main contractor TUSAŞ reached 100 thousand flight hours. The Flight Control Computer, Mission Computer and Navigation systems provided by ASELSAN in the project proved themselves once again with these flight hours.

Inertial Navigation Systems were delivered to land, air, and sea platforms as part of various programs for meeting the needs of the Turkish Armed Forces in the field of Navigation. Deliveries of the following products were accomplished in 2021: ANS-600K within the New Generation Fırtına Project; 310K within the Armored Combat Vehicle Modernization Project; ANS-420K and ANS-600K within the Special Purpose Tactical Wheeled Armored Vehicle Project; ANS-510K within the 35mm Air Defense System Modernization Airburst Ammunition Supply Project; MİLGEM-5





## Avionics Workshop was held on December 23, 2021 with the participation of the stakeholders.

within the Replenishment at Sea Project and ANS-510D within Patrol Boat Project, Gabya Barbaros Frigates Gyro Modernization. In 2021, acceptance of the ANS-510D Naval Gyro System was completed for TCG Barbaros, Gökusu, Gediz, and Gökova Frigates. Deliveries of ANS- 511 were carried out as part of the Electronic Support and Attack on Air Platform Project.

In addition to project deliveries, localization activities of all sub-units and materials continued to develop inertial navigation systems and eliminate foreign dependence in this technological field.

The internally-Funded Civil Avionics Suite Development Project was kicked off at the beginning of 2021. With this project, works on the certification process with European Union Aviation Safety Agency (EASA) commenced. It is aimed to generate national solutions with high added value for the civil avionics market by using ASELSAN's existing avionic system development capability and infrastructures in the military field.

As part of the Tübitak-1707 Order-Based R&D Support Program, our application for support for the Crash Survival Memory Unit, one of the most critical equipments for air platforms, was accepted.

### Quality Activities

ASELSAN MGEO began to work on the certification process with the European Union Aviation Safety Agency (EASA). It is aimed to generate domestic and national solutions with high added value for the civil avionics market by using ASELSAN's existing avionic system development and integration capabilities and infrastructures in the military field.

ASELSAN's IAQG (International Aerospace Quality Group) and EAQG (European Aerospace Quality Group) Membership under the representation of MGEO was approved.

In this context, MGEO:

- Presents opinion about the standards published by EAQG and IAQG,
- Audits the international certification institutions and accreditation institutions.

The certification audit required by AS 9100 standard Revision D of MGEO Quality Management System was performed by the auditors of Bureau Veritas on July 5-9, 2021. All processes managed over the course of the product life cycle starting from the proposal process were reviewed. Status of compliance with the requirements of the standard was determined by interviewing 60 MGEO staff that comprises project team

members, process owners, and managers. During the successfully completed audit, no non-compliances were identified in MGEO processes and practices.

Certification audits for AQAP 2110 "NATO Quality Assurance Requirements for Design, Development, and Production", AQAP-2310 "NATO Quality Management System Requirements for Aviation, Space and Defense Contractors", and AQAP-2210 "AQAP 2110 and AQAP 2310 NATO Additional Software Quality Assurance Requirements" were completed successfully by the Ministry of National Defense Quality Management Department on November 23-25, 2021.

In the closing meeting, it was stated that Quality Management System and the processes are operated effectively, and AQAP certificates of conformity were renewed for three years.

The case analysis study successfully performed by MGEO Sector despite the pandemic to make CMMI V2.0 assessment surveillance a model for foreign companies and to share qualified applications was published on CMMI and ISACA pages. With this study, qualified applications in ASELSAN MGEO Sector were shared and results of the improvements in the processes were assessed numerically.

MGEO Quality Management Department blazed a trail in ASELSAN by transferring the quality management system processes to Business Process Architecture Tool and making it accessible to users through the portal. Process management and improvement activities continued via the new interface updated in 2021.

After HOPEX Business Process Architecture Tool was put into use, processes were institutionalized and processes, performance indicators and the documents cited in processes became accessible through the portal.

### Organizational Structure and Facility

The organizational structure was changed with the aim of managing projects more effectively within MGEO and enhancing efficiency. As part of this, new directorships/management units were formed within MGEO and the new structuring was introduced rapidly in July.

The new (21,620m<sup>2</sup>) engineering building (Block M), which was constructed at Akyurt Campus based on the new organizational structure, was opened in August and the moving of the staff was completed.

### R&D Center

Due to the growing business volume and an increasing number of projects in the MGEO Sector, the relevant staff who work in Guidance and Unmanned System Projects, system design laboratories, and production infrastructures were moved to Akyurt-2 Campus. Thus, a second R&D Center was established under the Sector Presidency at ASELSAN for the first time, and MGEO-2 (Akyurt-2) was certified as the 7<sup>th</sup> R&D Center of ASELSAN.

Avionics Workshop was held on December 23, 2021 with the participation of the stakeholders.



## Radar and Electronic Warfare Systems

Within the scope of the Sectoral Directorate of Radar and Electronic Warfare, development and production activities are continued in order to meet the radar and electronic warfare needs of domestic, especially the Turkish Armed Forces, and foreign users, with products that are capable of beyond the capabilities of peer systems in a way to cover the solutions for current and future threats. ASELSAN will continue creating cost-effective solutions in a very short time for different usage needs with its expanding product range on land, sea, air, and space with the aim of being the first to come to mind on the subject of radar and electronic warfare manufacturer in the world, the leader in technology, and a respected and trusted company.

ELECTRONIC WARFARE SYSTEMS >

RADAR SYSTEMS >



In accordance with the goals in 2020, business development, design, production, platform integration, delivery and post-delivery support activities related to EW systems that would serve on different platforms were continued within the scope of various projects.

#### Electronic Warfare Systems

The role of ASELSAN's activities in the field of electronic warfare in times of peace and war, its critical importance for our country, and the necessity of being indigenous and national was incontrovertibly proven with the successes achieved in 2021. Electronic warfare activities continued at full speed together with the Turkish Armed Forces (TAF) and our institutions even under pandemic conditions.

Electronic Warfare (EW) systems play a critical role as the power factor on the battlefield with our state-of-the-art solutions. In line with the targets in 2021, business development, design, production, platform integration, delivery, and post-delivery support activities for the EW systems which will function on different platforms proceeded as part of various projects.

High-tech Electronic Warfare Systems used extensively in national defense, asymmetric warfare, and civilian usage are developed genuinely and domestically in order to increase the survivability of our platforms, estimate the direction and location of the targets, provide situational awareness, and disrupt and monitor target communication and radar systems. ASELSAN also undertook several technological and conceptual development activities to introduce the latest technologies and improve existing systems in line with the developing technology.







## Radar and Electronic Warfare Systems

With the experience gained in the field and the confidence given by our systems, new crucial projects such as KORAL-II, ILGAR-II, HEWS-II, and FEWS were launched in 2021 to meet the EW needs of the future.

In 2021, new members joined the capability and product family which has been developing day by day to meet the field needs for more than 30 years in the field of Electronic Warfare. Delivery of numerous new products such as TCG UFUK, SANCAK, VURAL, ILGAR, BARBAROS EH, KARETTA, GERGEDAN-UAV, KANGAL-UAV, OPKAR-II, and KARSIS was realized and they were actively put into use in the field. Furthermore, our works on long-term strategical projects such as AIRBORNE SOJ and MMU proceed at a fast pace.

With the experience gained in the field and the confidence given by our systems, new crucial projects such as KORAL-II, ILGAR-II, HEWS-II, and FEWS were launched in 2021 to meet the EW needs of the future.



KARTACA, the new generation Countermeasure Launcher System which is compatible with the world standards was made ready for use. Its mass production protocol was signed at the IDEF Exhibition.

Business development, concept definition, design and production activities continued for many other projects which were carried out confidentially due to the nature of Electronic Warfare activities.

ASELSAN will continue to work with all its might to meet all the electronic warfare needs of our country and its allies, to provide our country with the most critical capabilities that concern its survival, and to increasingly develop and offer this capability which became the power factor of wars.





It was primarily aimed that radars, both existing and under development, should be able to provide solutions that are suitable for the current and future threat environment in parallel with the rapidly developing and changing technology.

### Radar Systems

Product development, improvement, and production activities to meet the needs of the TAF for radar systems with domestic and national products were carried out intensely in cooperation with the universities and domestic solution partners through the design, production, and test infrastructures installed in the ASELSAN Gölbaşı Radar and Electronic Warfare Technology Center.

Business development, conceptual definition, design, production, platform integration, testing, delivery, and post-delivery support activities for radars developed to serve on different platforms for different operational needs were continued.

In these studies carried out in the radar activity field; it was aimed to meet the radar needs of the Turkish Armed Forces in short delivery times with high-tech original systems. It was primarily aimed that radars, both existing and under development, should be able to provide solutions that are suitable for the current and future threat environment in parallel with the rapidly developing and changing technology. From this point of view, all new threat types transmitted by the Turkish Armed Forces were rapidly analyzed, and these were ensured to be added to the target set of radars.







## Radar and Electronic Warfare Systems

Thanks to the high level of capability reached by the radar systems, short production times, and after-sales support offering fast solutions, it is aimed to increase the sales volume of the radar systems abroad and expand the field of activity with civilian radar applications.

Thanks to the high level of capability reached by the radar systems, short production times, and after-sales support offering fast solutions, it is aimed to increase the sales volume of the radar systems abroad and expand the field of activity with civilian radar applications.

In 2021, 230 radar systems were produced, and acceptance activities for 206 of these were completed. Currently, there are over 30 types of radar products that function on the land, sea, and air at short, medium, and long ranges in the fields of early warning, Weapon Locating, Surveillance, Air Platform, Seeker, Naval Platform, and Air Defense Radars.

In 2021, development and production activities of 20 different radar systems were performed and the first system acceptance of six different new radars was prepared to be made together with suppliers and users.

The systems delivered within 2021 are STR Weapon Locating Radar, AKREP Naval Fire Control Radar, ALPER-PS Submarine Navigation Radar, MAR-D Naval Search Radar, AKR-D Naval Fire Control Radar, ACAR Surveillance Radar, EREN In-Forest Surveillance Radar, KALKAN Air Defense Radar, SERHAT Counter Mortar Radar, MAR Air Defense Search Radar and AKR Fire Control Radar.







## ASELSAN reached the technological levels for competing with the world's leading radar producers.

Thanks to the technologies whose verifications are completed through firing tests from the frigate with ÇAFRAD Radar System, multi-functional and multi-tasking radars serving different purposes were developed, produced, and put into use. In this regard, the Weapon Locating Radar which is the first GaN-based AESA Radar was included in the inventory of TAF. All design and production activities of GaN-based AESA Radar technology which is only available in a few countries in the world, covering from chip level to modules and units, and subsystem and system level are performed by ASELSAN engineers and the domestic solution partners.

At the end of 30 years of its activities in the field of radar, ASELSAN has reached a level of technology that can compete with the world's leading radar manufacturers. Thanks to the vision created by the company, it will keep meeting the radar needs of both our country and friendly and allied countries with constantly developing products, together with new design and production technologies.





## Transportation, Security, Energy, Automation and Healthcare Systems Sector

A domestic and national card reader was developed to be used at security passage points. The reader is operated by means of AKIS cards developed by TÜBİTAK.

"ASELSAN Biometric Authentication and Access Control Systems" were incorporated in ASELSAN Konya Plant and Ayyıldız İnşaat Security infrastructure in 2021. Works on the renewal of access control systems at Presidential campuses with ASELSAN products commenced.

[FIELD SECURITY SYSTEMS >](#)[SMART SYSTEMS >](#)[TRANSPORTATION SYSTEM >](#)[ENERGY SYSTEMS >](#)[HEALTHCARE SYSTEMS >](#)[DESIGN AND SYSTEM >](#)[QUALITY MANAGEMENT SYSTEM >](#)[PRODUCTION AND PRODUCT MANAGEMENT >](#)[INTEGRATED LOGISTIC SUPPORT >](#)





Thanks to innovative products and solutions, 2021 witnessed various achievements in the field of activity of Security Systems. Added to the product range, “ASELSAN ARIN X-Ray Baggage Control Devices” was delivered to the General Directorate of State Airports Authority.

### Security Systems

Thanks to innovative products and solutions, 2021 witnessed various achievements in the field of activity of Security Systems. “ASELSAN ARIN X-Ray Baggage Control Devices” were included in the product range. The said products developed were delivered to the General Directorate of State Airports Authority to be used at Gaziantep Airport.

An artificial intelligence-assisted biometric three-dimensional authentication device prototype was developed. The device detects deceptions by means of its wide-angle camera and high-performance algorithms.

A domestic and national card reader was developed to be used at security passage points. The reader is operated by means of AKIS cards developed by TÜBİTAK.

“ASELSAN Biometric Authentication and Access Control Systems” were incorporated in ASELSAN Konya Plant and Ayyıldız İnşaat Security infrastructure in 2021. Works on the renewal of access control systems at Presidential campuses with ASELSAN products commenced.

It is aimed to ensure the physical access control security of military and civilian institutions from a single point by spreading the domestic and national Biometric Authentication and Access Control System nationally.

As part of the “Smart Control Point and Gendarmerie Patrol Application Project”, the Artificial Intelligence-Assisted Face Recognition System was put into use. Within this innovative hi-tech application, the In-Vehicle Face Recognition Camera which is capable of recognizing the faces of people on the front side of the vehicle from outside was developed as well.

Artificial intelligence-assisted cameras were made widespread and the system was equipped with the capability of smart query at the center as part of the Urban Security Management System and Plate Recognition System Project. Besides, long-range target detection capability in low light and under night conditions was provided with the use of non-cooled civilian thermal cameras.

Deliveries of the electronic border security systems continued with the aim of raising the security of our country’s western, eastern and southern land borders.



For Gendarmerie Field Security Management System Project, smart surveillance systems which are powered by renewable energy and are capable of wireless communication were developed and applied in the field.

Within the Credit and Hostels Institution Security Project, the prevalence of ASELSAN products was increased by ensuring the use of a high number of cameras and recording devices.

### Smart Systems

Many projects in the field of Smart Systems were signed and accepted in 2021.

As part of the Smart Cities Project, three new contracts were signed in different provinces. Within this scope, contract and acceptance activities were performed with the municipalities of Kırıkkale, Samsun, Tekirdağ, and Rize for the products of Electronic Controlling Systems such as Smart Intersection Systems, Average Speed Violation Detection System (ASVDS), Park Violation Detection System (PVDS), Red Light Violation Detection System (RLVD).

The first contract in Financial Technologies was signed with seven public banks and Bileşim A.Ş. The contract covers the procurement of 10,000 ATMs.

To be used in Smart City solutions, the development works of Smart City Monitoring and Management System – URUK continued, and different integration capabilities were added to the system.

A new project was drawn up as part of the Warning and Alarm Siren Systems Projects. Provisional acceptance of two projects was performed. Within these projects, works on the Nationalization of Siren System’s Critical Units which is a substantial step in nationalization were carried out.

Within the frame of the project related to Toll Collection Systems, a total of five station acceptance activities was carried out. Software process of the Automated Unmanned Payment Systems R&D Project which will bring a different working principle in this field was brought to completion as well.





## Transportation, Security, Energy, Automation and Healthcare Systems Sector

Deliveries of the bus, the output of the work on 12 m fast-charging electric bus which is the first project in the field of civil electric vehicles and is carried out together with TEMSA were made.

"Van Water Management System Project" on Water Management was signed with Van Municipality for the first time. The project is important due to working with the relevant municipality for the first time and being the first contract signed on water management.

In addition to the projects signed and accepted in the field of Smart Systems, the field installation and commissioning activities of the Batman-Dörtüol Crude Oil Pipeline SCADA System Supply and Installation Project continued.

ASELSAN ARTU Device within smart network systems was sold to miscellaneous customers on the basis of project and product and started to be utilized in different networks.

### Transportation Systems

Numerous projects were conducted as part of the Electric Mobility Systems, one of the fields of activity of transportation systems. The Hybrid Propulsion System Development Project which can be used in the 4x4, 6x6, and 8x8 military vehicles and will enable such vehicles to move more silently and operate more efficiently in the tactical field was drawn up with BMC Power. In this project

which is deemed highly important by SSB, the electric motor, driver and axle systems will be developed domestically and nationally. Activities for the development of Box Type ambulances needed by the Ministry of Health commenced.

An internally-funded development project was kicked off to equip ASELSAN Armored Combat Carriers with an electric traction system.

Deliveries of the bus, the output of the work on 12 m fast-charging electric bus which is the first project in the field of civil electric vehicles and is carried out together with TEMSA were performed. The bus with the fast charging feature of reaching full charge capacity in shorter than 15 minutes was first delivered to an institution affiliated with the Presidency of the Republic in order to provide an on-campus transportation solution. Moreover, a contract was signed with the Samsun Metropolitan Municipality.

With the Mobility Shuttle on Demand (MSoD) Project, it is aimed to enable the user to create the best-personalized travel plan, reservation and payment by considering multiple transportation service providers on



a single platform. There are multiple sectors (transportation, catering, cargo, health, security, municipal services, etc.) where the MSoD service delivery approach can be extended. The works on creating an ecosystem to conduct the relevant works are ongoing.

In the context of the rail systems signalization activities, the works on Gayrettepe-Istanbul Airport Metro Signalization System Project continue at full speed. Test and certification works were carried out in 2021.

Planned field activities, including depot-zone activation in the first phase, have resumed as part of the Halkalı-Istanbul Airport Signalization Project, the second section of the Gayrettepe-Istanbul Airport line. In Gebze-Darica Metro Project, design, procurement, and planning activities were carried out in line with the project schedule.

In the National Train Project, ASELSAN left its mark on the rails that allow for reaching a speed of 171 km/h with the Traction System and the Train Control Management System which function as the heart and brain of the train, respectively. The teams, all made up of ASELSAN engineers and domestic stakeholders, worked extensively on the design, production, and subsequent commissioning activities.

To meet Turkey's growing logistical needs, work was undertaken on a locomotive platform for freight transport of goods and an internally-funded R&D project for the development of the Track System and the Train Control and Management System of the locomotive at the concept level.



The development process of the Mobile X-Ray device, the first product designed by ASELSAN in the field of Medical Imaging Systems was completed. Production infrastructure was prepared and serial production prototypes were produced. The CE certified product was made ready to be used in the clinical environment and to be launched onto the market.

### Energy Systems

Contract on the "Modernization of Alaçatı Wind Power Plant through the Production of Domestic Wind Turbines" Project was signed with Elektrik Üretim A.Ş. on September 22, 2021. As part of this project, two domestic wind turbines each with a power capacity of 4 MW will be manufactured under the ASELSAN brand and their installation and commissioning will take place in the Alaçatı WPP field. "Turbine Control System, Generator and Full-Scale Power Converters" designed and nationalized by ASELSAN engineering teams will be utilized in the project.

By the end of 2021, within the scope of the Ministry of Energy's Renewable Energy Resource Areas Solar Power Plants tenders, the final stage of the ASELSAN PULSAR branded 250 kVA Array Type Inverter Development Project, designed exclusively by domestic resources, has reached the final stage.

### Healthcare Systems

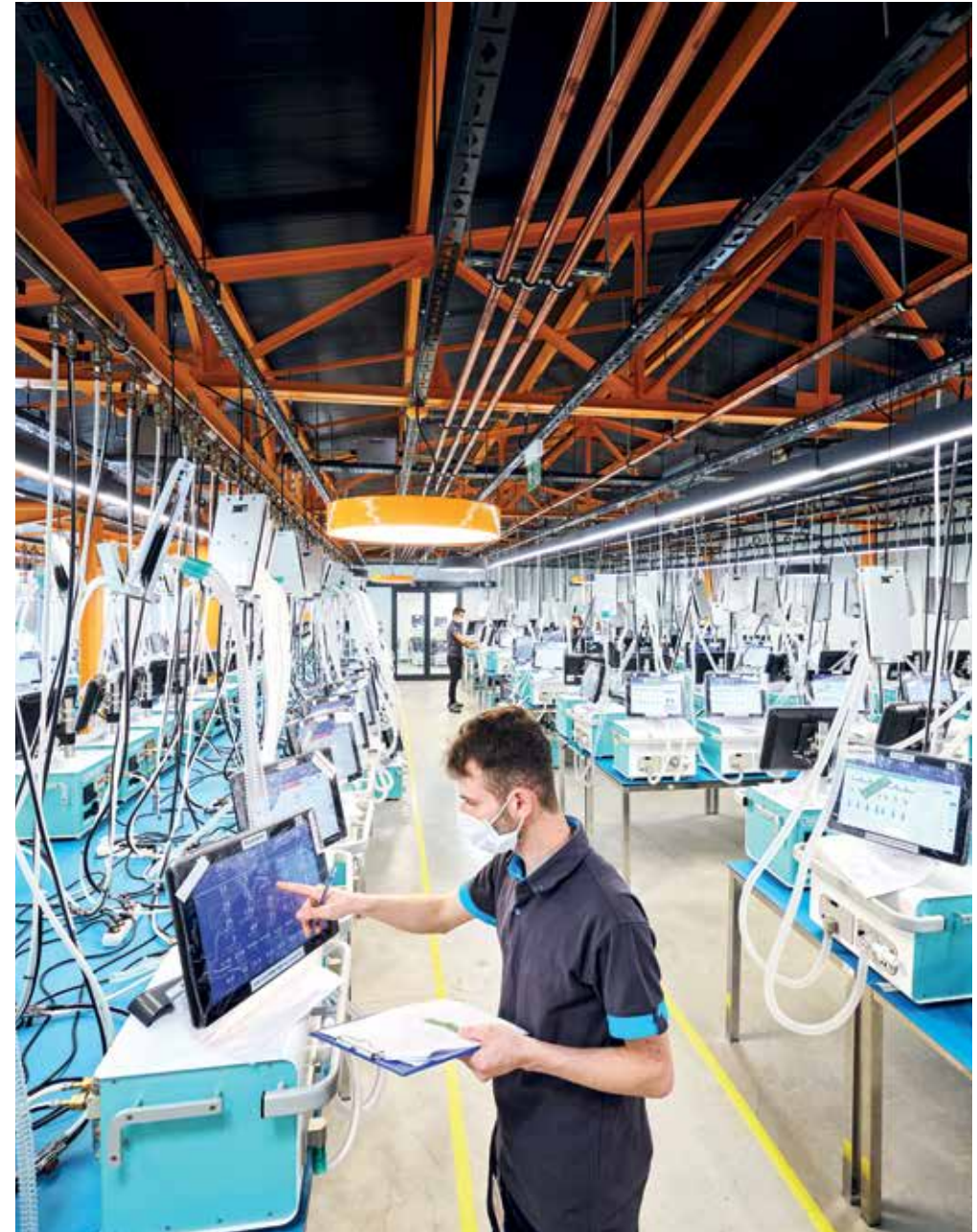
In 2021, the OED device was introduced to the market and exported to five countries. Domestic awareness and dissemination efforts are underway, and device sales continue to grow. Furthermore, works on the

development of a Manual External Defibrillator Device commenced with the aim of meeting the needs of physicians at hospitals and of the emergency medical technicians working in 112 emergency ambulance services,

The development process of the Mobile X-Ray device, the first product designed by ASELSAN in the field of Medical Imaging Systems was completed. Production infrastructure was prepared and serial production prototypes were produced. The CE certified product was made ready to be used in the clinical environment and to be launched onto the market.

Works on the Heart-Lung Machine Development Project continue in accordance with the project plan. With completion of the first prototype product by the end of 2022, clinical work and certification will begin.

Deliveries of the intensive care ventilators which were brought to our country during the COVID-19 pandemic period with the cooperation of Baykar Makine, Arçelik, and Biosys, and were produced by ASELSAN continued based on the demands without delay.







## Transportation, Security, Energy, Automation and Healthcare Systems Sector

As part of the Power Electronics and Electrical Machinery Laboratory Establishment and Technology Acquisition Project, the feasibility study aiming to establish a laboratory for the development of >MW power electronics units and electrical machinery was brought to completion. The procurement phase has newly begun.

Works on adding the Automatic CPR device which is utilized to reduce the physical fatigue of healthcare professionals in cases requiring cardiac massage, and to ensure the application of the correct heart massage under all conditions, to ASELSAN's product range were undertaken. Moreover, the works on the Intensive Care Integration Device (VERILET), which will collect patient data from the ventilators, infusion pumps, and bedside monitor devices of different brands and models used in intensive care units, and will send them to the Intensive Care Management System in a standard format, continued.

In the field of diagnosis systems, the works on generating models of collaboration with the companies which perform design, development, and production domestically are carried out.

### Design and System

As part of the Power Electronics and Electrical Machinery Laboratory Establishment and Technology Acquisition Project, the feasibility study aiming to establish a laboratory for the development of >MW power electronics units and electrical machinery was brought to completion. The procurement phase has newly begun.

The NeTech Laboratory which offers scaled test infrastructure was established with the aim of verifying the network architecture design and configurations in the projects before real field applications, and performing interoperability tests of the sub-units or systems to be included in the projects, etc.

A scaled test infrastructure for Control (Data) Center was established to verify the algorithms and software of the National Smart Network Management System SCADA and EMS (Energy Management Systems), to test the quality parameters of sensitive enterprises such as availability and redundancy, and to design the infrastructures of the control center.







The first stage of the safety assessment of the Metro Signalization System in the railed area was accomplished as a result of the assessment made by the independent audit firm.

#### Quality Management System

In 2021, ISO/TS 22163 Rail Transport, ISO 13485 Healthcare, ISO 9001 General Inclusive Quality Management System recertifications, and EN 15085-2 certification for welded manufacturing of railway vehicles and their components were successfully concluded. In addition to these certificates, type approval documents for the conformity of products developed for electric vehicles with European legislation were obtained.

Interim evaluations of CE documents for the products in the healthcare industry, namely Defibrillator, Mobil X-Ray, and Ventilator was performed.

The first stage of the safety assessment of the Metro Signalization System in the railed area was accomplished as a result of the assessment made by the independent audit firm.

In addition to documents and certificates, inspection and control activities were carried out on subcontractors and suppliers for the products procured.

#### Production and Product Management

Within the Shingled Type Photovoltaic Module Development and Production Project implemented in collaboration with METU GÜNAM, UGES carried on works as the party in charge of developing the cutting technique of solar cells, optimizing the parameters in laser cutting processes of silicon cells, developing prototype modules from sliced cells, designing panels and developing panel lamination and packaging technology.

The preparation process of the material which was developed and put into practice at UGES was made more efficient with minimized human error as part of the pick-to-light approach in the vertical storage system (Kardex) in the warehouse. The process was introduced within UGES.

#### Integrated Logistic Support

The year was ended by exceeding USD 11 million in maintenance/repair contracts within the Integrated Logistics Support activities, with a realization rate of 124%. Maintenance/repair contracts amounting to approximately TRY 25 million were signed with four different customers, particularly the General Directorate of Highways.







# FINANCIAL INFORMATION 2021





# Aselsan Elektronik Sanayi ve Ticaret Anonim Şirketi and its Subsidiaries

## Consolidated Statement of Financial Position as of 31 December 2021

(Amounts are expressed in thousands of Turkish Lira ("TL") and in thousands of "Foreign Currency" unless otherwise stated.)

		Audited	
	Note References	31 December 2021	31 December 2020
ASSETS			
Current Assets		23.175.142	19.594.261
Cash and Cash Equivalents	3	2.492.096	4.081.654
Financial Investments	29	--	17.914
Trade Receivables	6	9.803.350	7.146.519
From Related Parties	5	4.255.114	3.486.689
From Third Parties		5.548.236	3.659.830
Other Receivables	7	722.508	672.391
From Related Parties	5	24.836	75.181
From Third Parties		697.672	597.210
Inventories	9	7.638.954	5.532.703
Prepaid Expenses	10	2.027.017	1.778.726
From Related Parties	5	939.613	586.400
From Third Parties		1.087.404	1.192.326
Other Current Assets	18	491.217	364.354
Non-Current Assets		23.238.156	14.499.968
Financial Investments	29	2.148.927	1.183.215
Trade Receivables	6	12.650.467	7.469.380
From Related Parties	5	9.329.141	5.893.276
From Third Parties		3.321.326	1.576.104
Other Receivables	7	2.104	1.235
From Third Parties		2.104	1.235
Equity Accounted Investments	8	219.833	150.210
Property, Plant and Equipment	11	3.432.149	2.342.223
Intangible Assets	12	2.267.610	1.555.318
Prepaid Expenses	10	817.736	373.625
From Related Parties	5	137.239	72.313
From Third Parties		680.497	301.312
Deferred Tax Assets	27	253.422	352.900
Other Non-Current Assets	18	1.445.908	1.071.862
TOTAL ASSETS		46.413.298	34.094.229

		Audited	
	Note References	31 December 2021	31 December 2020
LIABILITIES			
Current Liabilities		16.749.927	12.319.765
Short-term Financial Liabilities	30	1.956.100	1.618.175
Short-term Portion of Long-term Financial Liabilities	30	3.114.088	1.388.850
Trade Payables	6	6.039.472	4.251.469
<i>To Related Parties</i>	5	1.919.239	847.988
<i>To Third Parties</i>		4.120.233	3.403.481
Employee Benefit Obligations	17	306.525	205.506
Other Payables	7	342.336	101.022
<i>To Related Parties</i>	5	301.608	87.803
<i>To Third Parties</i>		40.728	13.219
Government Grants and Incentives	13	27.291	29.513
Deferred Income	10	1.850.165	2.656.573
<i>To Related Parties</i>	5	413.389	1.548.603
<i>To Third Parties</i>		1.436.776	1.107.970
Corporate Tax Liability	27	2.401	4.635
Short-term Provisions		3.080.222	2.046.616
<i>For Employee Benefits</i>	17	170.902	108.854
<i>Other</i>	15	2.909.320	1.937.762
Other Current Liabilities	18	31.327	17.406
Non-Current Liabilities		3.828.161	3.676.361
Long-term Financial Liabilities	30	332.762	883.448
Trade Payables	6	25.467	311
<i>To Third Parties</i>		25.467	311
Other Payables	7	13.255	36.394
<i>To Third Parties</i>		13.255	36.394
Deferred Income	10	1.929.027	1.764.157
<i>To Related Parties</i>	5	1.035.264	1.314.874
<i>To Third Parties</i>		893.763	449.283
Long-term Provisions		1.513.317	992.051
<i>Long-term Provisions for Employee Benefits</i>	17	333.508	264.964
<i>Other</i>	15	1.179.809	727.087
Other Non-Current Liabilities		14.333	--

The accompanying notes are an integral part of the consolidated financial statements.

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## Aselsan Elektronik Sanayi ve Ticaret Anonim Şirketi and its Subsidiaries

### Consolidated Statement of Financial Position as of 31 December 2021

(Amounts are expressed in thousands of Turkish Lira ("TL") and in thousands of "Foreign Currency" unless otherwise stated.)

	Note References	Audited	
		31 December 2021	31 December 2020
<b>EQUITY</b>		<b>25.835.210</b>	<b>18.098.103</b>
<b>Equity Attributable to Equity Holders of the Parent</b>		<b>25.563.442</b>	<b>17.881.761</b>
Share Capital	19	2.280.000	2.280.000
Inflation Adjustments on Share Capital Differences	19	98.621	98.621
Share Premiums		2.796.723	2.796.723
Other Comprehensive Income / (Expense) that will not be Reclassified to Profit or (Loss)		186.416	248.103
<i>Gain on Revaluation of Property, Plant and Equipment</i>		<i>309.535</i>	<i>309.535</i>
<i>Gain/ Loss on Remeasurement of Defined Benefit Plans</i>		<i>(123.119)</i>	<i>(61.432)</i>
Other Cumulative Comprehensive Income / (Expense) will be Reclassified to Profit/Loss		2.177.786	1.164.981
<i>Gain (Loss) on Financial Assets That Fair Value Difference Reflect in Other Comprehensive income</i>		<i>2.034.249</i>	<i>1.118.100</i>
<i>Cumulative Translation Adjustments</i>		<i>143.537</i>	<i>46.881</i>
Restricted Reserves	19	542.341	312.371
Retained Earnings		10.350.992	6.531.856
Net Profit for the Year		7.130.563	4.449.106
<b>Non-Controlling Interests</b>		<b>271.768</b>	<b>216.342</b>
<b>TOTAL LIABILITIES AND EQUITY</b>		<b>46.413.298</b>	<b>34.094.229</b>

The accompanying notes are an integral part of the consolidated financial statements.

### Condensed Consolidated Statement of Profit or Loss and Other Comprehensive Income for the Twelve-Month Period Ended 31 December 2021

(Amounts are expressed in thousands of Turkish Lira ("TL") and in thousands of "Foreign Currency" unless otherwise stated.)

	Note References	Audited	
		1 January-31 December 2021	1 January-31 December 2021
<b>PROFIT OR LOSS</b>			
Revenue	20	20.138.953	16.104.455
Cost of Sales (-)	20	(13.490.042)	(11.499.440)
<b>GROSS PROFIT</b>		<b>6.648.911</b>	<b>4.605.015</b>
General Administrative Expenses (-)	21	(576.057)	(399.590)
Marketing Expenses (-)	21	(670.136)	(280.867)
Research and Development Expenses (-)	21	(332.748)	(282.580)
Other Operating Income	22	10.754.188	7.099.337
Other Operating Expenses (-)	22	(6.405.990)	(5.464.926)
<b>OPERATING PROFIT</b>		<b>9.418.168</b>	<b>5.276.389</b>
Income From Investing Activities	23	10.599	7.936
Shares of Profit of Equity Accounted Investees	8	(2.820)	12.408
<b>OPERATING PROFIT BEFORE FINANCIAL EXPENSE</b>		<b>9.425.947</b>	<b>5.296.733</b>
Financial Income	24	514.051	1.057.589
Financial Expense (-)	25	(2.743.575)	(1.469.171)
<b>PROFIT BEFORE TAX FROM CONTINUING OPERATIONS</b>		<b>7.196.423</b>	<b>4.885.151</b>
<b>Tax Income from Continuing Operations</b>		<b>(69.082)</b>	<b>(423.885)</b>
- Current Corporate Tax Expense(-)	27	(2.401)	(4.635)
- Deferred Tax Income	27	(66.681)	(419.250)
<b>PROFIT FOR THE PERIOD FROM CONTINUING OPERATIONS</b>		<b>7.127.341</b>	<b>4.461.266</b>
<b>Profit for the Period Attributable to</b>		<b>7.127.341</b>	<b>4.461.266</b>
Non-Controlling Interest		(3.222)	12.160
Owners of the Company	28	7.130.563	4.449.106
		<b>7.127.341</b>	<b>4.461.266</b>
<b>Earnings for per 100 Shares (in full kuruş)</b>	<b>28</b>	<b>312,74</b>	<b>195,14</b>

The accompanying notes are an integral part of the consolidated financial statements.



## Aselsan Elektronik Sanayi ve Ticaret Anonim Şirketi and its Subsidiaries

### Condensed Consolidated Statement of Profit or Loss and Other Comprehensive Income for the Twelve- Month Period Ended 31 December 2021

(Amounts are expressed in thousands of Turkish Lira ("TL") and in thousands of "Foreign Currency" unless otherwise stated.)

	Note References	Audited	
		1 January- 31 December 2021	1 January- 31 December 2020
<b>PROFIT FOR THE YEAR</b>		<b>7.127.341</b>	<b>4.461.266</b>
<b>OTHER COMPREHENSIVE INCOME</b>			
<b>Items that will not be Reclassified Subsequently in Profit or Loss</b>		<b>(61.687)</b>	<b>73.026</b>
Gain on Remeasurement of Defined Benefit Plans	17	(77.108)	(36.348)
Gain on Revaluation of Property, Plant and Equipment	26	--	113.449
Deferred Tax Expense	26-27	15.421	(4.075)
<b>Items that may be Reclassified Subsequently to Profit or Loss</b>		<b>1.012.805</b>	<b>196.241</b>
Gain (Loss) on Financial Assets That Fair Value Difference Reflect in Other Comprehensive income	26	964.367	194.528
Cumulative Translation Adjustments	26	96.656	11.439
Deferred Tax Expense	26-27	(48.218)	(9.726)
<b>OTHER COMPREHENSIVE INCOME</b>		<b>951.118</b>	<b>269.267</b>
<b>TOTAL COMPREHENSIVE INCOME</b>		<b>8.078.459</b>	<b>4.730.533</b>
<b>Total Comprehensive Income Attributable to</b>			
Non-Controlling Interest		(3.222)	12.160
Owners of the Company		8.081.681	4.718.373
		<b>8.078.459</b>	<b>4.730.533</b>

The accompanying notes are an integral part of the consolidated financial statements.





## Aselsan Elektronik Sanayi ve Ticaret Anonim Şirketi and its Subsidiaries

### Consolidated Statement of Changes In Equity for the Year Ended 31 December 2021

(Amounts are expressed in thousands of Turkish Lira ("TL") and in thousands of "Foreign Currency" unless otherwise stated.)

	Other Comprehensive Income / Expense that will not to be Reclassified Subsequently to Profit or Loss					Other Comprehensive Income / Expense that may not to be Reclassified Subsequently to Profit or Loss		Retained Earnings					
	Share Capital	Inflation Adjustments on Share Capital	Share Issuance Premiums/ (Discounts)	Revaluation Reserves	Remeasurement of Defined Benefit Plans	Gain (Loss) on Financial Assets That Fair Value Difference Reflect in Other Comprehensive income	Translation Reserves	Restricted Reserves	Retained Earnings	Net Profit/ (Loss) for the Year	Equity Attributable to Owners of the Company	Non-Controlling Interests	Total
<b>Balance as of 1 January 2020</b>	<b>1.140.000</b>	<b>98.621</b>	<b>2.796.723</b>	<b>207.431</b>	<b>(32.354)</b>	<b>933.298</b>	<b>35.442</b>	<b>276.827</b>	<b>4.701.953</b>	<b>3.340.447</b>	<b>13.498.388</b>	<b>70.511</b>	<b>13.568.899</b>
Transfers	--	--	--	--	--	--	--	35.544	2.969.903	(3.005.447)	--	--	--
Capital Increase	1.140.000	--	--	--	--	--	--	--	(1.140.000)	--	--	--	--
Total Comprehensive Income	--	--	--	102.104	(29.078)	184.802	11.439	--	--	4.449.106	4.718.373	12.160	4.730.533
Consolidation Effect of New Establishment	--	--	--	--	--	--	--	--	--	--	--	133.671	133.671
Dividends	--	--	--	--	--	--	--	--	--	(335.000)	(335.000)	--	(335.000)
<b>Balance as of 31 December 2020 (Closing Balance)</b>	<b>2.280.000</b>	<b>98.621</b>	<b>2.796.723</b>	<b>309.535</b>	<b>(61.432)</b>	<b>1.118.100</b>	<b>46.881</b>	<b>312.371</b>	<b>6.531.856</b>	<b>4.449.106</b>	<b>17.881.761</b>	<b>216.342</b>	<b>18.098.103</b>
<b>Balance as of 1 January 2021</b>	<b>2.280.000</b>	<b>98.621</b>	<b>2.796.723</b>	<b>309.535</b>	<b>(61.432)</b>	<b>1.118.100</b>	<b>46.881</b>	<b>312.371</b>	<b>6.531.856</b>	<b>4.449.106</b>	<b>17.881.761</b>	<b>216.342</b>	<b>18.098.103</b>
Transfers	--	--	--	--	--	--	--	229.970	3.819.136	(4.049.106)	--	--	--
Capital Increase	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Comprehensive Income	--	--	--	--	(61.687)	916.149	96.656	--	--	7.130.563	8.081.681	(3.222)	8.078.459
Consolidation Effect of New Establishment	--	--	--	--	--	--	--	--	--	--	--	58.648	58.648
Dividends	--	--	--	--	--	--	--	--	--	(400.000)	(400.000)	--	(400.000)
<b>Balance as of 31 December 2021 (Closing Balance)</b>	<b>2.280.000</b>	<b>98.621</b>	<b>2.796.723</b>	<b>309.535</b>	<b>(123.119)</b>	<b>2.034.249</b>	<b>143.537</b>	<b>542.341</b>	<b>10.350.992</b>	<b>7.130.563</b>	<b>25.563.442</b>	<b>271.768</b>	<b>25.835.210</b>

The accompanying notes are an integral part of the consolidated financial statements.



# Aselsan Elektronik Sanayi ve Ticaret Anonim Şirketi and its Subsidiaries

## Consolidated Statement of Changes in Equity for the Year Ended 31 December 2021

(Amounts are expressed in thousands of Turkish Lira ("TL") and in thousands of "Foreign Currency" unless otherwise stated.)

	Note References	Audited	
		1 January- 31 December 2021	1 January- 31 December 2020
<b>A.Cash Flows from Operating Activities</b>		<b>2,432,551</b>	<b>1,718,600</b>
Profit for the Period		7,127,341	4,461,266
<b>Adjustments to Reconcile Profit for the Period</b>		<b>6,098,771</b>	<b>3,465,308</b>
- Adjustments for Depreciation and Amortization Expense	11-12	432,191	285,498
- Adjustments for Impairment Loss (Reversal of Impairment Loss)		41,086	(31,191)
Adjustments for Impairment Loss (Reversal of Impairment Loss) of Receivables	6	7,730	(36,518)
Adjustments for Impairment Loss (Reversal of Impairment Loss) of Inventories	9	33,356	5,327
-Adjustments for Provisions		2,038,842	1,643,549
Adjustments for (Reversal of) Provisions Related with Employee Benefits	17	130,776	79,296
Adjustments for (Reversal of) Lawsuit and/or Penalty Provisions	15	1,117,428	1,026,290
Adjustments for (Reversal of) Warranty Provisions	15	577,727	533,451
Adjustments for (Reversal of) Other Provisions	15	212,911	4,512
- Adjustments for Interest (Income) Expenses		346,941	(207,223)
Adjustments for Interest Income	22-24	(191,290)	(736,632)
Adjustments for Interest Expense	22-25	538,231	529,409
- Adjustments for Retained Profit of Equity Accounted Investees	8	2,820	(12,408)
- Adjustments for Tax (Income)/Expenses	27	69,082	423,885
-Other Adjustments for which Cash Effects are Investing or Financing Cash Flow		2,156,388	658,136
-Other Adjustments to Reconcile Profit (Loss)		1,011,421	705,062
<b>Changes in Working Capital</b>		<b>(10,227,847)</b>	<b>(5,878,957)</b>
- Decrease (Increase) in Trade Receivables		(6,489,832)	(3,468,468)
- Decrease (Increase) in Other Receivables Related with Operations		(50,986)	(292,008)
- Decrease (Increase) in Inventories		(2,094,115)	(1,012,940)
- Decrease (Increase) in Prepaid Expenses	10	(611,899)	(204,986)
- Increase (Decrease) in Trade Payables		1,961,552	1,183,552
- Increase (Decrease) in Employee Benefit Obligations		101,019	59,567
-Adjustments for Stage of Completion of Construction or Service Contracts in Progress		(1,479,884)	(1,062,025)
- Increase (Decrease) in Other Operating Payables		(78,433)	(8,816)
- Increase (Decrease) in Government Grants and Subsidies		(2,222)	(13,681)
- Increase (Decrease) in Deferred Income		(1,023,483)	(780,047)
- Other Increase (Decrease) in Working Capital		(459,564)	(279,105)
<b>Cash Flows From Operations</b>		<b>2,998,265</b>	<b>2,047,617</b>
Payments Related with Provisions for Employee Benefits	17	(77,292)	(40,376)
Payments Related with Other Provisions	15	(483,788)	(275,794)
Income Taxes Refund (Paid)		(4,634)	(12,847)
<b>B.Cash Flows From Investing Activities</b>		<b>(3,505,944)</b>	<b>(2,001,277)</b>
Proceeds from Sales of Property, Plant, Equipment and Intangible Assets		6,400	13,249
Purchase of Property, Plant and Equipment	11	(1,388,135)	(899,463)
Purchase of Intangible Assets	12	(2,051,206)	(1,221,326)
Proceeds from Derivative Instruments		--	6,039
Dividends Received	23	6,997	5,436
Other Cash Outflows		(80,000)	54,788
<b>C.Cash Flows From Financing Activities</b>		<b>(754,301)</b>	<b>742,088</b>
Proceeds from Borrowings		6,008,589	6,854,552
Repayments of Borrowings		(6,659,498)	(5,860,267)
Dividends Paid	19	(103,392)	(252,197)
<b>NET INCREASE/DECREASE IN CASH AND CASH EQUIVALENTS BEFORE EFFECT OF EXCHANGE RATE CHANGES (A+B+C)</b>		<b>(1,827,694)</b>	<b>459,411</b>
<b>D. EFFECT OF EXCHANGE RATE CHANGES ON CASH AND CASH EQUIVALENTS</b>		<b>240,544</b>	<b>105,942</b>
<b>NET INCREASE/DECREASE IN CASH AND CASH EQUIVALENTS (A+B+C+D)</b>		<b>(1,587,150)</b>	<b>565,353</b>
<b>E.CASH AND CASH EQUIVALENTS AT THE BEGINNING OF THE PERIOD</b>		<b>4,078,756</b>	<b>3,513,403</b>
<b>CASH AND CASH EQUIVALENTS AT THE END OF THE PERIOD (A+B+C+D+E)</b>	<b>3</b>	<b>2,491,606</b>	<b>4,078,756</b>

The accompanying notes are an integral part of the consolidated financial statements.





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