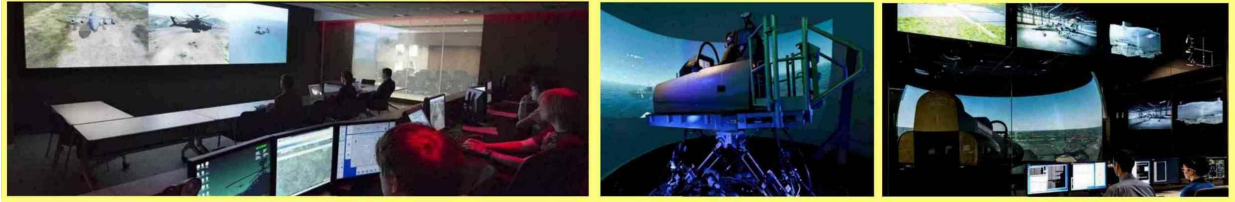


**FLIGHT
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Simulation and Training - Recent World News

November 2017

Editor: Ian Strachan FRAeS



Pictures: I/ITSEC 2016 Orlando exhibition hall, Boeing/QinetiQ Portal Farnborough, Warton F-35 sim, BAES sim integration facility

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I/ITSEC 2017

Inter-service & Industry Training, Simulation and Education Conference and exhibition

I/ITSEC 2017 will be from 27 November to 1 December, as usual at the Orange County exhibition centre in Orlando.

The annual I/ITSEC conference and exhibition is the largest world event dedicated to simulation and training. Last year overall attendance of visitors and exhibitors was about 16,000 and something similar is expected this year. Meanwhile, the European equivalent ITEC in Rotterdam this May had only about 2600 attenders. Whereas the US event stabilised in Orlando many years ago, the European equivalent is itinerant, changing location each year, in May 2018 to be held in Stuttgart for the first time.

On 27 November, there will be a Congressional Modelling and Simulation Event in which members of Congress will make presentations and answer questions. Speakers will be members of the Congressional Modelling and Simulation Caucus, a group dedicated to advocating the advantages of M&S for improved training and saving of money.



General David Perkins

On 28 November, keynote addresses will be given by General David Perkins, commander of U.S. Army Training and Doctrine Command, and Don Ariel, Chief Executive Officer of Raydon Corporation.



Don Ariel

This will be followed by the usual General and Flag Officer panel, co-ordinated by Rear Admiral James Robb, (Retd) President of the National Training and Simulation Association (NTSA).



Gen Mercier, French Air Force



Mr. Drummond, SES



VADM Grosklags



RADM Robb, USN (Ret.)



LTG Lundy, USA



Maj Gen Smith, USAF



MajGen Iiams, USMC

Panel members will be led by General Denis Mercier, French Air Force, NATO Allied Commander Transformation.

Other panel members will be Fred Drummond, Deputy Assistant Secretary of Defense for Education and Training; Vice Admiral Paul Grosklags, Commander of Naval Air Systems Command; Lieutenant General Michael Lundy, Commander of the U.S. Army Combined Arms Center, Fort Leavenworth, Kansas; Major General Scott F. Smith, US Air Force Director of Training and Readiness; and Major General Kevin Iiams, Commander of US Marine Corps Training and Education Command (TECOM).

NATO Modelling and Simulation Group

NATO inputs at I/ITSEC will include demonstrations of Modelling & Simulation. This will include Multimedia Sensing as a Service (MSaaS); constructive simulation PAXSEM from Airbus; Synthetic Environment Service (SES) from CPA Geo-Information, Route Planning Service (RPS) from FFI, the Norwegian Defence Research Establishment; the FüInfoSysH Command and Control system from the German Armed Forces; Standardized C2-Simulation Interoperability; and the C2SIM SandBox.

A workshop was held on Commercial Technologies and Games for Use in NATO in Florence, Italy. This was combined with CAX Forum 2017 which dealt with Maritime Interdiction and Coalition Fires; training for naval C4ISTAR operations; and Radio/C2 Operator training.

A NATO symposium on M&S Technologies and Interoperability of M&S Applications was held in Lisbon. This included emerging technologies, modelling of terrain, sensors and behaviour, interoperability, support operations and planning for the future.

Civil Aviation - Boeing Pilot Forecast

The latest Boeing Pilot & Technician Outlook forecasts that in the next 20 years between 2017 and 2036, world commercial aviation will require about 637,000 new pilots, 648,000 new maintenance technicians and 839,000 new cabin crew. The pilot numbers will be in proportion to training aids from desktop trainers to Full Flight Simulators. This is an increase of 3.2% in pilot demand over 2016 figures but a 4.6% decrease in maintainers, the latter because of the reduction in maintenance needed by the latest airliners. Largest numbers are in the Asia Pacific region (APAC), followed by North America and Europe, as follows:

Asia Pacific	253,000 pilots	256,000 technicians	308,000 cabin crew
North America	117,000 pilots	118,000 technicians	154,000 cabin crew
Europe	106,000 pilots	111,000 technicians	173,000 cabin crew
Middle East	63,000 pilots	66,000 technicians	96,000 cabin crew
Latin America	52,000 pilots	49,000 technicians	52,000 cabin crew
Africa	24,000 pilots	23,000 technicians	28,000 cabin crew
Russia/CIS	22,000 pilots	25,000 technicians	28,000 cabin crew

ITEMS IN THIS NEWSLETTER

Although it is only 4 months since the last newsletter, in this edition no less than 45 nations and areas are listed for new projects, showing the pace of growth in the world simulation and training area. At the end is a table giving the word count for the various sections, giving a very rough measure of recent activities in the various areas. Once again the largest section is civil aviation with nearly 4000 words, over three times those for military aviation with 1250. This is compatible with the major growth in world civil aviation in the Boeing predictions above. Within military aviation, helicopters have almost as many words as fixed-wing aircraft. The total for aviation is nearly 5300 words, compared to 1050 for land systems and 550 for maritime. In other sections there are 330 words for corporate changes, 310 for multi-role systems, 240 for new simulation systems and 100 for UAVs.

WORLD TRAINING-RELATED EVENTS

November 27, 2017 - December 1 - I/ITSEC 2017

Interservice/Industry Training, Simulation & Education Conference and exhibition

Venue: Orange County Conference Centre, Orlando, Florida, USA. Organiser: NTSA www.trainingsystems.org

2018 - January 30-31 - MilSim Asia

Venue: Marina Bay Sands, Singapore. Organiser: Clarion Events, London, UK www.clarionevents.com

2018 - April 24-26 - MODSIM World 2018

Venue: Norfolk Waterside Marriott, Norfolk, Virginia, USA. Organiser: NTSA www.modsimworld.org

2018 - March 7-8 - Asian Aviation and Education Training Symposium (AAETS) 2018

Venue: Seoul, South Korea. Organiser: Halldale Group www.aaets2018.com

2018 - May 15-17 - European International Training Equipment Conference and exhibition (ITEC) incorporating Civil Security Simulation conference

Venue: Alfred Kärcher Halle, Messeplatz Stuttgart, Germany

Organiser: Clarion Events, London, UK www.clarionevents.com & www.itec.co.uk

2018 - June 11-12 - RAeS Flight Simulation Group Conference - Future Flight Simulation

Venue: Royal Aeronautical Society, 4 Hamilton Place, London W1J 7BQ, UK

Organiser: RAeS Flight Simulation Group www.raes-fsg.org.uk

2018 - November 12-13 - RAeS Flight Simulation Group Conference - Developments in Flight Simulation

Venue: Royal Aeronautical Society, 4 Hamilton Place, London W1J 7BQ, UK

Organiser: RAeS Flight Simulation Group www.raes-fsg.org.uk

2018 - November 26-30 - I/ITSEC 2018

Interservice/Industry Training, Simulation & Education Conference and exhibition

Venue: Orange County Conference Centre, Orlando, Florida, USA. Organiser: NTSA www.trainingsystems.org

Countries and Regions mentioned *(Use the search function to find individual items)*

Algeria, Asia, Asia/Pacific, Austria, Australia, Belgium, Brazil, Canada, China, Croatia, Cyprus, Czech Republic, Denmark, Egypt, Estonia, Denmark, France, Germany, Greece, India, Indonesia, Israel, Italy, Japan, Malaysia, Malta, NATO, Netherlands, New Zealand, Norway, Papua New Guinea, Phillipines, Portugal, Poland, Russia, Singapore, South Africa, South Korea, Spain, Taiwan, UAE, UK, USA, Vietnam (45 countries and areas)

AVIATION SYSTEMS - *training systems for aircraft and the aviation environment*

CIVIL FIXED-WING AIRCRAFT SYSTEMS

For rotary wing (helicopters and propeller-driven tilt engine / tilt wings), see the next section

Alsim - www.alsim.com

Belgium. Alsim of Le Loroux Bottereau, East of Nantes, France, is to deliver an ALX model FSTD to Ben Air Flight Academy (BAFA) in Antwerp, Belgium. It will have SEP/MEP/MJ configurations and enable Pilot Based Navigation (PBN) with LPV (Localiser Performance with Vertical Guidance).

Cyprus. Alsim has delivered an ALX FSTD with SEP and MEP configurations to the Faculty of Aviation and Space Sciences at the University of Kyrenia in Cyprus. This will have the Alsim High Definition Visual System and be operated by Alsim to EASA standards.

India. Alsim has supplied their AL250 design of FNTP II trainer to the Orient Flights Aviation Academy, Chennai (www.orientflights.com). Orient Flight School is Alsim's demonstration centre in India. AL250 can be configured to single or multi engine, glass or conventional instruments.

Portugal. Alsim is to deliver an ALX FSTD for the Cessna 172 single piston and for the PA44 and Beech 200 multi piston aircraft to the OMNI Aviation Training Center (OATC) at Cascais on the west side of Lisbon.

Avion - www.aviongroup.aero/simulator

Malta. Avion Simulators BV of Nieuw-Vennep, SW of Amsterdam, Netherlands, is to supply their Phantom 320 full flight simulator to the new SimLiner Malta Aviation Training Centre at Luqa airport. The Phantom 320 recently achieved EASA Level D qualification. This is said to be "plug-and-play" because no external infrastructure is needed and all systems are included including retractable access stairs. An air-conditioned housing module is also available.



AvSoft - www.avsoft.com

Denmark. AvSoft International of Denver, Colorado, USA, is to supply ATR 72-500 and ATR 72-600 type rating courses to Global Aviation Contractors A/S (GAC) of Dragør, SE of Copenhagen.

Greece. AvSoft is to provide a range of aircraft systems courses to TAE Aviation Academy, Athens. TAE will use Avsoft's Aircraft Systems courses for Airbus A320, ATR 42-300, 72-500, and 72-600, Boeing 737 Classic and NG, and Dash 8 Q 400. Courses for Recurrent training will also be used from the AvSoft library.

Axis FTS - www.axis-simulation.com

Austria. Axis Flight Training Systems GmbH of Tobelbad, SW of Graz, Austria, has delivered a Full Flight Simulator to Aviation Academy Austria (AAA). This includes the new Bosch-Rexroth eMotion-14000-6DOF-1560-MK1 14t motion platform that has actuators with load compensation to support up to 80% of the payload. This eliminates the need for extra pneumatic cylinders or separate pressurisation, and also reduces the power requirement.

India. Axis is to deliver an ATR 72-600 Level D full-flight simulator (FFS) to the Flight Simulation Technique Centre (FSTC) at Gurgaon, SW of New Delhi, during the first half of 2018. Axis will also deliver other training devices including an Instrument Procedures Trainer (IPT), to be ready-for-training (RfT) in November 2017.

Baltic AA Training - www.baatraining.com

Lithuania & Russia. Baltic AA Training Aviation Academy of Vilnius, Lithuania, has been approved by the Russian Federal Air Transport Agency (Rostaviatsia) for Boeing 737 CL training using a full flight simulator at BAA's site.

Bihrlle - www.bihrlle.com

USA. Bihrlle Applied Research Inc of Hampton, Virginia, USA, is to provide Upset Prevention and Recovery Training (UPRT) software for a Boeing 767-200 full flight simulator owned by ABX Air of Wilmington, Ohio (www.abxair.com). This will have Bihrlle's StallBox system with UPRT in accordance with the US FAA 2019 deadline for incorporating such training into commercial full flight simulators. StallBox is also used by military customers.

CAE - www.cae.com

Belgium. CAE, headquartered in Montreal, Canada, is to continue training for Brussels Airlines' Airbus A320 and A330 at the CAE Brussels training centre.

China. CAE has sold its 49% stake in Zhuhai Flight Training Centre (ZFTC) to China Southern Airlines for US\$96M. This is said to allow CAE greater flexibility to address the broader training market in China. As part of the agreement, CAE will out-source any excess capacity at ZFTC.

Germany. CAE is to deliver a Boeing 777X full flight simulator (FFS) to Lufthansa Aviation Training (LAT) with the CAE Tropos-6000XR visual system.

Indonesia. CAE is to supply an Airbus A320 FFS to the Jakarta Aviation Training Centre (JATC) near Soekarno-Hatta International Airport. Delivery is scheduled for Q4 2017.

Lithuania and Asia. CAE is to supply two Airbus A320 full flight simulators (FFS) and one Boeing 737NG FFS to BAA Training (formerly Baltic Aviation Academy), headquartered in Vilnius. One A320 and the B737 will be at Vilnius, and the second A320 at a new BAA Training facility in Asia, due to open by the end of 2018. All are CAE 7000XR Series with Tropos 6000XR visual. BAA are planning to acquire more full-flight simulators by 2022.

Malaysia, Singapore, Vietnam. CAE is to take control of the training centres of the Asian Aviation Centre of Excellence (AAEC) in Sepang, Malaysia; Seletar, Singapore; and Ho Chi Minh City, Vietnam. Previously these were a 50:50 joint venture (JV) with other companies and the new transaction is worth US\$100M.

Netherlands. At CAE's Amsterdam centre, pilots of Stobart Air (Ireland) will be trained on an Embraer E190 simulator. Also at Amsterdam, another CAE-built Airbus A320 full-flight simulator is now ready-for-training (RfT).

Papua New Guinea. CAE is to expand its agreement with Air Niugini of Port Moresby for Fokker F100 pilot training. Pilots began training in 2017 including F100 type-rating training at CAE's Perth Training Centre in Australia.

Philippines. CAE is to take a share in the Philippine Academy of Aviation Training (PAAT), previously a JV between the Asian Aviation Centre of Excellence (AAEC) and Cebu Pacific of Manila. AirAsia has extended its existing contract with CAE for AirAsia training until 2036. AAEC trains pilots, cabin crew, maintainers and ground personnel on the Airbus A320, A330, and Boeing 737NG.

Singapore. CAE and Singapore Airlines (SIA) have a joint venture (JV) for training for the Boeing 737, 747, 777 & 787. A new training centre will be added at Singapore Airlines Training Centre near Changi Airport. SIA will relocate 4 existing Boeing full-flight simulators to the new centre, and other CAE training equipment will be added later.

Spain. A 7000XR Series full-flight simulator for the ATR 72-600 has been installed at the CAE training centre in Madrid. This will be used to train pilots of Air Nostrum (Valencia, Spain), Binter Canarias (Canary Islands), Stobart Air (Ireland) and White Airways (Portugal). Also, Iberia pilots are to receive Airbus A350 training at CAE Madrid, in addition to training on the A320, A330 and A340.

UK. An A320 FFS has been upgraded at CAE's London Gatwick training centre.

USA. CAE has delivered a full flight simulator for the Bombardier CRJ900 to CAE's Phoenix Training Centre in Arizona. This is a 7000XR Series with Tropos 6000XR visual. CAE is also to deliver an Embraer ERJ-145 FFS.

CPaT - www.cpat.com

Egypt. CPaT Global LLC of The Woodlands, N of Houston, Texas, USA, is to provide Distance Learning Solutions for the pilots of EgyptAir and EgyptAir Express including its cargo carrier and training academy. These will use the CPaT Learning Management System (LMS) for classroom and mobile training for the Airbus A320, A330, Embraer 170, Boeing 737NG and Boeing 777.

Diamond Aircraft - www.diamond-air.at/en

Norway. Diamond Aircraft Industries GmbH, headquartered in Wiener Neustadt, Austria, is to supply two simulators for their DA 42 aircraft to the Pilot Flight Academy (PFA) in Norway (www.pilotflightacademy.com). The academy has a fleet of DA40 NG and DA42 NG aircraft with jet-fuel Austro engines and Garmin G1000 glass cockpits.

DiSTI - www.disticom.com & **Peak Pacific** - www.peakpacificgroup.com

China & USA. Distributed Simulation Technology, Inc (DiSTI) Corporation of Orlando, Florida, USA, and Peak Pacific Limited of Hong Kong, China, have partnered to provide Software as a Service (SaaS) virtual 3D training for commercial aviation. Peak Pacific has the CLEAR SaaS platform for Competency/Evidence-Based Training (C/EBT) and DiSTI produces Virtual Maintenance Trainers (VMTs).

ECA - www.ecagroup.com

Japan. ECA Group, headquartered in Toulon, France, is to supply its Flight Management System Trainer (FMST) to All Nippon Airways (ANA) for training on the Airbus A320. FMST is a "free play" system that runs on tablets, laptops, desktop PCs and can also be connected to simulator hardware.

EDM - www.edm.ltd.uk

China. Engineering Design & Models (EDM) of Manchester, UK, is to supply two door trainers for the Boeing 787 Dreamliner to China Eastern Airlines. They will be installed at the China Eastern cabin crew training academy in

Shanghai. EDM has previously manufactured an Airbus A320 and two Boeing 777 Door Trainers for China Eastern. Design App. EDM has launched an app for designing cabin crew Door Trainers. The 'Simulator Configurator' app enables users to produce their own design of Door Trainer for most Airbus and Boeing types. Once the door type is defined, other systems can be selected such as slides, over-wing exits, communication systems and seats.

Netherlands. EDM is to supply a Cabin Emergency Evacuation Trainer (CEET) for a new KLM training facility at Amsterdam Schiphol Airport, to be ready for training in early 2019. It will have a motion platform from Bosch Rexroth of Lohr am Main, East of Frankfurt, Germany. The platform can generate up to one G acceleration and can be locked in any position, for instance raising the cabin by up to 5 metres so that evacuation slides can be deployed.

New Slide Trainer. EDM has launched a Virtual Slide Trainer (VST) in addition to real slide training. Different training scenarios can be selected to reduce the time and cost of training using real slides. In the VST, projectors display images of various scenarios including full and part slide inflation.

UK. EDM has opened a new £1.3m 20,000 sq ft manufacturing facility at its headquarters in Newton Heath, Manchester. The new facility is next to its existing 100,000 square feet site.



Embraer - <http://embraer.com/global>

South Africa. Embraer sa, headquartered in São Paulo, Brazil, is building a new training centre at Tambo International Airport, Johannesburg, for pilots, cabin crew and maintainers. It will have a Full Flight Simulator for the Embraer E-Jet, four Flight Management System Simulators, a door trainer and an over-wing trainer. The centre will be able to train around 2000 personnel each year for operators such as Airlink, the centre's launch customer.

Entrol - www.entrol.es

Algeria. Entrenadores Olarte, S.L (Entrol) of Madrid, Spain, is to supply a FNPT II MCC to Sky Training Aviation (STA) at Boumerdès, east of Algiers. It will be configured for the King Air B200GT with Pro Line 21 glass cockpit.

Spain. Entrol is to supply an en-1000 model of FNPT II to European Flyers at Mutxamel, Alicante. The FNPT II will be reconfigurable between single-engine and multi-engined piston aircraft (SEP/MEP), and has Garmin GTN 650 systems with glass or analogue cockpit configurations.

Flame Aviation - www.flame-aviation.com

New Zealand. Flame Aviation of Wassenaar, NE of The Hague, Netherlands, has delivered a V7000 Brigade Cabin Fire + Smoke Trainer to the Air New Zealand Aviation Institute at Auckland International Airport, and other cabin crew training equipment is being installed.

Philippines. Flame has installed a V9000 Commander Cabin Fire and Smoke Trainer for Philippine Airlines (PAL) at its Ninoy Aquino International Airport hub in Manila. A syllabus and instructional videos are also provided.

Singapore. Flame is to supply a V9000 Commander Cabin Fire and Smoke Trainer to the Singapore Airlines (SIA) training center near Changi Airport. The V9000 also has an observation area with a view of the training.

Flyco Global - www.flycoglobal.com

Croatia. Flyco Global, headquartered in London, UK, is to supply A320 Type Rating courseware for pilots and cabin crew of Trade Air, based at Zagreb Airport.

Italy. Flyco is to supply their Advanced Learning Management System (A-LMS) to Blue Panorama Airlines of Fiumicino. This will include access to Flyco systems including courses for pilots, cabin crew, dispatchers, maintainers and managers. It includes functions such as the Assessment Creation Center (ACC), Advanced Report Server (ARS) and Licence Auto-Track (LAT), so that users can create their own training content and monitor crew training. Trainees will also be able to access course materiel using the 'FlyPad' mobile application.

Egypt. Flyco is to supply their Advanced Learning Management System (A-LMS) to Nesma Airlines based in Cairo. Nesma's training department will be able to create courseware, exams and assessments. Personnel will be able to use Flyco's Assessment Creation Center (ACC), Advanced Report Server (ARS), and Licence Auto-Track (LAT). Data will be able to be accessed remotely using the 'FlyPad' mobile application.

Frasca - www.frasca.com

Canada. Frasca International Inc of Urbana, S of Chicago, USA, is to supply a Level 5 FTD for the Beechcraft Baron G58 to the Seneca College School of Aviation at Peterborough Airport, Toronto. It will have Garmin G1000Nxi avionics, a 220 x 55 degree visual using Frasca TruVision, and Frasca's Simplicity Instructor Operator Station (IOS).

USA. Frasca is to deliver a second Level 5 Flight Training Device (FTD) to the CAE OA Academy in Mesa, Arizona. This will be for the Multi-Crew Pilot License (MPL) program for Japan Airlines (JAL). The FTD simulates the Cessna CJ1+ light business jet and will have Frasca's Simplicity Instructor Operator Station (IOS). The Mesa location also has Frasca FTDs for the Piper Archer, Seminole and Diamond DA40 & DA42.

FSI Simulation - www.flightsafety.com/fs_service_simulation_systems.php

China. FlightSafety International (FSI) Simulation, headquartered at Broken Arrow, Tulsa, Oklahoma, USA, is to deliver a Boeing 757-200F FFS to the SF Airlines training facility in Shenzhen in late 2018. This will be the FS1000 design with Vital 1100 visual.

Mexico. A second Embraer E190 FFS is to be delivered in Q2/2018 at Aeroméxico's Training Center in Mexico City. This will be the FS1000 design with Vital 1100 visual.

Russia. A Embraer E170 FFS is to be delivered to the S7 Airlines training facility at Moscow Domodedovo airport. This will be the FS1000 design with Vital 1100 visual.

USA. FSI has installed a Level D FFS for the Gulfstream G450 at its Learning Center in Wilmington, Delaware. In addition, a Gulfstream G280 FFS is to be installed in Q2/2018 at the FSI Learning Center in Savannah, Georgia, with Vital 1100 visual and FSI's CrewView collimated display.

FT Adelaide - www.flyfta.com

Australia. Flight Training Adelaide (FTA), based at Parafield Airfield, Adelaide, South Australia, is to train pilots for Virgin Australia, headquartered in Brisbane (www.virginaustralia.com). There will be two streams, one for ab-initios and one for pilots already holding a commercial pilot license.

Phillippines. FTA is to carry out a cadet pilot training programme for Cebu Pacific of the Phillipines (www.cebupacificair.com).

L3 Commercial Training - www.l-3com.com

China. L3 Commercial Training Solutions (L3 CTS), headquartered at Crawley, S of London Gatwick airport, UK, is to supply two RealitySeven Airbus A320 full flight simulators, and an Enhanced Flat Panel Trainer (EFPT) to Spring Airlines training center in Shanghai. The A320 devices will be delivered in 2018 and 2019 and will join three systems already in service. The FFS will be manufactured in Crawley and the EFPT will be from L3 CTS Minneapolis.



USA. L3 CTS is to provide a suite of training devices for the Embraer E175 to Republic Airlines (www.rjet.com) based in Indianapolis. These include the L3 CTS ETHOS Systems Knowledge Suite and Procedures Training Suite, including iPad facilities. L3 CTS will also deliver three Enhanced Flat Panel Trainers (EFPTs) with three-channel visual, flight controls, and the Aircraft Communications Addressing and Reporting System (ACARS). The company will also provide a Virtual Flight Deck (VFD) system with 15 Student Stations. Deliveries started in October 2017 for completion in 2018.

MOMook - <https://momook.com>

South Africa. MOMook of Vilnius, Lithuania, is to provide its training management software to the 43 Air School at Port Alfred, on the SE coast of South Africa (www.43airschool.com). This is for for scheduling of training, document management, student evaluation, and flight instructor allocation. MOMook is also reported to be working in Cape Town and Johannesburg.

MPS - www.flymps.com

Generic Training Device. Multi Pilot Simulations B.V. (MPS) of Groenekan, Utrecht, The Netherlands, has developed a Generic Jet Training Device (GenJet) fixed base simulator. The design is based on a typical 150 passenger jet and is intended to be certified as an FNPT-II/MCC by EASA.

Ireland. MPS is to install a flight training device (FTD) for the B737-800W at the Simtech Aviation training centre in Dublin. It will be used MCC/JOC training and part of the B737 type rating programme.

South Africa. MPS is to deliver an A320 FTD fixed base trainer to the Comair Training Centre (CTC) in Johannesburg. Comair previously received an MPS B737-NG FTD in December 2016.

UK - Crawley. MPS is to supply a B737 FTD to the Jet Masterclass Training Centre at Crawley, south of London Gatwick Airport (www.jetmasterclass.com). This will be an EASA FTD-1 with collimated visual and LIDO database.

UK - Stansted. MPS has upgraded a Boeing 737 FTD-1 trainer to FTD-2 level at Ryanair's training centre at London Stansted airport. This will increase the types of training that can be undertaken including Evidence Based Training (EBT) and recurrent training programs.

Norway Pilot Academy - www.pilotflightacademy.com

Vietnam. Norway Pilot Flight Academy at Torp Sandefjord Airport, South of Oslo, is to train personnel of the Civil Aviation Authority of Vietnam (CAAV). Training is for Private Pilot License (PPL), Commercial Pilot License (CPL), Instrument Rating (IR) and Multi-Engine (ME) Rating.

Pelesys - www.pelesys.com

China - Hong Kong. Pelesys Learning Systems Inc, of Richmond, S side of Vancouver, Canada, is to supply its Training Management and Deployment System (TMDS) to Hong Kong Airlines (www.hongkongairlines.com/en). This will include the Pelesys Qualification Management System (QMS), and Electronic Training Records (ETR) for grading and data collection. This is to transition to Evidence-Based Training (EBT), eliminating paper-based records.

Guam. Pelesys is to supply their Training Management and Deployment System (TMDS) and Special Operations Courses for Phenix Jet (www.phenixjet.com). Courses will use Pelesys TMDS, a Software as a Service (SaaS) which includes Pelesys' Learning Management System (LMS), Exam Generation System (EGS), Qualification Management System (QMS) and CrewPad application.

RST Rostock - www.rst-rostock.de

China. RST Rostock System-Technik GmbH of Rostock, on the Baltic coast of Germany, is to deliver a door trainer for the Airbus A350 2L/3L to China Eastern Airlines Training Centre in Shanghai. It is scheduled to be ready-for-training in Q1/2018. A Cabin Emergency Evacuation Trainer (CEET) for the A320 is already at the China Eastern Shanghai centre.

Malaysia. RST Rostock is to deliver Airbus A350 and Boeing 737 door trainers to Malaysia Airlines Training Centre in Kuala Lumpur. Both training devices will be installed by RST and commissioned together in November 2017.



Skysoft - www.simunity.aero

Canada. Skysoft Computersysteme GmbH of Kleinmachnow on the SW side of Berlin, Germany, has supplied their SimUnity365 training center management software to the Pacific Sky Aviation training centre in Calgary, Alberta, NE of Vancouver. This follows installation of a Twin Otter Level D simulator at the training centre.

ST Electronics - www.stengg.com

Oman. Singapore Technologies Engineering Ltd., of Ang Mo Kio Electronics Park, Seletar, Singapore, is to provide a Virtual Aerodrome Laboratory (VAL) for Sky Seven LLC, headquartered in the city of Muscat (<http://skysevenoman.com>). This will be simulation-based with a 120-degree visual, and will model an airport. Trainees will be able to experience airport planning and design, air traffic management, flight operations, airport emergency procedures and crisis management. Airport vehicles modelled include aircraft, fire engines and ground vehicles, and participants will be able to act as ground controllers, air traffic controllers and other personnel.

TRU Simulation - www.trusimulation.com

China. TRU Simulation + Training has received Level C certification for its 737 MAX full flight training suite at Boeing's Shanghai Campus from the Civil Aviation Administration of China (CAAC). A TRU A320 FFS for Qingdao Airlines has also been certificated.

China & Singapore. TRU is to provide Airbus with two full flight simulators, one for the Airbus Asia Training Center in Singapore and one for the Hua-Ou Aviation Training Company in Beijing. The contracts also include Airbus Procedures Trainers (APT).

Italy. TRU is to supply a Level D full flight simulator for the Viking CL-415 amphibious firefighting aircraft to Ansett Aviation Italia (www.ansettaviationitalia.com) at its new training centre at Milan-Malpensa Airport in 2018. Viking Air Ltd of Victoria BC, Canada (www.vikingair.com), acquired Bombardier's amphibious aircraft program in 2016, including the CL-415 and the earlier CL-215 water bomber.

Waves - www.flywaves.gg

UK - Guernsey. The Waves airline is to open its own training academy early next year. It operates Cessna Grand Caravan turboprop aircraft in an air taxi service from the Channel Islands (Guernsey, Jersey etc).

Venyo - www.venyo.aero

Denmark. Venyo Europe SA, of Charleroi Airport, south of Brussels, Belgium, is to provide a EASA FTD Level 2 fixed based trainer for the Boeing 737NG at Primera Air's facility in Copenhagen (<https://primeraair.com>). This will have a collimated visual by Q4 Services and is to be installed in 2018.

CIVIL ROTARY-WING SYSTEMS - *Helicopters and tilt wing / tilt engine designs capable of hovering*

Airbus Helicopters - www.airbushelicopters.com

Germany. Airbus Helicopters (ex Eurocopter), headquartered in Mariagne, Marseilles, France, has opened a new Helicopter Training Academy at Donauwörth, Bavaria, NW of Munich. This is next to Airbus Helicopters' existing

product development and production facility. It has full flight simulators for the H135 and the H145, and some full scale Maintenance Training Devices. The H145 FFS cockpit section can be rolled on and off (RoRo) so that a variety of different cockpits can be fitted.

ELITE Simulation USA - <http://flyelite.com/contact-us>

USA. ELITE Simulation Solutions of Oviedo, NE of Orlando, Florida, USA, has installed a TH22SM model Advanced Aviation Training Device (AATD) for the Robinson R22 helicopter at Palm Beach Helicopters, Lantana, Florida. The TH22 is available in four configurations and the option chosen has 3-axis motion with pitch, roll and heave. It also has the PilotEdge live ATC system. The motion system is said to enhance training for hovering, autorotation, quick stops, slope operations, pinnacle and running landings.

Entrol - www.entrol.es

France. Entrenadores Olarte, S.L (Entrol) of Madrid, Spain, has certification for its H135 T2+ Level 2 FTD at the Hélicoptère Union Training Center (HUTC), Champniers, north of Angoulême. The FTD has a spherical visual system, vibration system, autopilot, ACAS, weather radar and dual GTN 750 for performance-based navigation (PBN) training. The visual database includes oil rigs, boats, mountain areas and hospital helipads. The HUTC training program now has credits for QT H135 VFR / IR and TRI H135 courses as well as existing CPL, IR and MCC training.

South Korea. Entrol is to supply a Level 5 FTD for the H19 / AW109 helicopter to Helikorea Co Ltd in Daejeon (<http://www.helikorea.co.kr>). This will have wide-view visual, a South Korean database with satellite imagery and entrol mission software with SAR and EMS scenarios.

PFC - <https://flypfc.com>

Bell 206 & 407. Precision Flight Controls (PFC) of Rancho Cordova, California, USA, and Ryan Aerospace Australia have developed an Advanced Aviation Training Device (AATD) that has been approved by the US FAA. It is re-configurable between the Bell 206 and 407 and can also be used for generic rotary wing training. Garmin 530 avionics use RealityXP software and the visual system can be a projection dome or panel display. There are also motion and vibration options.

Reiser - www.reiser-st.org

Germany. Reiser Simulation and Training GmbH of Berg-Höhenrain, SW of Munich, Germany, is to produce a Level D flight simulator for the Airbus Helicopters H125. The flight model was produced together with 328 Support Services GmbH of Oberpfaffenhofen, west of Munich, Bavaria (www.328.eu). Reiser has also developed a Level D H145 simulator for helicopter emergency medical services (HEMS) training for the ADAC HEMS Academy in Bonn/Hangelar. Reiser and 328 are also involved in a simulator for the AW168 helicopter.

MILITARY FIXED-WING AIRCRAFT SYSTEMS

For rotary wing systems (helicopters and propeller-driven tilt engine / tilt wings), see later

CAE - www.cae.com

Canada. CAE, headquartered in Montreal, Canada, is providing aircrew and maintenance training for the Royal Canadian Air Force C-295 twin turboprop, under the Fixed-Wing Search and Rescue (FWSAR) program. This is at Canadian Forces Base (CFB) Comox, NW of Vancouver, where Airbus is building a C295 Training Facility.

Poland. CAE has delivered a simulator for the Airbus C295 twin turboprop to the 8th Air Base at Krakow-Balice. This is a CAE 7000 design with electric motion, Medallion-6000 visual, and Open Geospatial Consortium Common Database (OGC CBD). CAE has also provided database management, stations for debriefing and scenario development, on-site maintenance and support.



CAE UK - www.caeuk.com & **Elbit UK** - www.elbitsystems.com

UK. CAE Training and Services UK Ltd, based at Woodford Airfield, south of Manchester, and Elbit Systems UK Ltd, based in Glasgow, Scotland, are involved in the Defence Operational Training Capability (Air) program (DOTC-A). This looks at transferring live training to synthetic. The two companies are also involved in the Typhoon Future Synthetic Training project.

Cubic Global Defense - www.cubic.com

Australia. Cubic Global Defense, headquartered in San Diego, California, USA, has supplied more than 60 P5 Combat Training Systems (CTS/TCTS) for the upgrade of the Royal Australian Air Force Hawk 127 fleet. These include Air Combat Manoeuvring Instrumentation (ACMI) pods and ground stations. The P5CTS provides real-time and after-

flight training by displaying the live-air picture, recording mission data and relaying Time, Space and Positioning Information (TSPI) between aircraft during training sorties. Cubic's P5CTS and ACMI were also provided for the F/A-18F/G Super Hornet and Growler, F/A-18A Hornet, and the Australian Air Warfare Centre.

Engility - www.engilitycorp.com

US Air Force. Engility Corporation, headquartered in Chantilly, south of Washington Dulles airport, USA, has a US \$49M contract from the Air Force Research Laboratory (AFRL). This is for the AFRL Kinetic Kill Hardware-in-the-loop (KHILS) Simulation Technology for Advanced Research (KSTAR). This is to develop multi-spectral and multi-modal modelling of weapon systems. The work will be at Eglin Air Force Base, Florida.

Inzpire - www.inzpire.com

Jordan. Inzpire Ltd of Lincoln, UK, is to provide its Targeted Fidelity Simulator to the new Golden Eagle Aviation Academy in Jordan. Inzpire will also provide ex-military pilots for the training staff.

JFT - www.jfti.com

US Marine Corps. J F Taylor Inc of Lexington Park, SE of Washington DC, USA, has upgraded a U.S. Marine Corps KC-130T simulator. This included the Diamond Visionics GenesisIG image generator.

Link USA - www.link.com

Taiwan. L-3 Link Simulation and Training, headquartered in Arlington, Texas, USA, is to build the F-16V Peace Phoenix Rising Mission Training Center (MTC) for the Taiwan Air Force. The MTC will have four networked F-16 simulators with the Link SimuSphere® 9-facet 360 degree visual, a large area database and image editing system.. Delivery will start in 2018 and be completed in 2019.

Lockheed Martin Training - <http://www.lockheedmartin.com/training>

Israel, Italy, Japan & Norway . Lockheed Martin Training and Simulation, headquartered in Orlando, Florida, USA, has delivered F-35 Full Mission Simulators to the Israeli, Italian, Japanese and Norwegian Air Forces. The company will also provide courseware, curriculum support and Aircraft Systems Maintenance Trainers (ASMT). LM also has a Global Mobile Training Team (GMMT) for training instructors in countries where the F-35 is operated.

Pinnacle - www.pinnaclesolutionsinc.com

US Air Force. Pinnacle Solutions Inc of Huntsville, Alabama, has a \$9.59M multi-year contract for the the USAF KC-10 Cargo Load Trainer (CLT) at Travis Air Force Base, California.



Rockwell Collins - www.rockwellcollins.com

France. Rockwell Collins visual systems unit in Salt Lake City, Utah, is to supply two Spectraview wide angle front projection display systems for simulators for the Pilatus PC-21 turboprop for the French Air Force.

MILITARY ROTARY-WING SYSTEMS - *Helicopters and tilt wing / tilt engine designs capable of hovering*

CAE - www.cae.com

Poland. CAE, headquartered in Montreal, Canada, is to supply a 3000 Series full-flight simulator for the SW-4 helicopter to the Polish Air Force 41st Air Base School in Deblin. The PZL-Swidnik SW-4 is a multi-purpose light helicopter, used by the Polish Air Force for advanced pilot training and other missions. The simulator has electric motion, a vibration platform, Medallion-6000 visual, computer-generated forces (CGF), a dome with 210x80 direct projection, and the Open Geospatial Consortium Common Database (OGC CDB). CAE is also developing systems for the Polish Air Force C295 and M-346 aircraft.



DiSTI - www.dist.com

US Army. Distributed Simulation Technology, Inc (DiSTI) Corporation of Orlando, Florida, USA, is to provide Interim Contractor Support (ICS) for the UH-72A Lakota Virtual Maintenance Trainer (VMT) at the Western Army National Guard Aviation Training Site (WAATS) at Silverbell Army Heliport, Marana, Arizona. This includes 12 interactive work stations, DiSTI's VE Studio™ software, an instructor station, hangar-based work station, hardware-based trainer, and hand-held mobile training devices.

Indra - www.indracompany.com

Spain. Indra Sistemas, S.A., headquartered in Madrid, has delivered an EC135 FFS to the Army Helicopter Simulation Center (CESIFAMET) at Coronel Maté Army Base at Colmenar Viejo near Madrid.

Link USA - www.link.com

USA. L-3 Link Simulation and Training, headquartered in Arlington, Texas, USA, is to deliver a fourth CH-47F Chinook Operational Flight Trainer (OFT) to the U.S. Army Flight School XXI (FSXXI) program. The contract also includes the upgrade of the other three CH-47F OFTs. The Flight School XXI programme trains 1,200 new pilots per year and converts 1,600 existing Army aviators to new aircraft types.

Reiser - www.reiser-st.org

Austria. Reiser Simulation and Training GmbH of Berg-Höhenrain, SW of Munich, Germany, is to supply a desktop trainer for the Airbus Helionix avionics suite to the Air Rescue organisation of the Österreichische Automobil, Motorrad und Touring Club (OEAMTC - www.oeamtc.at). OEAMTC has 16 bases for rescue helicopters. It also has a maintenance company, HeliAir; and a training division, the Air Rescue College at Weiner Neustadt, south of Vienna. Germany. Reiser has supplied a Level D full flight simulator for the Airbus H125 to 328 Support Services of Oberpfaffenhofen, WSW of Munich (www.328.eu).

NATO. Reiser is to produce a Maintenance Training Rig for the NH90 NTH Sea Lion helicopter under a contract from the NATO Helicopter Management Agency (NAHEMA). This will replicate over 1000 maintenance tasks, such as repair, removal and installation, and a cockpit model will train on avionics, electrical and flight control systems.

Royal Air Force - www.raf.mod.uk

UK. The UK Royal Air Force is to invest a further £90M in the CAE-built Medium Support Helicopter Aircrew Training Facility (MSHATF) at RAF Benson, south of Oxford. The contract is between UK Defence, Equipment and Support, the MOD procurement organization, and CAE Aircrew Training Services. It will sustain about 70 jobs and extend CAE's contract by eight years. The facility has six CAE-built simulators, three Chinook, two Merlin and one Puma. There are also four computer-based ground school classrooms and a Tactical Control Centre (TCC) for mission training with network links between training devices both on- and off-base.

Serco - www.serco.com

UK. Serco Group plc, headquartered in Hook, Hampshire, UK, has an 8 year £UKM contract extension from CAE for provision of instructors at CAE's Medium Support Helicopter Aircrew Training Facility (MSHATF) at RAF Benson, south of Oxford. There is also an option to extend the contract to 2037. It will include instructors for CAE-built simulators for the Chinook, Merlin and Puma helicopters, and for operating the Tactical Control Centre (TCC) that coordinates exercises through network links both on- and off-base.

UNMANNED AIR SYSTEMS (UAS)

including Unmanned Air Vehicles (UAVs) & Remotely Piloted Aircraft (RPA)

Link USA - www.link.com

US Air Force. L-3 Link Simulation and Training, headquartered in Arlington, Texas, USA, is to produce simulators for the operators of MQ-1 and MQ-9 Predator UAVs. This will include including networking with other platforms. The contract is from the USAF Life Cycle Management Center at Wright-Patterson AFB. In 2017 there are 29 MQ simulators and there will be 67 by the end of 2018, an increase of 38. This is part of the Predator Mission Aircrew Training System (PMATS).

MULTI-ROLE SYSTEMS

Simulators and training systems for more than one of the land, sea and air environments, including Cyber

Anticip - www.anticipsimulation.com

Italy. Anticip Simulation of Argenteuil, Paris, France, has opened a demonstration centre in Saronno, Italy. Customers can now visit the site for demonstrations, training, testing and reviews. The facility has three display stations with a flat screen, curved screen and spherical screen. The centre was developed together with the Barco company of the Netherlands (www.barco.com), whose products are used in the facility.

BARCO - www.barco.com

Video Wall System. Barco NV, headquartered in Courtrai (Kortrijk), west of Brussels, Belgium, has launched their UniSee LCD video wall system. This has patented NoGap technology, giving a view with minimal gaps between screens, systems for easy installation and servicing, automatic colour and brightness calibration across the screens.

CAE - www.cae.com

Cyber. CAE, headquartered in Montreal, Canada, has made a \$180,000 grant for cybersecurity defense research to Salve Regina University of Newport, Rhode Island, USA. This is to assess the cyber risks to the military synthetic training environment, identify cyber effects for more realistic training, and evaluate future training needs.

Modest Treee - <http://modesttree.ca>

Canada. Modest Tree Media Inc of Halifax, Nova Scotia, on the east coast of Canada, is to provide its Modest3D Editor platform to training schools of the Canadian Department of National Defence (DND). This will be used for interactive training in a 3D environment.

NSC - www.nsc.co.uk

NATO. Newman and Spurr Consultancy (NSC) of Camberley, UK, is working with the NATO Centre for Maritime Research and Experimentation in a project on multi-nation shared training. It has also contributed to a European Defence Agency study on how modelling and simulation can benefit from the rise in the volume and complexity of information that is now available. This looked at so-called "Big Data", difficult to process using traditional computing, and how it could bring advantages to simulation.

LAND SYSTEMS - *Simulators and training systems for the land environment*

ASTi - www.asti-usa.com

US Army. Advanced Simulation Technology inc. (ASTi) of Herndon, east of Washington Dulles Airport, USA, has an Enterprise License Agreement (ELA) from the U.S. Army Program Executive Office for Simulation, Training and Instrumentation (PEO STRI). This is for networked voice communications, radio-over-IP (RoIP) products and support for Army training, with several thousand users in the USA and overseas. ELA services include on-site training, help desk, software maintenance, and risk management.

Bagira - www.bagirasys.com

Netherlands. Bagira Systems, headquartered in Holon, Israel, has a contract with the Netherlands Army for a Joint Fire Training Exercise and System (JFTES) and on-site support for 10 years. This will use Bagira's Joint-Fire BattleSpace Simulator (JOBSS), used by Israeli Defence Forces since 2016. The company will provide a variety of configurations from individual training up to Joint Fires Support Team tactical training using a dome display.

Israel. Bagira has delivered three more Israeli-Engagement Skills Trainers (I-EST) to the Israel Defense Forces (IDF) for weapons including M4, M16, Tavor, Micro-Tavor, LAW A9/A6, and Negev. The new systems are at the Artillery Corp Training Base, the Advanced Armor Training Base, and the Border Security and Patrol Training School. The system is based on Cubic EST 2000 and Bagira leads the project in Israel.



BISim US - www.bisimulations.com

US Army. Bohemia Interactive Simulations USA (BISim US), headquartered in Orlando, Florida, has a five-year contract for Virtual Battlespace 3 (VBS3) and related services to the Army's Games for Training (GFT) programme. GFT began in 2008, and BISim has been a subcontractor since 2013. In addition to VBS3, BISim will provide support for radio and communications, providing online training courses and develop VBS3 capabilities. The contract is currently valued at US\$4.9M, and could be worth as much as \$12.8M at the end of the five-year term.

CACI - www.caci.com

US Army. CACI International, headquartered at Arlington, Virginia (south side of Washington DC), USA, is to develop simulation systems for the Night Vision and Electronic Sensors Directorate (NVESD) at Fort Belvoir. The contract is for three years and has a maximum value of US\$173M. It is part of the Rapid Response Third Generation (R2-3G) system for Army Communications-Electronics Command (CECOM). The project will evaluate the effectiveness of sensors in reconnaissance, surveillance and target acquisition.

Cubic Global Defense - www.cubic.com

Asia Pacific Region. Cubic Global Defense, headquartered in San Diego, California, USA, is to deliver three mobile combat training centres to a customer in the Asia-Pacific region under a US\$25M contract. Cubic will supply laser-based simulation equipment for soldiers, vehicles and various weapons. Equipment will be produced in San Diego for deliveries in 2018 and 2019.

US Marine Corps. Cubic has a US\$11.5M contract from the US Marine Corps System Command (MARCOSYSCOM) for Marine Air Ground Task Force (MAGTF) Training Systems Support (MTSS). The MTSS program provides training for individuals, units, commanders and their staff. Cubic will provide training in war operations, command

post exercises, battle staff training, mission rehearsal, C4 training (Command, Control, Communication & Computers), and combat simulation.

IDT - www.idt-engineering.com

Canada. International Development of Technology (IDT) of Breda, southeast of Rotterdam, Netherlands, has designed a vehicle simulator for the Centre for Intelligent Design for Adaptation, Participation and Technology (iDAPT) of the University of Toronto. The simulator is called DriverLab and has 6-axis motion and a 12 channel 360 degree visual with LED-based projectors by eyevis of Reutlingen, S of Stuttgart (www.eyevis.com). Image generation is by Okal Synthetic Environment (www.oktal-se.fr) south of Toulouse. Special effects are provided for oncoming headlights (GlareSim) and rain (RainSim). A turntable with 360 degree rotation is mounted on top of the motion platform. The basic vehicle model is an Audi A3, and the simulation assesses the capabilities of car drivers with incapacitations or ageing, and aids the development of vehicle modifications to help such drivers. Monitoring of the subject is by video, eye-tracking and other body sensors.

L-3 MAPPS - www.L-3com.com/MAPPS

USA - Nuclear Power Simulator. L-3 Communications Marine Automation and Power Plant Simulation (MAPPS) Inc, headquartered in Montreal, Canada, is to update the simulator at DTE Energy's Fermi 2 nuclear power plant in Newport, Michigan. The General Electric Boiling Water Reactor (BWR) power plant produces 1.1 million kilowatts of electricity, some 30% of Michigan's nuclear generation capacity. The simulator was originally provided by Swiss company ABB in 2006. L3 MAPPS will also update the simulator's process models and provide an I/O system and power supplies that will allow the Fermi 2 plant simulation to communicate with a replica of the ABB DCS hardware and software for the 120-kilovolt switchyard. This will allow operations personnel to become familiar with the changed configuration and operating procedures.

Saab Defence - www.saabgroup.com

Estonia. Saab Security and Defence Solutions, headquartered in Järfälla, Sweden, is to supply a company infantry kit and eight BT46 CV9035 vehicle simulators to the Estonian Armed Forces for delivery in 2018. These will be used for vehicle crew and gunnery training at the Estonian Infantry and Armour School. Saab's new Manpack 300 system will be used for control and monitoring of exercises for up to 300 players. The contract also includes five years of support including workshop and container storage, maintenance and repair courses, maintenance at the Saab factory, a spare parts package and a yearly support meeting.

UK. Saab has a three year contract extension for Tactical Engagement Simulation (TES) for the British Army, with a value of 210 million Swedish Kroner. The contract is for maintaining and updating Saab's Deployable TES (DTES) system that is used by the British Army in the UK and in exercises abroad.



US Army - www.army.mil

USA. The US Army is developing an augmented reality Synthetic Training Environment (STE) utilizing One World Terrain (OWT). The OWT research project will create 3-D terrain based on geospatial data. A recent forecast from Frost & Sullivan predicted that by 2020 nearly all training exercises will include some sort of mixed reality. The STE/OWT project is being developed by the Army Research Laboratory (Orlando), the University of Southern California Institute for Creative Technologies, the Army Combined Arms Center, and the Army Program Executive Office for Simulation, Training and Instrumentation (PEO STRI).

MARITIME SYSTEMS - *Simulators and training systems for the ship, maritime and port environments*

Alion - www.alionscience.com

US Navy. Alion Science and Technology of McLean, Virginia, USA, has a \$24.6M contract for training services from the U.S. Navy Space and Naval Warfare Systems Center Pacific in San Diego, California (SSC Pacific). This is for shipboard and shore-based systems, including for submarines and C4ISR systems (Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance). If all options are exercised, the contract will total \$41.4M.

Battlespace Simulations - www.bssim.com

US Navy. Battlespace Simulations (BSI) of San Antonio, Texas, has supplied another Combined Arms Virtual Environment (CAVE) training dome system to the US Navy. This is at the Expeditionary Warfare Training Group Pacific in San Diego, California. Other systems are at the Joint Close Air Support branch at the Naval Aviation Warfighting Development Center at NAS Fallon, Nevada, and the Joint Expeditionary Base-Little Creek in Virginia

Beach, Virginia. All three CAVE systems replaced previous Multi-Purpose Support Arms Training systems, re-using the domes. The new system has 240 degree projection, MetaVR terrain and model libraries (www.metavr.com), the Modern Air Combat Environment (MACE) from Battlespace Simulations Inc (BSI), and the BSI Viper DIS radio.

Cubic Defense Australia - www.cubic.com

Australia. Cubic Defense Australia, headquartered in Townsville, is to be primary contractor for simulator systems for the Royal Australian Navy (RAN). This will be for the Navy Synthetic Warfighting Centre (NSWC) at HMAS Watson Naval Base, Sydney Harbour. Cubic will design and deliver synthetic training and networks for naval vessels.

Cubic Global Defense - www.cubic.com

US Navy. Cubic Global Defense, headquartered in San Diego, California, USA, has a US\$22M Indefinite Delivery/Indefinite Quantity (IDIQ) contract for the Immersive Virtual Shipboard Environment (IVSE) for the U.S. Navy Littoral Combat Ship (LCS). This is intended to replicate on-the-job training, using a desktop or tablet, with a 3-D replica of the ship to qualify a student for their watch station.

Simlat - www.simlat.com

New Maritime Simulation. Simlat Ltd of Tel Aviv, Israel, and Grand Forks, USA, has developed a new maritime simulation. This includes an enhanced dynamic wave model, sea state, weather conditions, plus the characteristics of simulated vessels such as length, weight, buoyancy and center of mass. It's visuals support applications including Search & Rescue, Security, Marine Life Exploration, Immigration and Piracy surveillance.

Thales Canada - www.thalesgroup.com/en/countries/americas/canada

Canada. Thales Canada Inc, headquartered in Ottawa, is to provide in-service support, refit, repair, maintenance and training to the Arctic and Offshore Patrol Ships (AOPS) and the Joint Support Ships (JSS) of the Canadian Navy. The contract is for eight years for up to 800M Canadian Dollars (CAD) with the option to extend for a total 35 years up to \$5.2 billion CAD. The contract is the largest in-service support contract for Canadian Forces.

VSTEP - www.vstep.nl

UAE. VSTEP B.V. of Rotterdam, Netherlands, has a contract from CAE for a suite of ship bridge simulators for the UAE Naval Training Centre at Taweelah, Abu Dhabi. This is part of a US\$114M contract under which CAE is to support ship and mission training. The facility will have a suite of training systems and maritime aircraft sensor stations, including a full-mission bridge simulator to the VSTEP NAUTIS 3 design.



CORPORATE AND INTERNATIONAL NEWS

International Agreements, Corporate Acquisitions, Partnerships and Changes

Clarion - www.clarionevents.com

UK & USA. Clarion Events Ltd, headquartered in Fulham Green, West London, UK, has acquired Left Field Media LLC of South Norwalk, CT., USA. www.leftfieldmedia.com

Oliver Wyman - www.oliverwyman.com

USA & UK. Oliver Wyman Inc, headquartered in New York, USA, has acquired UK-based AVISA Aviation Safety Systems (www.avisaviation.com). This will allow CAVOK, Wyman's services division, to expand into Europe. AVISA is involved in support for management and training for airlines and aircraft engineering firms. AVISA's team is to be integrated into CAVOK, and the European headquarters of CAVOK is to be in the London Gatwick area.

OSM Aviation & SAA

Norway. OSM Aviation (<https://osmaviation.com>) of Arendal, Norway, is to acquire a 51% share in Scandinavian Aviation Academy (www.bfsaa.se/en). This will result in the opening of a new training centre, OSM Aviation Academy, at Arendal Airport on the Norwegian coast between Kristiansand and Oslo. SAA currently operates pilot schools at Stockholm Västerås International Airport in Sweden and in San Diego, USA. The new Academy is due to open in Q4 2018 and will build to a capacity of 100 students.

Peak Pacific - www.peakpacificgroup.com

China & Belgium. Peak Pacific Limited of Hong Kong, China, has acquired a majority interest in the Electronic Training Objects (eTo) system from CavokSoft of Ronse, west of Brussels, Belgium (www.cavoksoft.com). eTo is a training software system for simulator courses and sessions.

United Technologies - www.utc.com & **Rockwell Collins** - www.rockwellcollins.com

USA. United Technologies Corporation, headquartered in Farmington, Connecticut, USA, is to acquire the Rockwell Collins company for US\$140 per share. The transaction is to close by Q3/2018, subject to approval by shareowners and regulatory approvals. After completion, Rockwell Collins and UTC Aerospace Systems will create a new business unit named Collins Aerospace Systems. Current Rockwell Collins president and CEO, Kelly Ortberg, will be CEO, and UTC president, David Gitlin, will be president and chief operating officer. United Technologies owns a number of companies including Pratt and Whitney engines.

SIMULATION AND TRAINING SYSTEMS

New or updated systems that can be applied generally to simulators and training devices (less systems specific to one of the Land, Sea or Aviation areas).

BISim - www.bisimulations.com

Bohemia Interactive Simulations (BISim), headquartered in Prague, Czech Republic, has released version 17.3 of their Virtual Battlespace Image Generator (VBS IG). Users can build databases with standard geographic information systems software, or use existing databases built with many commercially available tools. New features include recording from each view-port for After Action Review (AAR). The frame rate of several IG channels is synchronised so that all channels render for the screen at the same time. Users can pause the scene and effects and there is correlation between host and client. The ease of terrain modification and synchronization of modifications is also improved.

Sundog Software - <http://sundog-soft.com/sds>

Sundog Software of Seattle, USA, has released version 5 of its SilverLining Sky, 3D Cloud, and Weather SDK for simulation and game developers. This offers a new representation of storm clouds for more immersive flight training in dangerous weather conditions. It includes a new library of hand-modeled cumulonimbus thunderheads and towering cumulus clouds, derived from photographs taken of real storm clouds in various stages of development. Version 5 also includes a cloud editor that allows customers to modify or add their own cloud models. SilverLining is compatible with round-Earth simulation systems and includes sample integration code for popular frameworks such as OpenSceneGraph.



Sections	Words	%	Aviation Sections	Words	%	Air	Words	%
Editorial & Events	964	11.0	Civil Fixed Wing	3455	39.3	Civ total	3922	44.7
Aviation Systems	5269	60.0	Civil Rotary Wing	467	5.3	Mil total	1249	14.2
Space Systems	0	0.0	Mil Fixed Wing	637	7.3	RW total	1079	12.3
Multi role Systems	312	3.6	Mil Rotary Wing	612	7.0			
Land Systems	1044	11.9	UAVs	98	1.1			
Medical Systems	0	0.0	ATC & Air Control	0	0.0			
Maritime Systems	531	6.0	Total Air Sections	5269	60.0			
Corporate changes	328	3.7						
Simulation Systems	239	2.7						
Word count	96	1.1						
Total	8783	100.0						