

ARABIAN DEFENCE



Raj Kumar
 Secretary, Defence Production
 Ministry of Defence

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IDEX Kicks Off with Huge Global Participation

The International Defence Exhibition and Conference 2021 (IDEX), which is the largest defence fair in the Middle East North Africa (MENA) region, kicked off in style in Abu Dhabi. More than 900 companies are showcasing the latest in military technology from drones to armoured vehicles.

H.E. Mohammed bin Ahmad Al Bowardi, Minister of State for Defence Affairs, United Arab Emirates, addressed the inaugural ceremony of the expo held under the patronage of the President His Highness Sheikh Khalifa bin Zayed Al Nahyan at the ADNOC Business Centre.

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Indian Ambassador to UAE Pavan Kapoor with Rear Admiral Vipin Kumar Saxena, IN (Retd.), CMD, GRSE, Commodore (Retd) Siddharth Mishra, CMD, BDL, Commodore (Retd.) T.V.Thomas, Director- CP, MDL, Commodore TN Kaul (Retd) Executive Director, BDL, Dr.N.Ranjana, Director, DSTA, DRDO.



Raj Kumar
Secretary, Defence Production
Ministry of Defence

What are the latest activities and policy initiatives by the Government to promote indigenous defence manufacturer in India?

The size of the Indian Defence Industry, including Aerospace and Naval Shipbuilding Industry, is currently estimated to be about Rs 80,000 Crore (2019-20). The Government targets a turnover of Rs 1,75,000 Cr (US\$ 25Bn) in Aerospace and Defence goods and services by 2025, for which a number of policy initiatives have been taken:

Defence Procurement Procedure 2016 has been revised as Defence Acquisition Procedure (DAP) - 2020, which is driven by the tenets of Defence Reforms announced as part of 'Aatmanirbhar Bharat Abhiyan'.

In order to promote indigenous design and development of defence equipment 'Buy Indian - IDDM (Indigenously Designed, Developed and Manufactured)' category was introduced in 2016 and was accorded top most priority for procurement of capital equipment.

Envisaging Structured Thrusts on Indigenisation

The Department of Defence Production envisions expanding the defence manufacturing base of the country with equal participation of both Public and Private sector including MSMEs and startups. To achieve this goal, broadly three focus areas have been identified: Investment promotion, export promotion and innovation, says Raj Kumar, secretary, Department of Defence Production, Ministry of Defence, Government of India. Excerpts from the interview:

Ministry of Defence has notified a 'Negative list' of 101 items for which there would be an embargo on the import beyond the timeline indicated against them. This is a big step towards self-reliance in defence. This would offer a great opportunity to the Indian defence industry to manufacture these items using their own design and development capabilities to meet the requirements of the Armed Forces in the coming years. This list includes some high technology weapon systems like artillery guns, assault rifles, corvettes, sonar systems, transport aircrafts, light combat helicopters (LCHs), radars and many other items to fulfil the needs of our Defence Services.

"Offset portal" has been created in May 2019 to ensure Greater transparency, efficiency and accountability in the process. Reforms in Offset policy have been included in DAP 2020, with thrust on attracting investment and Technology for Defence manufacturing.

Government has notified the 'Strategic Partnership (SP)' Model in May 2017, which envisages establishment of long-term strategic partnerships with Indian entities through a transparent and competitive process, wherein they would tie up with global Original Equipment Manufacturers (OEMs) to seek technology transfers to set up domestic manufacturing infrastructure and supply chains.

Department of Defence Production

has notified 46 items under the latest Public Procurement Order 2017 notified by Department for Promotion of Industry and Internal Trade (DPIIT), for which there is sufficient local capacity and competition and procurement of these items shall be done from local suppliers only irrespective of the purchase value.

Government has notified a 'Policy for indigenisation of components and spares used in Defence Platforms' in March 2019 with the objective to create an industry ecosystem which is able to indigenize the imported components (including alloys and special materials) and sub-assemblies for defence equipment and platform manufactured in India.

An Inter-Governmental Agreement (IGA) on "Mutual Cooperation in Joint Manufacturing of Spares, Components, Aggregates and other material related to Russian/Soviet Origin Arms and Defence Equipment" was signed in September 2019. The objective of the IGA is to enhance the After Sales Support and operational availability of Russian origin equipment currently in service in Indian Armed Forces by organizing production of spares and components in the territory of India by Indian Industry by way of creation of Joint Ventures/ Partnership with Russian Original



‘Export Promotion cell under DDP, MoD has been formed to co-ordinate and follow-up on export related action including enquiries received from various countries and facilitate private sector and public sector companies for export promotion.’

Equipment Manufacturers (OEMs) under the framework of the “Make in India” initiative.

The Government eagerly looks forward to boost defence exports. How strong is India's defence export business and what are major export promotion policies taken?

The Government targets defence export of Rs 35,000 Cr (US\$ 5 Bn) by 2025 from about Rs. 9,100 Cr in 2019-20, for which a number of export promotion initiatives have been taken:

Export Promotion cell under DDP, MoD has been formed to co-ordinate and follow-up on export related action including enquiries received from various countries and facilitate private sector and public sector companies for export promotion.

A High Level Committee (HLC) has been constituted under the Chairmanship of Raksha Mantri to facilitate faster clearances to export of major indigenous defence platforms to Friendly Foreign Countries.

A scheme for Export promotion of Indian Defence Equipment Manufactured in India by Indian Defence Attache has been rolled out wherein Defence Attachés are provided financial support to promote export of indigenous defence equipment abroad.

Webinars and expo are being organized with 25 countries with stakeholders/decision makers/Defence industries for export promotion of Indian Defence equipment. Out of 25 countries, webinar with 9 countries, including UAE have been organized.

An online system has been created by which Export leads received from various sources can be sent directly to Indian defence exporters registered on the defence exim portal on their email address. This facility helps the Indian defence exporters to quickly respond to export opportunities arising in other countries.

DPSUs/OFB have been allocated geographical regions/countries to take up focused promotional activities.

Standard Operating Procedure (SOP) for the export of munitions list items have been simplified to promote Ease of Doing Business.

The existing online application system of export authorisation has been made more user-friendly to provide end to end solution.

The Department of Defence Production

has brought in two OGEL's (Open General Export License) - one for the select parts and components, and the other for intra-company transfer of technology. OGEL is a one-time export license, which permits the industry to export specified items to specified destinations, enumerated in the OGEL, without seeking export authorisation during the validity of the OGEL.

How does the Department plan to tap the potential of private industry in defence sector to support indigenization?

The private sector has received focused attention during the last six years by way of policy initiatives and interventions by the Government to promote their participation in defence, as mentioned below:

A number of provisions have been added or amended in DAP 2020 to provide level-playing field for Indian Private Industry.

Notification of 'Negative list' of 101 items would offer a great opportunity to the Indian defence industry, including private sector, to manufacture these items using their own design and development capabilities.

The 'Make' Procedure of capital procurement has been simplified. There is a provision for funding of 90% of development cost by the Government to Indian industry under Make-I category. In addition, there are specific reservations for MSMEs under the 'Make' procedure.

Separate procedure for 'Make-II' category (Industry funded) has been notified under Defence Procurement Procedure 2016 to encourage indigenous development and manufacture of defence equipment. Number of industry friendly provisions such as relaxation of eligibility criterion, minimal documentation, provision for considering proposals suggested by industry/individual etc. have been introduced in this procedure. So far, 55 projects relating to Army, Navy and Air Force, have been accorded 'Approval in Principle', valuing about Rs. 30,000 Crores.

The Government of India has enhanced FDI in Defence Sector up to 74% through the Automatic Route for companies seeking new defence industrial license and up to 100% by Government Route wherever it is likely to result in access to modern technology or for other reasons to be recorded.

In February 2018, the Government decided to establish two defence industrial corridors to serve as an engine of economic development and growth of defence industrial base in the country. They span across Chennai, Hosur, Coimbatore, Salem and Tiruchirappalli in Tamil Nadu and across Aligarh, Agra, Jhansi, Kanpur, Chitrakoot and Lucknow in Uttar Pradesh. A number of private industries have either already invested or have plans to invest in these defence industrial corridors.

An innovation ecosystem for Defence titled Innovations for Defence Excellence (iDEX) has been launched in April 2018. iDEX is aimed at creation of an ecosystem to foster innovation and technology development in Defence and Aerospace by engaging Industries including MSMEs, Start-ups, Individual Innovators, R&D institutes and Academia and provide them grants/funding and other support to carry out R&D which has potential for future adoption for Indian defence and aerospace needs.

Offset guidelines have been made flexible by allowing change of Indian Offset Partners (IOPs) and offset components, even in signed contracts. Foreign Original Equipment Manufacturers (OEMs) are now allowed to provide the details of IOPs and products after signing of contracts. In order to bring more transparency and efficiency into the Offset discharge process, "Offset portal" has been created in May 2019. Under the new Offset Policy, further Offset reforms have been included in DAP 2020, with thrust on attracting investment and Technology for Defence manufacturing.

Defence Products list requiring Industrial Licences has been rationalised and manufacture of most of parts or components now does not require Industrial License. The initial validity of the Industrial Licence granted under the IDR Act has been increased from three years to 15 years with a provision to further extend it by three years on a case-to-case basis. About 500 Industrial Licenses have been issued so far, about 300 such licenses after



the year 2014.

A new online portal has been developed for facilitating filing of online applications for Industrial License under Industries (Development and Regulation) – IDR Act 1951/Arms Act 1959.

Based on the initiative taken by Department of Defence Production to review Defence Product List for the liberalization in defence manufacturing sector, the Defence Product List has now got rationalized and trimmed.

Defence Investor Cell has been created in Feb-2018 the Ministry to provide all necessary information including addressing queries related to investment opportunities, procedures and regulatory requirements for investment in the sector.

Several Test facilities available with Government entities have been made available to private sector.

A Policy on “Utilisation of Third Party Inspection Services has been notified in May 2018 for effective administration of inspection Services with involvement of third parties and promote Ease of Doing Business for MSMEs and private sector.

Raksha Mantri recently suggested increasing the finance available to Innovation for Defence Excellence (IDEX) start-ups. What are the booster packages and policies to nurture start-up ecosystem?

Various initiatives have been taken to promote the start-up ecosystem in the defence sector:

An innovation ecosystem for Defence titled Innovations for Defence Excellence (iDEX) has been launched by Hon'ble PM in April 2018. iDEX is aimed at creation of an ecosystem to foster innovation and technology development in Defence and Aerospace by engaging Industries including MSMEs, Start-ups, Individual Innovators, R&D institutes and Academia and provide them grants/funding and other support to carry out R&D which has potential for future adoption for Indian defence and aerospace needs. Under iDEX, Defence India Startup Challenges and open challenges are initiatives to tap startups for finding futuristic indigenous solutions catering to critical needs of the Indian Armed Forces.

An indigenization portal namely SRIJAN has been launched in August 2020 for Defence Public Sector Units (DPSUs)/ Ordnance Factory Board (OFB)/Services with an industry interface to provide development support to MSMEs/Startups/ Industry for import substitution.

The 'Start-ups' recognized by the

Department for Promotion of Industry and Internal Trade (DPIIT) from time to time, are eligible to participate under 'Make-II' procedure.

Atal Innovation Mission (AIM) has recently launched the Aatmanirbhar Bharat ARISE ANIC challenges in partnership with Ministries/ Departments (MOHUA, MOFPI, Defence, ISRO and MOHFW) wherein, AIM and ministry experts shortlisted challenge statements very close to sectoral pain points. AIM has also been partnering with various Global Ministries (Singapore, Australia, Russia, Denmark, Sweden, Saudi Arabia etc.) and multilateral agencies like UNDP, BMGF, World Bank etc. to provide the needed acceleration for the growth of the Indian startup ecosystem.

As part of the AtmaNirbhar Bharat Abhiyan initiative, the government has organized a number of start-up competitions to encourage Indian entrepreneurs to ideate, incubate, build, nurture and sustain tech solutions for the Indian and the global market.



What are your visions to increase the production in DPSUs? How does DPSUs support the modernization of Armed Forces?

DPSUs are being positioned as system integrators and mandated to maximize outsourcing from indigenous sources and create a multi-tier domestic supply chain.

Strategic / partial Disinvestment of DPSUs will be pursued to bring more accountability, efficiency and greater autonomy.

Focus is on modernization and technological upgradation in coordination with Services/DRDO.

DPSUs/OFB have been allocated geographical regions/countries to take up focused promotional activities with an objective to enhance their exports.

An indigenization portal namely SRIJAN has been launched on August 14, 2020 for DPSUs/OFB/Services with an industry interface to provide development support

to MSMEs/Startups/Industry for import substitution

Could you share with us your vision and plans for the department during your tenure? What are the major goals to be achieved?

The Department of Defence Production envisions to expand the defense manufacturing base of the country with equal participation of both Public and Private sector including MSMEs and startups. To achieve this goal, broadly three focus areas have been identified: Investment promotion, export promotion and innovation.

The Department has drafted a Defence Production and Export Promotion Policy, which would be positioned as Ministry of Defence's overarching guiding document to provide a focused, structured and significant thrust to defence production capabilities of the country for self-reliance and exports. Restructuring of Ordnance Factory Board is on the anvil. Reforms in DPSUs and inspecting Agencies are also being undertaken.

The investments of Rs 20,000 Cr are planned in Defence corridors of Uttar Pradesh and Tamil Nadu by year 2024. The progress is reviewed regularly at apex level. So far, investment of approx. Rs 3000 Cr have been made in both the corridors by public as well private sector companies.

There is a special focus to promote defence aerospace industry particularly in MROs and indigenous development of aeroengines.

The department has also taken up with concerned Ministries to align their PLI (Productivity Linked scheme) of the Government to include defence products in their schemes.

iDEX4Fauji initiative has been launched under the iDEX programme, to facilitate flow of ideas from field level and rapid development of new, indigenized and innovative technologies for the Indian Defence and Aerospace sector. iDEX4Fauji stands out as a unique and strategic initiative for grass root level innovation and shall pan out to be one of the most well-executed initiatives providing opportunities to the members of the Indian Armed Forces benefiting from their knowledge and the first-hand experience and intention towards improving existing platforms and equipment in Defence. The Startup Manthan event during Aero India 2021 in February 2021 witnessed the felicitation of the first batch of eleven iDEX4Fauji winners from the Services. ■

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Potent Firepower



Hamad Al Ameri
CEO, CARACAL

Hamad Al Ameri is responsible for leading and directing the development, planning, execution and monitoring of all CARACAL functions and businesses. Prior to his role at CARACAL, Hamad was the Business Development Director at Emirates Defence Industries Company (EDIC) where he supervised strategic and operational marketing and customer relationship activities. A former Special Forces Officer in the UAE Presidential Guard, Hamad obtains almost two decades of experience and expertise in the defence industry, possessing a portfolio that includes leadership roles in training, close protection, and weapon development, along with a multitude of defence certifications.

CARACAL, a world-renowned small-arms manufacturer, produces an unbeatable range of combat pistols, submachine guns, tactical rifles, and sniper rifles well aligned with the evolving mission requirements of law enforcement, security, and military forces. Hamad Al Ameri, CEO of CARACAL, speaks about technological advancements, core product development and strategic objectives to enter international market. Excerpts from the interview

As a part of the Missiles and Weapons cluster within EDGE, CARACAL is now a world-renowned small-arms manufacturer. Could you shed some light on CARACAL's journey since its establishment 15 years ago, the run-up to establishing this company as a pioneer in building high-precision weapons?

CARACAL designs, tests, validates, manufactures, and assembles high-performance products. With over 15 years of experience, we have established ourselves as pioneers in building high-precision weapons. Our field-tested firearms combine accuracy and reliability for law enforcement, security, and military forces.

Headquartered in Abu Dhabi, CARACAL uses some of the world's best computer numerical control (CNC) machines, quality control equipment, and moulding technologies. Every phase of our manufacturing process ensures our products comply with rigorous international standards, such as NATO and CIP.

Advanced technologies, including computer-aided design/simulation/verification and additive manufacturing stand at the core of our design and prototyping processes. We continually enhance our weapons, so they remain aligned with the evolving mission requirements of our customers. As a result, our products provide those on the front lines with the firepower they need for mission success.

CARACAL was awarded the Close-Quarter Carbine contract in 2018 to supply

the Indian Army with the CAR 816, and the company has offered to support the 'Make in India' initiative. At what stage is the establishment of facilities in India?

CARACAL was selected to supply close-quarter carbines to the Indian Army in 2018, following a rigorous selection process. We have gone on to fulfil all necessary requirements and procedures set out in the Defence Procurement Procedure (DPP), with our CAR 816 having undergone extensive trials across different terrains both inside and outside of India. We are confident our product is fully customised to meet the needs of the Indian soldier, with our carbine having beaten off competitors globally in the tender process.

We remain on standby to deliver upon the contract as soon as we are given the official mandate to, and have set the foundations for supporting the objectives of the 'Make in India' programme.

CARACAL's assault rifle CAR 816 has customers around the world. Could you elaborate on the features of this weapon?

The CAR 816 is a centre-fire, gas-operated tactical rifle, chambered in 5.56x45 mm NATO. It is a tactical weapon designed for the high-end use of law enforcement and military applications, and is available in semi-automatic and select-fire configurations.

CAR 816 standard features include:

- CAR 816 operates on short-stroke piston system with three settings
- Semi-automatic only and select-fire models
- Multiple barrel lengths from 7.5" PDW



EDGE
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CARACAL
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to 16"

- Full ambidextrous configuration

CARACAL's portfolio comprises combat pistols, submachine guns, tactical rifles, and sniper rifles. How challenging is the task to continually enhance these weapons so they remain aligned with the evolving mission requirements of the customers?

Client requirements and meeting them stand at the core of our product development efforts at CARACAL. As such, we incorporate advanced technology innovations in the manufacturing of our products. Additive manufacturing, combined with the use of CAD/CAM software during design and prototyping, allows us to quickly and accurately refine the ergonomics of each weapon component to surpass its stringent performance requirements.

CARACAL also leverages additive manufacturing in the production of weapon accessories. As the efficiency and safety of 3D printing of metals and composites evolve, the company is exploring the use of this technology in manufacturing metal parts for lighter, more customisable weapons.

Apart from India, which are the key markets for CARACAL? How do you look at the South Asian and African markets for business?

We continue to seek opportunities around the world. The South Asia and Africa markets are of interest to us as are other geographies, and we are at varying stages in developing relationships to enter markets internationally. Cultivating an export market is one of our main strategic objectives.

Besides ensuring use of advanced technologies and complying with international standards, an arms manufacturer needs to offer services to support maintenance and repair of the weapons. How strong is CARACAL's service support?

CARACAL possesses the know-how and skills that are a useful basis for maintenance, repair and overhaul (MRO) in small arms. With proven processes, competent documentation, excellent availability of spare parts and trained and certified operators, we lift small arms MRO to a new level.

A good rifle is only the starting point, making sure it will perform over the years and in any mission, not letting the operator down when it matters most, is what we do.

What is the roadmap ahead for CARACAL especially in the background of the impact of Covid-19 pandemic in the defence industry? What are the goals and objectives you have set for the company?

The ongoing pandemic has created a challenging operating environment for most commercial companies around the world, and CARACAL and its parent company, EDGE Group, are no different. We are fortunate to enjoy deep and trusted relationships with our customers, so there is an attitude of confronting the challenges together. CARACAL's executive leadership has also been proactive in foreseeing the potential effects of the economic slowdown prompted by the pandemic, and have acted accordingly. The safety of staff, partners and customers has been of the highest priority for CARACAL's internal approach to mitigating the effects of the virus.

CARACAL leverages additive manufacturing in the production of weapon accessories. As the efficiency and safety of 3D printing of metals and composites evolve, the company is exploring the use of this technology in manufacturing metal parts for lighter, more customisable weapons



DRDO gives a big thrust to exports by industries



DRDO has evolved a compendium of 'DRDO Products for Export' which lists the systems/ products that have been developed, proven and extensively trial evaluated by the research organisation. These products have huge export potential and many of them have already been purchased by friendly countries

DRDO (Defence Research & Development Organisation) was set up in 1958 with a vision to empower India with cutting-edge defence technologies and a mission to achieve self-reliance in this sector. The organisation under the Ministry of Defence, Government of India equips Indian Armed Forces with state-of-the-art weapon systems as per their requirements.

The Indian public as well as private sector industries are valuable partners of DRDO and play an important role as development partners and/ or production agencies. Currently, more than 1,800 industrial units have joined hands with DRDO in delivery of components, subsystems, systems, platforms and technologies for the Indian Armed Forces. Many industries have achieved the capability and the capacity to become the lead system integrator whereas, some others have become part of the global supply chain and are exporting systems developed by DRDO to friendly countries.

DRDO supports industrial units in evolving the specifications of the export variant of the products (based on DRDO technology) to enable them to respond to the RFPs (Request for proposals) of friendly nations. DRDO also carries out customization of products to meet the requirement of customer countries based on the requirement of the industry.

The 'DRDO SoP for Export of Military Equipment' facilitates Indian industry and DRDO labs to provide necessary technical support to industry for responding to RFI



(Request for information) before necessary approval from MoD (Ministry of Defence) is obtained by the industry. The DRDO's SoP (Standard operating procedure) for exports is in line with the MoD's SoP for exports and provides assistance to Indian industry to address the export needs of the products designed and developed by the organisation.

A number of advanced test facilities and equipment are available at the laboratories under the DRDO for trial and testing the products before acceptance by the user. DRDO provides access to its world-class high-end test facilities to Indian industries involved in designing, developing and manufacturing.

Moreover, DRDO has evolved a compendium of 'DRDO Products for Export' which brings out systems/ products that have been developed, proven and extensively trial evaluated by the R&D organisation. These products have huge export potential and many of them have already been acquired by friendly countries. The production agency involved in realizing these products/ systems are also mentioned. The industries can utilize this information to initiate dialogue for export with the interested friendly foreign countries. The export compendium is also hosted on the DRDO website for the benefit of industries at large.

Export enquiries may be posted to the Director, Directorate of Industry Interface & Technology Management at DRDO Headquarters, New Delhi at the following address:

Director, Directorate of Industry Interface & Technology Management (DIITM), Room No 447, DRDO HQrs, DRDO Bhawan, Rajaji Marg, New Delhi – 110011.

Tel: 011-23016216, 23007446, 011-23793008 (Fax). Email: diitm@hqr.drdo.in



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Israel, Azerbaijan, Portugal, Luxemburg and North Macedonia are participating for the first time. The Israeli pavilion features a range of technology and innovation that will foster the transfer of knowledge to local teams and build bridges toward intra-regional collaboration.

For the first time, the International Defence Conference 2021 is being held as a hybrid event. Also, it is the first major in-person exhibition held in Abu Dhabi since the Covid-19 pandemic broke out. The expo brings together more than 24 experts and specialists in the

defence sector, physically and virtually, with wide participation of 80 countries. The International Defence Conference 2021, which has the 'The Prosperity and Development of Artificial Intelligence and Advanced Technology and the Protection in the Era of the 4IR', has also been launched alongside the expo.

IDEX has furthered the establishment of the UAE on the regional and global stage. IDEX and NAVDEX are among the world's most strategic and vital events, providing an integrated global platform that showcases cutting-edge technology and development. These developments empower participants to be informed of

the latest breakthroughs in the fourth industrial revolution across land, sea, and air defence sectors.

IDEX and NAVEX 2021 put on display the latest developments in the defence sector and highlight the latest in military technology, innovative equipment, and the development of the national defence sector. Additionally, the exhibitions allow the forging of new strategic relationships between attending entities and major international companies specialised in these sectors. The exhibitions also provide participants and visitors the opportunity to explore how technological adoption can be used to contribute toward world peace.

Saab Delivers Third GlobalEye

Saab delivered the third GlobalEye aircraft to the United Arab Emirates on 20 February 2021.

This follows Saab's previous deliveries of GlobalEye in April and September 2020. The United Arab Emirates has ordered a total of five GlobalEye aircraft.

"Completing three deliveries of a solution as advanced as GlobalEye in less than a year proves Saab's solid expertise as a provider of high-technology solutions and

our focus on meeting our commitments, especially given the current circumstances. By handling the entire process, including sensor development and integration, we are uniquely in control of every critical part of this complex programme", says Micael Johansson, President and CEO of Saab.

GlobalEye is Saab's latest airborne early warning and control solution. It provides exceptional air, maritime and ground surveillance in a single platform. GlobalEye



combines Saab's Erieye Extended Range Radar and a range of additional advanced sensors with the ultra-long range Global 6000 aircraft from Bombardier.

MBDA launches Sky Warden C-UAS system



MBDA, a world leader in air defence solutions, is launching Sky Warden – the new flagship system to counter unmanned aerial systems (C-UAS).

Eric Béranger, CEO of MBDA, said: "As Europe's leading air defence provider, MBDA is uniquely able to offer customers a proven, flexible and integrated C-UAS system. One that is available today, and can evolve into the future. Sky Warden embodies MBDA's deep knowledge of the

engagement process, systems integration, of all categories of effectors and their next evolutions, and of effects management in the air defence domain."

The Sky Warden system manages the full C-UAS kill chain from detection to neutralisation and is designed to operate both as an integrated component in a layered air defence architecture, or in a stand-alone configuration. Sky Warden can be vehicle mounted or dismounted.

The modern C-UAS threat is varied, rapidly evolving, and poses a multiplying number of complex scenarios that require defending against. This means there is no single sensor or effector that can meet the modern or future C-UAS requirement. Instead Sky Warden utilises a networked eco-system of constantly evolving sensors and effectors, drawn from MBDA's wide experience in air defence and effects management, to match the UAS threat.

Being modular, scaleable, and evolvable,



Sky Warden is able to effectively and appropriately neutralise all classes of UAV, from small Class 1 micro-UAVs to large tactical UAVs, as well as other traditional air threats.

At its core is a command and control (C2) system that performs effects management – co-ordinating this eco-system of sensors, soft-kill effectors, and hard-kill effectors to defend armed forces units or sensitive sites across a large protection perimeter.

Sky Warden utilises operationally-proven building blocks within a modular open architecture that can be adapted to end-user requirements or to plug and play emerging and future novel sensing and effector technologies. MBDA C-UAS solutions have already been successfully demonstrated to customers.

Transformative Solutions



Talal Al Hashmi
CEO, KNOWLEDGE POINT

Talal Al Hashmi is the Chief Executive Officer of KNOWLEDGE POINT. In his role, he provides expertise and knowledge transfer to clients in the Defence, Government, Health, and Education sectors. Talal has unique experience in understanding the Armed Forces' warfighting requirements based on his multiple combat deployments while serving with the Special Operations Command and led the Capabilities Based Assessment of the Land Forces, which began the Service's transformation of today's broadly recognised capable force. Furthermore, he possesses strong skills in leading change management, supply chain management, organisational assessments coupled with his many years of experience in the defence and security related sector.

KNOWLEDGE POINT provides discreet, nuanced and comprehensive solutions for tailored projects in military, government, medical and security training, assisting in identifying, evaluating, and mitigating risks while also developing and implementing solutions and strategies that address those risks. Talal Al Hashmi, Chief Executive Officer of KNOWLEDGE POINT, tells us how they transform organisations when it comes to managing, educating and training people. Excerpts from the interview:

Established in 2009, KNOWLEDGE POINT is now a leading international service provider for defence and security forces. How competitive is the sector and where does the company stand globally now?

With customer knowledge developed over a decade of experience, KNOWLEDGE POINT leverages global expertise, capabilities across several domains, and a diversified and proven team to deliver strategic, operational, and tactical results. Our projects are designed to provide knowledge transfer of proven processes that align with benchmarks that have been effectively executed in conflict areas around the world.

We provide discreet, nuanced and comprehensive solutions for tailored projects in military, government, medical and security training. We assist our clients in identifying, evaluating, and mitigating risks while also developing and implementing solutions and strategies that address those risks. We also leverage our deep-thinking knowledge to provide enduring relevance to create more effective, resilient, and innovative defence and security forces. KNOWLEDGE POINT's competitive advantage is that through our assessments we get full understanding of the client's needs and have the ability to deliver a holistic solution and all our contracts focus on knowledge transfer to develop local talent, and lay out ground

work for customers to self-sustain.

Could you give us a detailed picture of KNOWLEDGE POINT'S services in education, consultancy and training? How successful the company has been in providing sustainable solutions and meeting clients' expectations?

KNOWLEDGE POINT's core competencies are what is considered as among the fundamental pillars of effective defence and security organisations. And this includes capability-based assessment, concept development, doctrine development, SAT compliant education courses, individual and collective training, synthetic training environments, technical implementations, full-spectrum consultancy, modelling and simulation, and digital content. We follow a four-step Capabilities Based Assessment process to produce a comprehensive strategic implementation plan, enabling our clients to identify gaps and prioritize capabilities, based on levels of risk with intent to enhance mission success in the next conflict. Our other capabilities include Capability Maturity Model integration, contingency and crisis planning, continuous improvement process, curriculum development, defence acquisition strategy, deliberate planning, doctrine development, training needs analysis, integrated logistics support, information and communications technology infrastructure support to create the next



generation of competent and confident leaders. Equipped with diverse experiences which can be applied to a wide variety of projects in the UAE and across the MENA region, our international team enable the application of proven techniques and knowledge transfer to build the client's organic capabilities.

Could you shed some more light on how you transform organisations when it comes to managing, educating and training their people?

At KNOWLEDGE POINT, we believe that education is fundamental to enduring organisational improvement. And with time, effort and investment we help large organisations sequence their members through education and training programme. Once established, monitored and refined over the years, it will be the key denominator in creating next generation of competent and confident leaders.

Our multicultural mix of experts from around the world come with extensive experience in military and security operations, combat deployments, research, project management, sustainment support and talent development/management. Equipped with diverse experiences which can be applied to a wide variety of projects in the UAE and across the MENA region, our international team enable the application of proven techniques and knowledge transfer to build the client's organic capabilities.

Our comprehensive portfolio of both technical and training solutions and services are built on

proven methodologies and a thorough training needs analysis. We provide our customers with measurable results, improved training and readiness, and superior performance while identifying efficiencies, and cost reductions.

What is your expertise in cyber awareness?

Safeguarding one's online identity and personally identifiable information has become more and more important in recent years. This is especially true for our children who are introduced to the online environment from the moment they start school. As a result, we offer programs and training modules in cyber awareness and information technology that focus on creating awareness in people of every age, starting with primary years school aged children, that focuses on making people aware of their cyber surroundings – what to be aware of, how to view social media, and how to safeguard your online profile.

What are the immediate goals and objectives you have set for the company next?

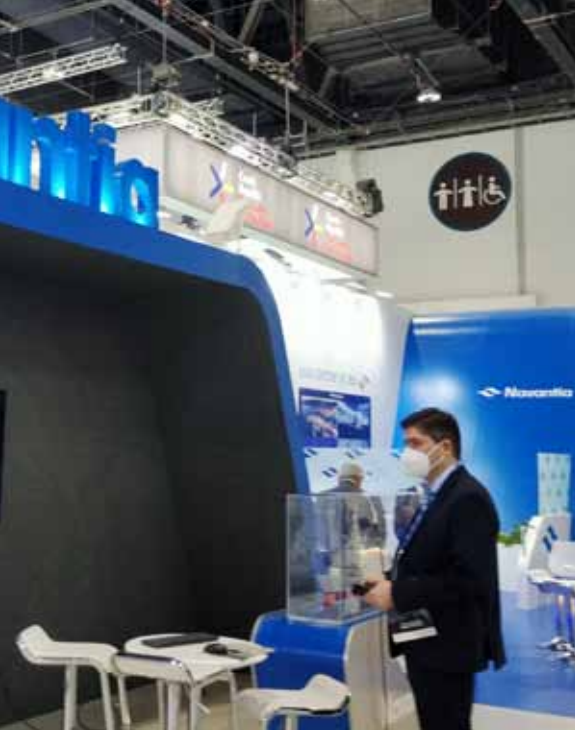
We are looking to grow our footprint in the region working with different customers to highlight the value of conducting a capabilities-based assessment in developing a holistic plan to enhance their capabilities.

We also have several strategic initiatives in the pipeline where we are focusing on implementing and providing specialised training to our clients with the ultimate goal of "training the trainer". This will be announced in due course.



KNOWLEDGE POINT offers programs and training modules in cyber awareness and information technology that focus on making people aware of their cyber surroundings – what to be aware of, how to view social media, and how to safeguard online profile





AMMROC: Paradigm Shift in Aviation Sustainment



Hareb Thani Hareb Al Dhaheri
Acting CEO, AMMROC

Hareb Thani Hareb Al Dhaheri has been the Acting Chief Executive Officer (CEO) since 2020. As a retired Brigadier and Pilot with the UAE Armed Forces, he has amassed more than 30 years of experience in military aviation. Hareb is deeply committed to leading the growth of this region's expanding aviation industry and is now responsible for providing strategic and operational oversight for all business functions at AMMROC.

Hareb Thani Hareb Al Dhaheri, Acting CEO, AMMROC, takes us through the trajectories of its growth as one of the world's very few third-party MRO service providers capable of managing a fleet-wide Performance Based Logistics programme, and now evolving as the anchor military MRO entity in the UAE, fulfilling the needs of UAE Armed Forces and regional operators. Excerpts from the interview:

Over the last one decade, AMMROC has become one of the world's very few third-party MRO service providers capable of managing a fleet-wide Performance Based Logistics programme. Could you share with us the major highlights of this success journey?

AMMROC has supported the United Arab Emirates (UAE) Air Force and Air Defence (AF&AD) and the Joint Aviation Command (JAC), with nose to tail maintenance, repair and overhaul (MRO) services in airframes, engines, and components through a stringent Performance-Based Logistics (PBL) programme for seven plus years. The PBL contract enabled the UAE Armed Forces to streamline processes and optimise manpower by remaining focused on the operation of their aircraft, while AMMROC provided full logistics, maintenance and repair services. Under this model, all material and maintenance activity are provided under a cost per flight hour that provides greater flexibility to the UAE Armed Forces, while facilitating ongoing efficiency improvements. Highlights over this time have included the growth of the employment opportunities within the UAE from a company of 300 to over 3500 personnel, the first ever Mirage 2000 P+ inspection maintenance program undertaken on the Mirage fleet within the UAE, undertaking the armed BLACK HAWK weaponisation program for JAC, the AFAD C-130 Avionics Modification Program (AMP) and the completion of the new state-of-the-art MRO facility in Al Ain are among some of the many achievements

AMMROC has delivered over the course of the last 10 years.

Beginning in mid-2020, AMMROC made a pivot to strategically focus on our core strengths of providing depot level maintenance solutions within the UAE and the wider region. As the company transitions through to a renewed focus on depot level support, leveraging our new dedicated depot facility in Al Ain, we are able to utilize other EDGE assets within the Mission Support cluster such as GAL and HORIZON to provide total solutions to current and future customers.

AMMROC's new MRO facility at Al Ain (MRO AA) is touted as comprehensive aviation sustainment centre dedicated to ensure depot level MRO services to the highest quality standards. What makes the facility unique in the region?

MRO Al Ain is a state-of-the-art facility and is among the largest centres dedicated to military MRO in the world. Developed and built as one project, the one-square-kilometre facility is uniquely positioned adjacent and directly connected to the Al Ain International Airport.

The AMMROC MRO Centre now offers increased hangarage space, dedicated paint and strip capabilities, and provides a universal industrial capability to service a wide variety of aircraft both fixed and rotary. The new facility has over 30+ support shops, inclusive of dedicated Hydraulic, Fuel and Electromechanical test and repair capabilities, an adaptable PTS capability and advanced machining, special processes,



structures, NDI and CMM capabilities. The new facility was designed to cater for future, with ample open area yet to be developed for future capability expansion.

The MRO Al Ain centre has four multi-purpose hangars, offering over 36,500 sqm of usable hangar space, including dedicated special mission hangars designed with highly sensitive project precautions in place.

The Al Ain complex features a dedicated Black Hawk nose-to-tail depot, with capability on 49 LRUs including blades and transmissions, engines, and aircraft subsystems. The facility is equipped with a dynamic whirl stand, a dedicated blade repair capability to and transmission repair shop that is powered with advanced technology, making it a first-in-the-region.

AMMROC has been executing major and minor modifications and upgrades for a variety of fixed and rotary-wing aircraft tailored to customer requirements. Could you elaborate on the services offered and how strong a presence the modification arm of AMMROC has in the Middle East?

We execute major and minor modifications and upgrades for a variety of fixed and rotary-wing aircraft. Solutions are tailored to customer requirements that include avionics modernisation programs, hardware and software installation and upgrade. AMMROC is also able to undertake aircraft life extension programs, routine modifications and updates, and integration of upgrades during periodic depot maintenance (PDM). AMMROC has demonstrated its ability to undertake complex modifications and upgrades such as the Black Hawk weaponisation program, structural life extensions on a number of platforms, minor design modifications and crash damage repair and aircraft battle damage repair in the field.

This is achieved through our dedicated engineering team who develop customer focused solutions and customised modifications that draw on our long-term OEM relationships and partnerships with certified solution providers

to meet service bulletin and airworthiness directives. As a third party MRO provider, our partnerships both locally and abroad with major Original Equipment Manufacturers (OEMs) and global MRO leaders is key to delivering successful modification projects. At AMMROC, we have worked with some of the world's leading OEMs such as Lockheed Martin, Sikorsky, and Dassault Aviation among many others in order to deliver highly complex solutions on time and on budget. Now, as part of EDGE, we see more opportunities to benefit from the many local companies under the EDGE umbrella where we can complement each company's core strengths such as with GAL, Horizon and EPI to further grow the modification and upgrade opportunity. Through these local partnerships we hope to elevate both EDGE and AMMROC into a global brand.

Engine maintenance is one of the core capabilities of the company and the new engine test cell can test a wide variety of engine types. What are the major operational highlights?

AMMROC has extensive experience in engine maintenance and this includes test, inspection, repair and overhaul for turbo props, turbo fans, turbo shafts, fighter jet engines, auxiliary power units (APU), Quick Engine Change (QEC) components and accessories for maintenance inspection, overhaul, and repairs. Our new engine test cell is currently dedicated to the GE T-700 / CT7 Engine family, however the test cell can be adapted to test a wide variety of engine types such as the Honeywell T-55, Pratt & Whitney PT6A, Rolls-Royce M-250, and SAFRAN Arriel-2/Makila 1A. Further capabilities range from module replacements and implementing modifications to complete piece part disassembly, repair, replacement, overhaul, re-assembly, test, and troubleshooting. Our engine repair shop complies with stringent OEM requirements and is certified by global industry standards. We are the first regional MRO facility to host the Engine Structural Integrity Program (ENSIP) for F-110 engines.

AMMROC is planning to move beyond military, which potentially could see it enter the civil aerospace MRO market in the future. Gulf air carriers are the largest in the world and AMMROC has sufficient resources and crews for in-house maintenance

EDGE Unveils First UAE-made Family of Smart Loitering Munitions at IDEX 2021

- **New UAVs Demonstrate Impressive Strides in Autonomous Capabilities**
- **QX Family of Micro, Mini, Small UAVs for Precision Strike**
- **Design and Production Accelerated within 1-Year Span**

EDGE, an advanced technology group for defence and beyond, today launches its first family of multirotor loitering munitions, the QX range. In addition, Shadow 50 and Shadow 25, Rash 2 gliding munition kit, as well as new variants of the RW24 range – all designed and manufactured in the company's first year of operations – were unveiled on the first day of the International Defence Exhibition and Conference (IDEX 2021), that is underway at the Abu Dhabi National Exhibition Centre until 25 February.

The unveiling of the Class-1 electric unmanned aerial vehicles (UAVs) took place at the EDGE pavilion in the presence of His Excellency Faisal Al Bannai, CEO

and Managing Director of EDGE and Ali Al Yafei, CEO of ADASI.

His Excellency Faisal Al Bannai, CEO & Managing Director, EDGE, said: "Right now, drone technology is revolutionising our world with the full potential of unmanned and autonomous capabilities still to be further explored – not just in the military sector, but the commercial sector too."

He added: "Through launching the first UAE-made family of smart loitering drones, EDGE marks a significant milestone as a key technology enabler and in boosting the country's autonomous capabilities and AI integration. With the future increasingly relying on unmanned systems that provide a higher degree of tactical flexibility, we have invested extensively to fast-track R&D investments in these domains, bringing related products to market with speed."

The QX family of loitering munitions comprises four products: QX-1, a micro-UAV, QX-2, a mini-UAV, QX-3, a small

UAV, and QX-4, which features an impressive vertical take-off and landing (VTOL) fixed wing. The precision-guided systems use sophisticated AI algorithms to target and strike, boasting an accuracy of 1 m CEP (circular error probable) – with an aim similar to laser guided munitions. Built to launch in any environment or terrain, the entire QX family of UAVs are lightweight, man portable, and comprise VTOL capabilities.

The second range of loitering munitions consists of Shadow 50 and Shadow 25. As the name implies, Shadow 50 can carry a payload of 50kg – exactly double its counterpart. Shadow 25 is a high-speed system equipped with a jet engine and boasts a short reaction time. Delivering high precision strike against fixed targets and advanced guidance capabilities, these UAVs leverage Global Navigation Satellite Systems (GNSS) and can fly using video navigation systems in GPS denied Environment.

Lockheed Martin runs UAE-designed AI inspection capability on aircraft programs



For a group of talented UAE students interning at Lockheed Martin in Masdar City, started as an ambitious summer project has turned into a real-world engineering breakthrough that will positively impact the company's aircraft programs for years to come.

After collectively spending 1,200 hours building and testing an artificial intelligence (AI) algorithm to detect paint and primer defects on jet airframes, the interns recently got confirmation that their creation is being used by Lockheed Martin in the United States.

"We are very proud that the work we did here in Abu Dhabi with our engineering

interns is being used to improve the speed and accuracy of quality inspections on aircraft production lines in the United States," said Hala Alzargani, lead engineer at Lockheed Martin's Center for Innovation and Security Solutions (CISS). "We initially started working with Lockheed Martin mentors to provide training for Emirati talent interested in careers in the aerospace and defense sector. As work progressed, we were able to digitize the time-consuming process of inspecting aircraft manually and delivered a real-world solution that drives significant time and cost savings as a result."

Lockheed Martin interns will demonstrate the new AI solution for enhanced aircraft inspection at the 15th edition of the International Defense Exhibition and Conference (IDEX), taking place in Abu Dhabi, United Arab Emirates, from Feb. 21 to 25, 2021. Also being showcased at IDEX will be the company's aircraft, rotary systems and air and missile defense technologies, all in compliance with strict COVID-19 protocols to ensure the safety

of visitors and exhibitors.

"The best part of the internship was having the daily stand up meeting with the U.S. mentors and learning from them while we developed the capability," said Athari Hasan Alzaabi, an intern from Abu Dhabi Polytechnic who studies software security engineering. "I also enjoyed our mentoring sessions with the UAE team at the CISS, which gave me a deeper understanding of AI and taught me how to apply agile software development practices to develop real-world AI projects."

Lockheed Martin's CISS has hosted merit-based internship programs since 2017 and has implemented a series of technology development programs for UAE engineers and industry professionals. The program provides specialist training in artificial intelligence development and Unmanned Aerial Vehicle design, defense simulation exercises, business administration skills, and IT systems management, allowing students to work on real-world projects that positively impact the aerospace and defense industry.

The Zealous and Dynamic Force Behind India's Peace



Established in 1970, Bharat Dynamics Limited (BDL) is the main producer of the India's range of missiles and missile defence systems. Started its journey in a modest way with a single product, BDL over the last five decades has evolved into a multi-product, multi-unit, handling varied technologies catering to the needs of the Indian Armed Forces. With an apt sobriquet, 'Force Behind Peace', BDL aims to become a leading manufacturer in the aerospace and underwater weapons industry. Under the able leadership of Cmde Siddharth Mishra (Retd), Chairman and Managing Director, BDL strives to emerge as a world-class sophisticated, state-of-the-art, global enterprise, providing solutions to the security system needs of the country.

Being the backbone of India's missile armoury is not an easy task and it becomes even more difficult, when one has to be the sole manufacturer and supplier of Surface- to- Air Missiles, Anti - Tank Guided Missiles and Torpedoes to the Indian Armed Forces. But when the task is taken up as a challenge with 'zeal to excel and zest for change', the results would be awe-inspiring and a motivation to other defence players in India, especially at a time when the country is poised to achieve self-reliance in defence production. And it is nothing other than sheer dedication and clear-cut that has helped Bharat Dynamics Limited (BDL), India's premier Defence PSU, in marking major milestones in its success journey that spans over 50 years.

Over the last five decades, the Hyderabad-headquartered Miniratna Category-1 Company under the Department of Defence Production, has graduated from being a missile manufacturer to a Weapon System Integrator and has emerged as a complete solution provider for the Indian Armed Forces. When India took the lead to develop indigenous, sophisticated and contemporary missiles through the Integrated Guided Missile Development Programme (IGMDP), it has opened up a plethora of opportunities for BDL to assimilate advanced manufacturing and programme management technologies and skills. With a quest for technological excellence, the organization has been living up to the sobriquet, 'The Force Behind Peace'.

"Today, BDL has evolved as one among the few industries in the world having state-of-the-art facilities for manufacture and supply of Guided Missiles, Underwater Weapons, Air- borne products and allied defence equipment for the Indian Armed Forces. The company also offers Product Life Cycle Support and Refurbishment /

Life Extension of vintage Missiles. The company is poised to enter new avenues of manufacturing, covering a wide range of weapon systems such as Surface-to-Air Missiles, Air Defence Systems, Heavy Weight Torpedoes, Air-to-Air Missiles etc.," said Cmde Siddharth Mishra (Retd), Chairman and Managing Director, BDL

BDL is also amongst a few industries in the world having state-of-the-art facilities for the production of Guided Missiles and associated equipment, Underwater Weapons (Torpedoes, decoys and decoy launchers etc.), Airborne Products (Counter Measures Dispensing Systems), Ground Support Equipment, Product Life Cycle Support and Refurbishment / Life Extension of Missiles. BDL is on a consistent growth path and in pursuit of its self-reliance. BDL has established an in-house R&D Division which complements DRDO's endeavours for manufacture of missiles under Integrated Guided Missile Development Programme and other projects.

Akash Export Orders Gives a Big Boost

With the central government having given the clearance of its Akash Weapon System for export, BDL is geared up to take up export order. Given the export potential and demand of Akash in the international market, BDL has been promoting the product at various forums including national and international exhibitions. The missile being offered for exports will be of a different version. BDL is already supplying Torpedoes to a foreign country and Akash exports are likely to strengthen its export arm.

The Akash Weapon System, designed and developed by DRDO with 96% indigenous content is being manufactured by BDL at its Hyderabad Unit with a large number of supply chain partners which include DPSUs, MSMEs and



Commodore (Retd) Siddharth Mishra
Chairman and Managing Director, BDL

private industry. Akash Missile has the capability to engage aerial threats up to the maximum range of 25 km and upto an altitude of 18 km., operating at a speed range of 1.8 to 2.5 Mach. The missile has been successfully test fired on several occasions and meets the global standard of missiles of its category.

Cmde Mishra has said that with the export clearance having accorded , BDL is set to expand its customer base in the international market. "The company is confident of meeting the export demand in addition to meeting requirements of the Indian Armed Forces, as BDL has adequate established production facilities," he said. ■



Next Generation Munitions



Theunis Botha
CEO, AL TARIQ

Theunis Botha, the CEO of AL TARIQ, is responsible for liaising with the company's board of directors to steer its strategic direction, while also fulfilling the role as Director Operations, where he plays an instrumental role in the optimisation of company operations and negotiations with suppliers to ensure best prices, schedules and technical solutions. Theunis brings a wealth of experience spanning more than 35 years to his role. Prior to AL TARIQ, Theunis was General Manager of Tawazun Dynamics, later re-branded to Barij Dynamics, where he supervised the product and business development functions.

AL TARIQ manufactures and integrates the mission-proven range of Precision Guided Munitions, used on aerial bombs to convert unguided air-launched weapons into high-precision, longer-range-focused munitions using a range of technologies. Theunis Botha, CEO of AL TARIQ, speaks about their unique capabilities, operational features and strategic direction. Excerpts from the interview:

Founded in 2012, AL TARIQ is an established manufacturer of Precision-Guided Munitions in the UAE. How has the company enhanced the production capacity over the years and where does the company stand globally now?

AL TARIQ is committed to leveraging the latest advanced technologies, and is backed by expertise in the various fields of engineering. The company's teams create intellectual property of UAE origin in various areas of missile development.

AL TARIQ has built up its engineering functions and production capacity to consistently deliver enhancements and new operational features and business process improvements over the past few years.

Could you give us an overview of the products and services offered by AL TARIQ?

AL TARIQ manufactures and integrates the mission-proven AL TARIQ range of Precision Guided Munitions (PGM), used on aerial bombs to convert unguided air-launched weapons into high-precision, longer-range-focused munitions using a range of technologies. The modular design and mission flexibility of the systems allow them to adapt to new requirements as missions and platforms evolve.

We provide turnkey, high technology PGM solutions to our partners and clients allowing them to benefit from the unique capabilities of our products.

AL TARIQ states that its very purpose is to develop the next generation of precision-guided munitions using leading edge innovation. How successful have you been

in leveraging the advanced technologies to suit your requirements?

Last November during the Dubai Air Show, AL TARIQ announced major upgrades to its family of PGMs. With the enhancements, the AL TARIQ PGM is updated to the Block 2 definition and boasts a host of latest technology improvements. Platform integration is fully compliant with MIL-STD-1760, and DIGIBUS specifications.

AL TARIQ also recently announced the integration of a Penetration Warhead, which is a milestone development for the company, making it possible to integrate the purpose-built warhead on to the system. This program will be completed towards the latter part of 2021.

Could you elaborate on the features of AL TARIQ system that helps to convert unguided aerial weapons into high-precision and long-range munitions and achieve enhanced targeting accuracy?

The AL TARIQ's range of PGM's currently has the longest stand-off range in its class compared to other similar systems. We pride ourselves in the unique modular design that we offer to satisfy a range of mission requirements with a single PGM solution. The AL TARIQ PGM range of guidance kits are designed for ease-of-use and a low life-cycle cost, providing the user with a superior and cost-effective solution. Mission accuracy is achieved by utilising state-of-the-art targeting through a choice of dual-mode seekers, against high-priority fixed, off-axis, moving and re-locatable targets.

AL TARIQ has multiple international quality certifications to guarantee the



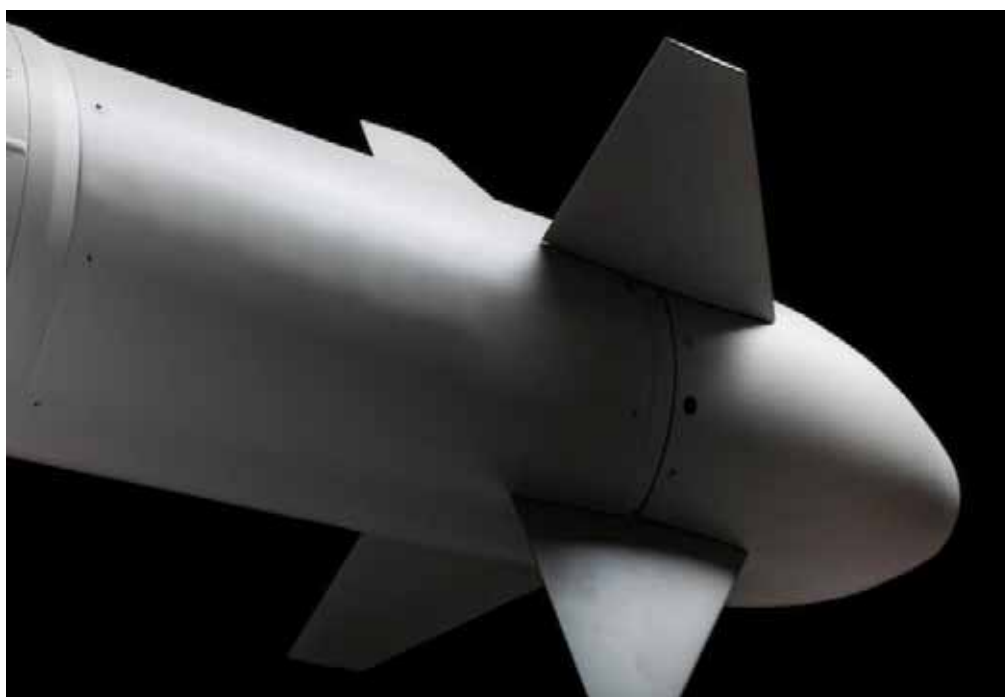
reliability and performance of every guidance kit it produces compliant with all applicable UAE and international military standards, and multiple levels of rigorous testing as part of the company's manufacturing protocol.

AL TARIQ also gives importance to collaborative partnerships to change the face of air defence through innovation and advanced technology. What is the potential for expansion for your business in the Asian and African regions?

We are currently exploring opportunities for supply and partnering with well-established entities in certain markets. Our unique product solutions allow us to remain competitive with a positive long-term business view.

The defence industry across the world is bearing the brunt of Covid-19 pandemic. What are the measures taken by AL TARIQ to overcome the pandemic effect?

The ongoing pandemic has created a challenging operating environment for most companies around the world, and AL TARIQ and its parent company, EDGE Group, are no different. We are fortunate to enjoy deep and trusted relationships, so there is an attitude of confronting the challenges together. AL TARIQ's executive leadership has also been proactive in foreseeing the potential effects of the economic slowdown prompted by the pandemic, and have acted accordingly. The safety of staff, partners and customers are the highest priority of AL TARIQ's internal approach to mitigate the effects of the virus.



AL TARIQ has recently announced the integration of a Penetration Warhead, which is a milestone development for the company, making it possible to integrate the purpose-built warhead onto the system



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AK-19 and Kord: Rosoboronexport to unveil new Russian small arms at IDEX 2021

On February 23, 2021, at the IDEX 2021 International Defense Exhibition in Abu Dhabi, Rosoboronexport (part of Rostec State Corporation) will hold a public presentation "New Russian-Made Small Arms" at its stand in Hall 12.

During the presentation, the company's specialists will unveil the technical characteristics, unique design solutions and employment features of the KORD balanced action assault rifles, the latest Kalashnikov AK-19 assault rifle and the Lebedev compact pistol (PLC), which will be exhibited abroad for the first time.

The 6P68 Kord assault rifle from world-famous Russian arms manufacturer ZiD (JSC Degtyarev Plant) shows the wonders of accuracy in the hands of special forces soldiers. Experts especially note its unique characteristics in automatic firing mode owing to an innovative balanced action system.



ARABIAN DEFENCE



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Ambassador Opens Indian Pavilion at IDEX 2021

With the curtains of International Defence Exhibition (IDEX) having unveiled in Abu Dhabi to host the latest edition of world's one of the most strategically important tri-service expos, India hopes to explore new opportunities in the MENA region.

The Indian pavilion has been inaugurated by Pavan Kapoor, Indian Ambassador to UAE on Sunday. RAdm Vipin Kumar Saxena, IN (Retd.), Chairman and Managing Director, Garden Reach Shipbuilders and Engineers Ltd (GRSE) and Cmde Siddharth Mishra (Retd), Bharat Dynamics Limited (BDL) were present at the pavilion supervising the Indian participation.

Indian Navy Ship (INS) Pralaya participates in the NAVDEX 21 (Naval Defence Exhibition). Participation of INS Pralaya in NAVDEX 21 is aimed at showcasing the strengths of India's indigenous ship building, in line with Prime Minister Narendra Modi's vision of 'AtmaNirbhar Bharat'. In addition, participation of an Indian Navy Ship in NAVDEX 21 and IDEX 21 also highlights close relations between India and UAE. INS Mysore, an



indigenously built guided missile destroyer, mission deployed in the region, is also making a port call at Abu Dhabi, UAE from 19 to 22 February.

Deployment of Indian Navy ships to Abu Dhabi underscores deep-rooted friendly ties and multi-faceted cooperation between India and UAE, and will further strengthen defence cooperation between the two countries.

IDEX will be an ideal platform for the Indian delegation, which consists of a slew of leading Defence Public Sector Undertakings (DPSUs) and thriving private defence and aerospace manufacturers, to showcase their might in defence



manufacture and exports during the Covid Era. DPSUs Bharat Dynamics Limited (BDL), Defence Research and Development Organisation (DRDO), Garden Reach Shipbuilders and Engineers Ltd (GRSE), Mazagon Dock Shipbuilders Ltd (MDL) and Ordnance Factory Board (OFB) are participating at IDEX this year. ■

Sensor specialist HENSOLDT expands capacity

Sensor solution provider HENSOLDT is expanding its capacity to cater for the growth in its business. HENSOLDT is investing approximately 30 million euros at its Ulm site and creating an additional 300 jobs for highly skilled staff throughout the entire group this year, having taken on 250 new recruits in 2020. This investment is linked to strong order growth relating to the development of a new radar for the Eurofighter combat aircraft and other projects.

"In its three years of existence, HENSOLDT has strengthened its position in the global sensor solutions market," affirmed HENSOLDT CEO Thomas Müller. "We operate in the high-tech sensor technology arena – a growing segment characterised by very long-term planning."

The company is investing in the

construction of a radio frequency technology development centre at the Ulm site, among other things. In addition to electronic components for the new Eurofighter radar, AI-based sensors for a wide range of applications will also be developed there.

Last year, the German parliament approved a budget of approximately 1.5 billion euros for the development of a new Eurofighter radar by a development consortium led by HENSOLDT. Other business units of the group are also showing strong growth, such as ground and naval radars, electronic warfare and avionics systems, and optronics equipment. For instance, HENSOLDT is working on future-oriented projects such as the German/French/Spanish Future Combat Air System (FCAS) and a UAV collision warning system. Recently,



in 2020, HENSOLDT already hired 250 new employees, expanded its cleanroom production at its Oberkochen site by 300 m² and converted its radar production in Ulm to series production. ■

Winning in Invisible Battlefield of Electromagnetic Spectrum



Waleid Al Mesmari
Vice President of Program Management,
Electronic Warfare and Intelligence cluster
EDGE Group

Waleid Al Mesmari is Vice President of Program Management at EDGE Group, the advanced technology group for defence and beyond. In his current capacity, he provides oversight and strategic direction on the development and business functions of two companies within the Electronic Warfare and Intelligence (EW&I) cluster, which includes SIGN4L and BEACON RED.

Waleid Al Mesmari, Vice President of Program Management, Electronic Warfare and Intelligence cluster, EDGE Group, gives us new insights into distinct solutions and capability development services offered by BEACON RED and SIGN4L to national security organisations to support them in a complex global environment. Excerpts from an interview:

How important is the role being played by electronic warfare and intelligence services and solutions in the modern defence and security systems? What makes EDGE's cluster, comprising BEACON RED and SIGN4L, a distinct player for securing the electromagnetic spectrum in the global arena?

In an increasingly digitalised defence landscape, the pace of change is exponential and securing the electromagnetic (EM) spectrum is essential to success. Radio and radar systems provide the communication, targeting, navigation and sensing capabilities that define modern defence equipment and operations.

The Electronic Warfare & Intelligence (EW&I) cluster of EDGE Group helps clients augment their capabilities in Anti-Access/Area Denial (A2/AD), build their tactical and strategic awareness, and develop their understanding of the evolving EM landscape.

Within the cluster, SIGN4L offers electromagnetic capabilities that can deceive, disrupt, and defeat hostile surveillance, command and control (C2), and weapon systems and sensors associated with the enemy's integrated air/area defence network. At the same time, the solutions can protect navigation, targeting, communication, and electromagnetic intelligence-gathering capabilities in order to enhance understanding of operational forces and assets in mission environments. Through a disciplined and rigorous cycle of threat analysis, research and development, we can monitor, analyse and counter emerging risks.

On the other hand, BEACON RED provides capability development services to

national security organisations to support them in a complex global environment. The specialised company assesses and develops national security experts with unique training and technological solutions, to prepare the next generation of professionals for a new age of adversity.

Could you give us an overview of the services and solutions offered including threat detection and training programmes? Who all are the major clients globally?

Our research and innovation keep us and our clients ahead of new threats and at the cutting edge of new opportunities.

SIGN4L's engineering and development teams work in the fields of: Advanced radio frequency (RF) digital sensors; RF signal processing; RF propagation; threat sensing and warning; and secure communications in contested environments.

BEACON RED provides training solutions that inspire the next generation of national security professionals. Bringing together a diverse range of subject matter experts, the company's innovative training solutions provide the most comprehensive curriculum and training platforms required in any national security space.

Subjects include: Special Skills Training; Professional Development Training, Technical and Cyber Training, Capabilities Assessments Courses, and Language Training Services.

At EDGE, we work with partners and customers in different industries, walking them through the potential risks and scenarios to help them understand the emerging threats in today's environment. It's a very fast-moving environment where we need to be thinking steps ahead of



EDGE
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everyone else.

You are providing an array of education, assessment and training platforms to enhance the skills of intelligence professionals, besides carrying out research to keep the clients ahead of new threats. Could you elaborate on the advanced technologies and platforms used to provide world-class services?

Leveraging the latest end-to-end capabilities, both companies are laser-focused on providing a relentless pursuit of pioneering, disruptive, and agile methods to evolve circumstances in any operational environment.

One of BEACON RED's core values is to consistently be on the forward edge of ideation, methods, and the application of emerging technologies in training. As the national, regional, and global threats become more capable and sophisticated, so too will the cyber and technical skills needed to confront them.

Similarly, SIGN4L is at the frontlines in pioneering breakthrough technologies in order to gain a strategic advantage in the industry and help clients expand their options in a rapidly changing world. Our latest solutions that will be unveiled at IDEX are prime examples of our agile offerings.

What are the major challenges the next-generation national security professionals would

be facing in the field?

Today's ever-changing political, social, economic, technological, and security environment offers a persistent challenge to national security professionals everywhere. The ubiquitous nature of technology means that in an age of hybrid warfare, forward thinking national security professionals must be ready to deploy new strategies and acquire new capabilities. To be a successful national security professional, one requires a sense of urgency, a drive to meet challenges head-on, intellectual curiosity, and a desire to be part of something greater.

As my colleagues at BEACON RED assert: "The greatest challenge any national security professional will face is complacency."

How do you look at the South Asian market for expanding the business? How strong are your international supplier and client bases?

One of the main focuses of our parent company, EDGE Group, is to develop the country's export potential in response to international demands. With an operating model that focuses on building collaborative opportunities, we work with our partners to serve our shared interests wherever it makes business sense to do so, therefore we are open to expanding into South Asia and Africa when the right opportunity arises.

Leveraging the latest end-to-end capabilities, BEACON RED and SIGN4L are laser-focused on providing a relentless pursuit of pioneering, disruptive, and agile methods to evolve circumstances in any operational environment





Almaz - Antey
Corp.

Destined for guarding blue sky



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