As a change in leadership is introduced at UA, we are all looking to the future, more than ever before. New company strategies and an increased focus on reinventing the current product line have us all excited.

You may be curious as to where the company will be in the next few years. I think this issue will help give you a clear look into that with a noticeable forward-looking theme, especially in our first article, featuring an interview with UA’s new CEO, Dror Yahav. In this issue, we’ll also be covering new and exciting topics like Enhanced Vision Systems in helicopters and an increasing need for Head-Up Displays in Asia.

New topics, of course, bring questions. Email us at universalflyer@uasc.com for answers!
UA Mission

To shape the future of aviation by creating commercial avionics solutions that enhance safety and efficiency, and to deliver an outstanding customer experience.

For 38 years, UA has been a family run company. Now a year after its acquisition by Elbit Systems, a new CEO steps in with a fresh vision of the future, laser-focus on product development, and relentless energy. Here, UA’s CEO, Dror Yahav speaks to what the future will look like under his tenure.

You have said that UA is going back to the company’s innovative roots and will be reinventing the future of commercial aviation. Where do you see UA in 5 years?

In 5 years, I see growth in the helicopter, commercial, and business aviation market segments. Over these next few years, we will be positioning ourselves around new and innovative products. Specifically, with a focus on Flight Management Systems (FMS), data communications, and Enhanced Flight Vision Systems (EFVS), and most importantly, bundling them all together.

What does the future of the FMS look like?

First, let me say that I think we have the best FMS engineers, test pilots, and product managers in the industry. Their vast knowledge and experience is superior. The FMS is our flagship product and we are committed to advancing it beyond what we are doing now. In the future, operators can expect to see software FMS functions integrated into many different platforms on third party hardware. This will allow for more combined capabilities inside the main avionics hardware. We are supporting this with developments to have a software version of the FMS that can be easily incorporated into any hardware.

You mentioned Data Communications will be a focus as well. What is the outlook on that technology?

Data link is continuing to evolve, to include new regulations for Future Air Navigation System (FANS) 1A+ and Controller-Pilot Data Link Communications (CPDLC). The upload and download of aircraft information is also a major requirement to support ‘big data’ communications. This will need to be supported, both in the air and on the ground, and we are working to make sure future products address this. We recognize the challenge operators face with needing this to be done in the most commercially affordable way at any given moment. In addition, we are seeing new and evolving requirements for cyber protection; this will also be built into our future products.

Big picture question - how will UA shape the future of commercial aviation?

The future of commercial aviation is heading toward simplified avionics technologies to support single pilot operations and autonomous flying. Therefore, we will position ourselves to support an easier mode of flight with pilot interfaces based upon Enhanced Vision and pilot Line-of-Sight (LOS). These unique and groundbreaking ways of flying will result in an easier means of controlling the aircraft. It will be a completely new Human Machine Interface, compared to what is known in the industry. Further into the future, we will continue to develop Enhanced Vision cameras and sensors that incorporate state-of-the-art image processing capabilities, to support autonomous flying, allowing operators to become less and less dependent on airport ground infrastructure.

There is quite a bit of consolidation in the industry which will increase competition. What will set UA apart from its competitors?

While our competitors, now large, consolidated companies, offer many products, they kind of break the important balance between the supplier vs customer/OEM. In most cases, they are bigger than their customers, and act accordingly. UA is very customer-focused and is dedicated to maintaining close relationships with our customers/OEMs to ensure they receive the biggest advantages from avionics technologies. It’s an opportunity for the customer/OEM and UA, and we intend to focus on support and intimacy in the future more than ever.

Elbit Systems is known to be a military-focused company. How will this military experience influence UA’s product offerings?

Avionics technologies are often adopted early on in the military market. For example, EFVS and Head-Up Displays (HUD) all started in the military market and were integrated into the commercial world later on. For Elbit Systems, a company with roots in the military market, we are able to see what global trends lie ahead. This heritage provides UA with the know-how and training to be able to apply mature technologies into the commercial aviation market earlier and faster than others. I believe this combination of experience will propel the company forward in terms of product development, and it’s very exciting.

Dror Yahav
Chief Executive Officer,
Universal Avionics

Mr. Dror Yahav was appointed to the position of Chief Executive Officer for Universal Avionics on April 10, 2019. Previously, Dror served as Vice President of Commercial Aviation in Elbit Systems’ Aerospace Division for eight years.

Dror led the introduction of innovative and award winning EFVS and HUD technologies to Commercial Aviation including the first EFVS for commercial helicopters and the introduction of wearable HUD technology for the Air Transport market. With over 22 years of experience as a pilot, he has flown fighters, trainers, and commercial airplanes. Dror holds a B.A. in Computer Science and an Executive MBA degree from Tel Aviv University.
Enhanced Vision Systems (EVS) provide an image of the scene outside the cockpit window, displaying it clearly to the pilot. It is especially valuable in degraded visibility environments such as at night or in foggy conditions. An installed EVS may include technologies such as Night Vision Goggles (NVG), Synthetic Vision Systems (SVS), Combined Vision Systems (CVS), multispectral cameras, and Head-Up Displays (HUD).

Advanced Decision Making

According to the USHST, EVS ‘technology provides pilots with better tools that can contribute to more informed and proactive decision making as related to visibility.’ With EVS, safety is enhanced in nearly all phases of flight, particularly with approach and landing in limited visibility. It’s important to note that EVS is only certified by the FAA for landing if it is combined with a HUD, in which case the system is referred to as an ‘Enhanced Flight Vision System (EFVS).’

UA / FAA Research Project

UA is dedicated to shaping safer, better, and more efficient helicopter operations, whereby contributing to the USHST’s proposed helicopter safety enhancements. UA has committed to a research partnership with the FAA to further develop and mature new regulations to support the use of EFVS, and by extension Enhanced Helicopter Vision Systems (EHVS), for rotorcraft. Ongoing research allows UA and the FAA to jointly investigate EFVS technology through both head-worn and helmet-mounted displays coupled with CVS sensors. This research directly supports the FAA’s ongoing aviation safety initiatives to develop criteria for helicopter operations in low visibility environments.

Our current project with the FAA evaluates the use of the Heli-ClearVision™ system as an EHVS solution. The system includes a SkyLens™ Head-Wearable Display (HWD) or SkyVis™ Helmet-Mounted Display (HMD), SVS, EVS-4000 multispectral camera, and CVS. The system hardware is currently fully integrated into the FAA’s Sikorsky S-76 helicopter at the FAA William J. Hughes Technical Center at Atlantic City International Airport.

Training and familiarization flights have already been conducted with FAA test pilots, followed quickly by the commencement of the FAA’s planned research and development data collection flight tests. The next phase of testing is ongoing and includes additional day, night, and twilight flights with the SkyLens HWD and SkyVis HMD. Later in 2019, experimental trials are scheduled and will include the SkyVis NVG HMD.

The flight test program will help quantify the unique sensor and display characteristics, visual cues, and operational concepts needed to assist the FAA with policy and rulemaking efforts to allow for the use of EHVS technologies on helicopters operating to and from helipads, heliports, and landing zones.

Enhanced Vision System: Defined

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An EHVS is not only an overall safety multiplier, but also greatly assists any helicopter operator flying at night, IMC, and any other challenging conditions to safely complete their mission. Even more so, to those who fly special missions such as SAR, EMS, law enforcement, and firefighting.

– Tal Golan, UA Rotorcraft Business Development Manager

After carefully analyzing dozens of fatal helicopter accidents, the United States Helicopter Safety Team (USHST) published its 2018 list of 4 Key Helicopter Technologies That Will Save Lives. This list includes a focus on enhanced vision technology whenever warranted as one of the top four technologies that with wider usage, can improve safety across the helicopter industry, thereby saving lives. The challenge is to provide a solution that is light, easy to install, and can be equipped in smaller rotorcraft as well as heavy transport and Search and Rescue (SAR) helicopters.
extraordinary upgrades

UA Authorized Dealers are hard at work, installing and delivering the latest aircraft avionics upgrades. Read on as we highlight some of their most recent programs.

Bombardier Dash 8: Versatile MFD Integration
- UNS-1Ew SBAS-FMS
- MFD-890R Multi-Function Display

In a unique application of the EFI-890R, this airline customer installed the unit in the aircraft pedestal in a Multi-Function Display configuration. The MFD replaces legacy obsolete radar indicators and allows the operator to display FMS maps, weather, video, and more.

Sikorsky S-76B: Cost Friendly Modernization
- 3 EFI-890H Advanced Flight Displays
- UNS-1Lw SBAS-FMS
- Vision™ Synthetic Vision System

This upgrade for His Majesty the Sultan of Jonor is a great example of equipping legacy S-76B with modern avionics for the 'look and feel' of the newer S-76D. This upgrade is available for S-76A, C, C+ and C++ models.

Dornier Do 228: Efficient Government Operations
- 3 EFI-890R Advanced Flight Displays
- UNS-1Lw SBAS-FMS
- 2 Radio Control Units

This extensive aircraft avionics upgrade offers its government operator increased operational capabilities and regulatory compliance, including ADS-B Out. Maintenance costs are also lowered with new equipment standards.

Bombardier Learjet 45: NextGen and Beyond
- UniLink™ UL-801 CMU
- CVR-120R Cockpit Voice Recorder
- UNS-1Ew SBAS-FMS

With its UA 'NextGen and Beyond' aircraft installation, this Corporate operator is now certified (TCCA and FAA) for FANS 1/A+ and ATN B1 operations. EASA certification is imminent.

Bell 212: Increased Equipment Reliability
- 2 EFI-890H Advanced Flight Displays

This Bell 212 upgrade addresses obsolescence issues faced by its operator by replacing dated equipment. The upgrade also reduces LRU count and delivers weight savings—essential for this high utilization fleet operator.
In less than 5 years, China is expected to surpass the United States as the world’s largest air passenger market. According to CAPA – Centre for Aviation, domestic passenger traffic in China grew by 160% between 2009 and 2018, and international passenger traffic grew by a staggering 332% during that same timeframe.

To help manage the increase in air traffic, the Civil Aviation Administration of China (CAAC) has implemented an aircraft Head-Up Display (HUD) mandate for its commercial airlines. The mandate requires Chinese operators to retrofit 100% of their aircraft fleet with the latest HUD systems by 2025. The CAAC states that HUD technology is a top priority for airlines in order to improve both safety and operational efficiency / airport capacity.

China has been playing catch-up and has surpassed others in many areas in the last 15 years. Aviation is one area where China is striving to close the gap. The CAAC’s willingness to take the lead in mandating HUDs for the airlines in China is an indication of its willingness to promote flight safety with the bold embracement of advanced technology ahead of others.

– Michael Choo, UA Regional Sales Manager, Asia-Pacific

The Benefit of HUDs in High Volume Air Traffic Environments
Beijing Capital International Airport (PEK) is already one of the world’s most congested airports, where aircraft delays have become a serious issue. These delays come as a result of the impressive rise in the number of daily flights. So how could HUDs possibly resolve this and the impending growth across the country in the next few years?

HUDs improve pilot perception and situational awareness, allowing more aircraft to safely enter into airspace. Aircraft fitted with HUDs benefit from lower minimum landing requirements, which thereby allow for more efficient landings and tak-offs, and ultimately, greater traffic volumes to and from Chinese airports. As more aircraft become equipped, non-HUD equipped aircraft may be faced with longer wait times for landing slots.

HUDs are a proven technology, shown to save lives and improve the performance of both the pilot and aircraft, especially in approach and landing. The technology is evolving, offering enhanced field of views and transparency.

ClearVision™ STC Development in China
UA is teaming with AerSale, Inc. to develop a Supplemental Type Certificate (STC) for the ClearVision Enhanced Flight Vision System (EFVS) on the Airbus A320 aircraft. This will provide airline operators with a head-up avionics suite to overcome extreme weather conditions and low visibility situations – both day and night.

HUD Mandate Timeline
- **2015:** 10% of aircraft fleet equipped
- **2020:** 50% of aircraft fleet equipped
- **2025:** 100% of aircraft fleet equipped


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**China’s Air Travel Market**

| Civil airports in 2010: | 175 |
| Civil airports in 2020: | 260 |
| New airports built per year: | 8+ |
| New air transport passengers by 2036: | 921,000,000 |
